

STATE OF IDAHO DEPARTMENT OF
FISH AND GAME Jerry Conley,
Director

IDAHO SALMON AND STEELHEAD
STATUS REPORT FOR 1978

by
David W. Ortmann
July, 1980

TABLE OF CONTENTS

	<u>Page</u>
SPRING CHINOOK	1
Artificial Propagation	1
Clearwater River	1
Salmon River	1
SUMMER CHINOOK	7
Artificial Propagation	7
SUMMER STEELHEAD (1977-1978 RUN)	9
Artificial Propagation	9
Clearwater River	9
Salmon River	9
Snake River	9
FALL CHINOOK	14
CODED WIRE TAGGING	14
LITERATURE CITED	14
APPENDIX	15

LIST OF TABLES

Table 1. Numbers of spring chinook redds counted in Salmon River drainage trend areas, 1967-1978	4
Table 2. Spring chinook stocking summary, Clearwater River drainage, 1978	5
Table 3. Spring chinook stocking summary, Salmon River drainage, 1978	6
Table 4. Steel head stocking summary, Clearwater River drainage, 1978	11
Table 5. Steel head stocking summary, Salmon River drainage, 1978	12
Table 6. Summary of coded wire tagged fish released in Idaho, 1976-1978	13

LIST OF FIGURES

	<u>Page</u>
Figure 1. Columbia River spring chinook salmon upriver run size, Ice Harbor Dam counts, and Idaho redd count trend	2
Figure 2. Relationship between Columbia River flow and efficiency of upstream passage of spring chinook . . .	3
Figure 3. Columbia River summer chinook salmon upriver run size and Ice Harbor Dam counts	8
Figure 4. Columbia River summer steelhead run size and Ice Harbor Dam counts	10

APPENDIX

Table 1. Estimated sport catch of chinook salmon and steelhead, Idaho, 1954 to 1978	15
Table 2 . Anadromous fish stocking in Idaho, 1960-1978	16

SPRING CHINOOK

The 1978 upriver spring chinook run size of 129,000 fish compared poorly to runs of the 1960s and early 1970s (Fig. 1). The Columbia River Fisheries Compact did not provide a commercial gill net season below Bonneville Dam. Sport fishing on the Columbia was likewise halted during April and May. The Zone 6 (treaty Indian) fishery that operates between Bonneville and McNary dams took an estimated 2,300 early-running upriver fish during March (Oregon Department of Fish and Wildlife and Washington Department of Fisheries, 1979).

The four Columbia River treaty tribes also reported taking 3,189 spring chinook for ceremonial use. This should represent less than the actual catch since only 33 out of 51 ceremonial fishing ventures were reported (Robinson 1978).

The Corps of Engineers (1979) reported 41,006 spring chinook crossed Lower Granite Dam on the Snake River, which is the last dam encountered by the run prior to reaching Idaho.

Although flow conditions on the Columbia River were only moderately favorable for adult passage, 58% of the fish that crossed The Dalles Dam subsequently reached Ice Harbor Dam (Fig. 2). This illustrates that the Snake River segment of the overall Columbia River run was strong in 1978.

Idaho established a salmon sport fishing season on main-stem and selected major tributary waters that was open from June 10 to July 31. Under limits of 1 daily, 2 possession and 6 for the season, an estimated 7,000 salmon were caught (Appendix, Table 1).

The count of redds in the Salmon River drainage was the highest since 1967 (Table 1).

Artificial Propagation

Clearwater River

Over 5 1/2 million spring chinook were stocked into the Clearwater River system in 1978. This included 1,456,400 smolts, 200,000 fingerlings, 2,638,000 fry, and 1,250,000 eyed eggs (Table 2).

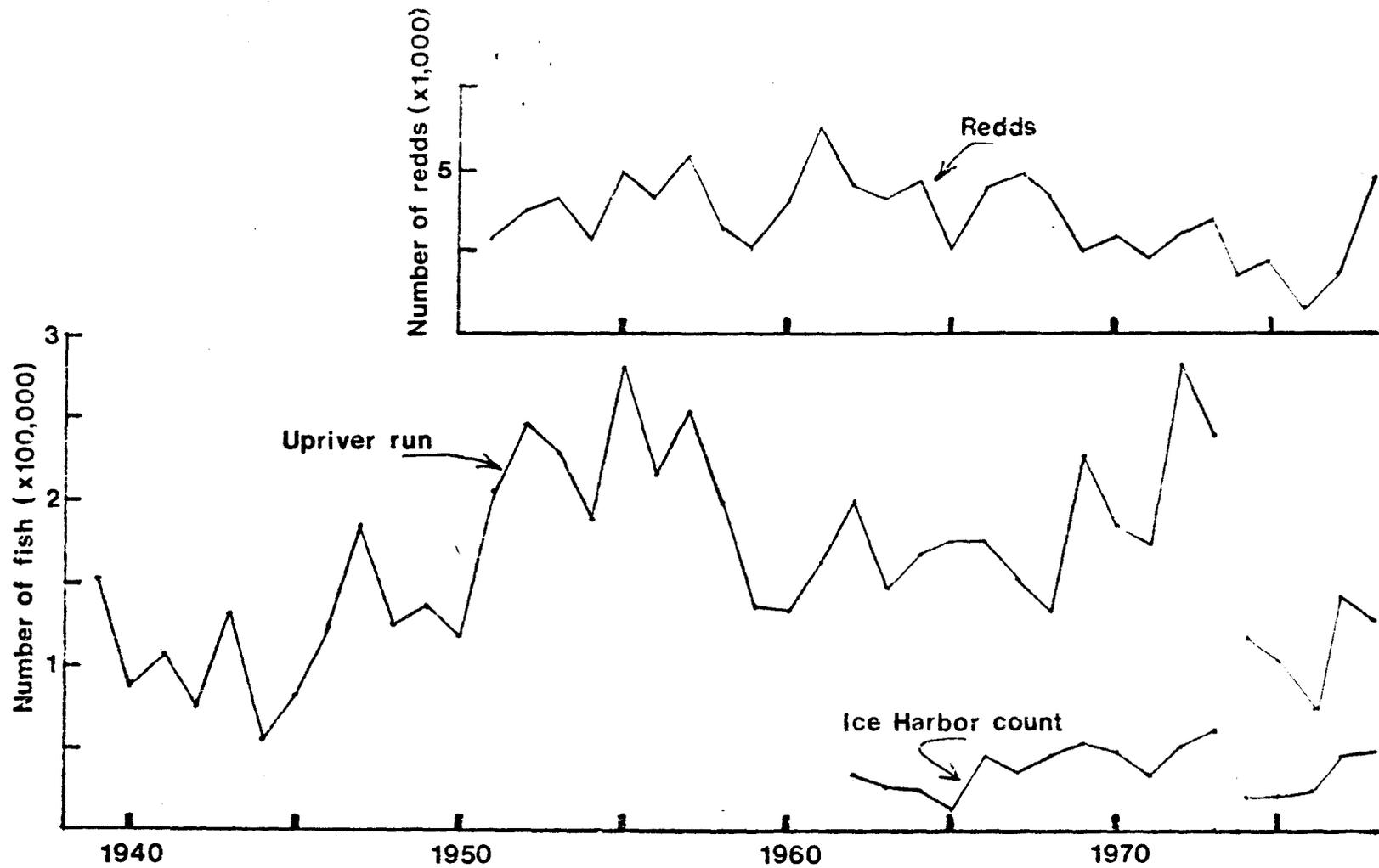
The return of salmon to Kooskia National Fish Hatchery totalled 2,022 adults and 23 jacks, which was the best adult return to date.

Salmon River

Nearly 4.8 million spring chinook were stocked into the Salmon River system in 1978. This included 3,382,600 smolts, 125,900 fingerlings, and 1,285,700 fry (Table 3).

The return of spring chinook to Rapid River Hatchery totalled 5,735 adults and 34 jacks (Parrish and Wimer 1978). Rapid River Hatchery also provided an additional 1,300 chinook to anglers in the Little Salmon River and an unknown quantity to treaty fishermen in Rapid River.

At Hayden Creek Research Station the 1974 release of 350,000 smolts yielded a



SPRING CHINOOK

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

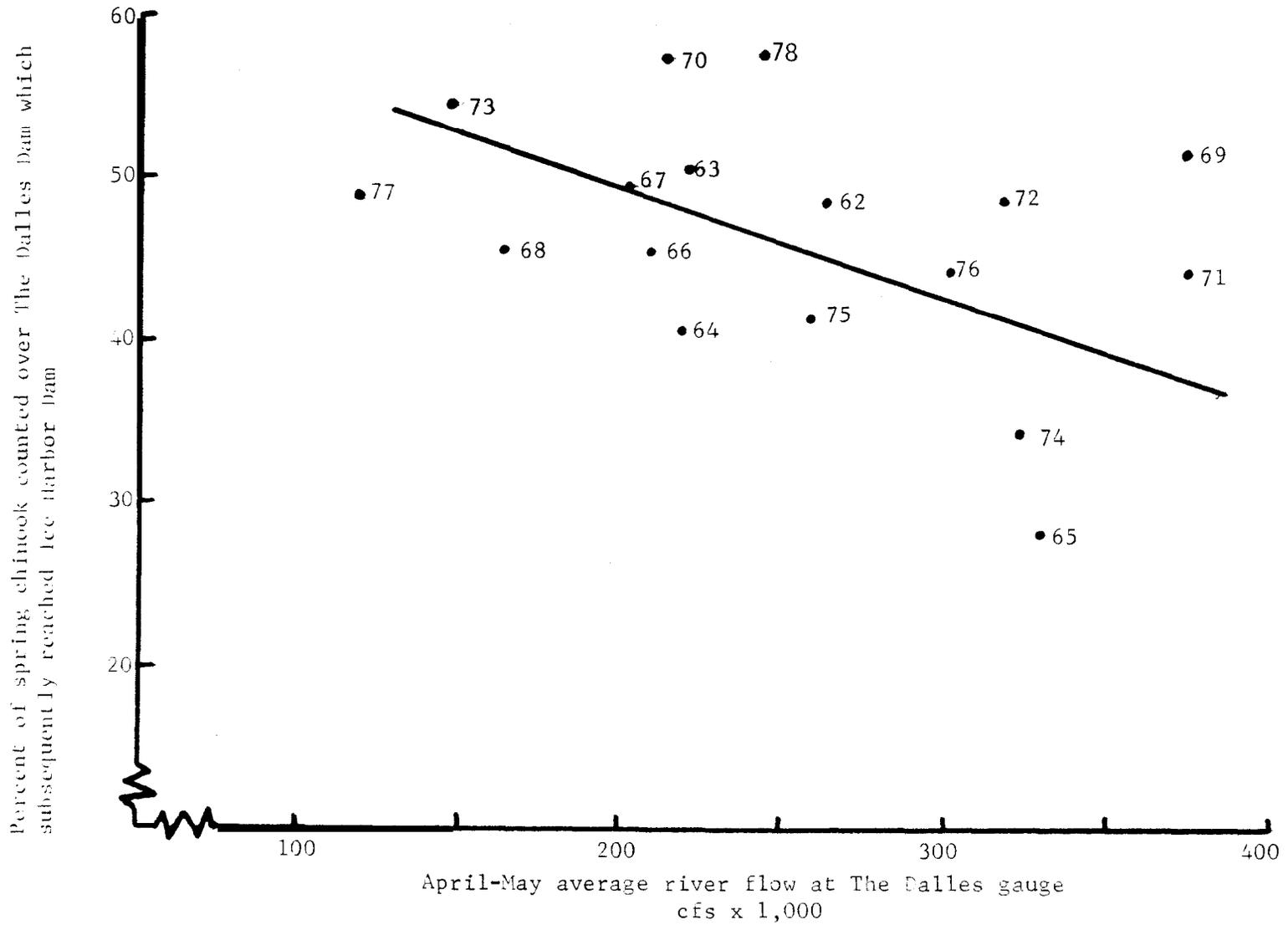


Figure 2. Relationship between Columbia River flow and efficiency of upstream passage of spring chinook

Table 1. Numbers of spring chinook redds counted in Salmon River drainage trend areas, 1967-1978.

Stream	Year											
	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967
Alturas Lake Creek	303	85	16	60	42	153	143	50	68	41	110	74
Bear Valley Creek	184	129	76	215	130	387	221	108	334	356	574	445
Elk Creek	208	86	61	169	108	369	212	173	302	349	483	420
Herd Creek	26	98	48	11	13	47	28	49	47	43	57	32
Lemhi River	796	474	241	366	215	485	507	407	371	360	589	804
Marsh Cr. Drainage	270	98	48	201	210	518	312	281	456	235	466	650
North Fork Salmon River	29	31	6	14	18	55	31	53	95	155	145	66
Sulphur Creek	64	5	14	50	30	78	71	58	93	138	142	134
Upper East Fork	841	168	75	348	346	665	448	370	468	174	622	614
Upper Salmon River	1,707	698	378	509	338	414	748	619	432	313	637	943
Upper Valley Creek	141	18	n/c	189	127	125	182	89	202	350	330	253
Upper Yankee Fork	33	6	40	60	54	104	115	57	67	53	234	250
Upper Big Creek	95	9	22	77	28	96	60	32	68	90	90	67
Totals	4,697	1,905	1,025	2,269	1,659	3,496	3,078	2,346	3,003	2,657	4,479	4,752

Table 2. Spring chinook stocking summary, Clearwater River drainage, 1978.

Stocking area	Number	Size	Rearing facility
Red River	200,000	fingerling	Red River pond
Red River	33,600	smolts	Mackay
Clear Creek	1,307,629	smolts	Kooskia NFH
Lochsa River	115,200	smolts	Mackay
Lochsa River	268,000	fry	Mullan
Brushy Fork	270,000	fry	Mullan
Crooked Fork	270,000	fry	Mullan
Newsome Creek	76,500	fry	Mullan
Squaw Creek	191,000	fry	Mullan
Ten Mile Creek	103,500	fry	Mullan
Crooked River	1,250,000	eyed eggs	Rapid River
Selway River and tributaries	1,459,000	fry	Indian Creek channel
TOTAL	5,544,429		

Table 3. Spring chinook stocking summary, Salmon River drainage, 1978.

Stocking area	Number	Size	Rearing facility
Hayden Creek	16,500	smolts	Hayden Creek Research Station
Rapid River	2,380,715	smolts	Rapid River
Salmon River	985,400	smolts	Mackay
Salmon River	50,300	fingerling	Decker Pond
Hayden Creek	75,580	fingerling	Hayden Creek Research Station
Indian Creek	50,400	fry	Hayden Creek Research Station
Hayden Creek	32,960	fry	Hayden Creek Research Station
Rapid River	151,455	fry	Rapid River
Lemhi River	265,200	fry	Rapid River
Yankee Fork	75,036	fry	Mackay
Valley Creek	102,934	fry	Mackay
Salmon River	<u>607,750</u>	fry	Mackay
TOTAL	4,794,230		

return of 235 adults, for a smolt/adult return rate of 0.067% (Anderson 1979). Project personnel recommended that the station convert from rearing steelhead and chinook to rearing only chinook.

Spring chinook rearing continued for the second year at Mackay Hatchery. Nearly 1 million smolts and 800,000 fry were stocked (Table 3). A high susceptibility of chinook to sunburn at Mackay was a continuing problem.

A reduced number of spring chinook were reared at Decker Pond to test the effectiveness of attempts to control Diplostoma sp. The presence, once again, of heavy infestation without promise of control forces abandonment of the rearing program.

SUMMER CHINOOK

The 1978 count of summer chinook over Bonneville Dam at 44,323, while slightly improved over the 1977 run, was a continuation of the very poor runs occurring since 1973. The count of 11,755 over Lower Granite was also a slight improvement, but still very poor (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 1,052 redds in the summer chinook spawning area trend routes in the Salmon River drainage. This was the highest count since 1973, but still far below requirements to adequately seed the production areas.

Artificial Propagation

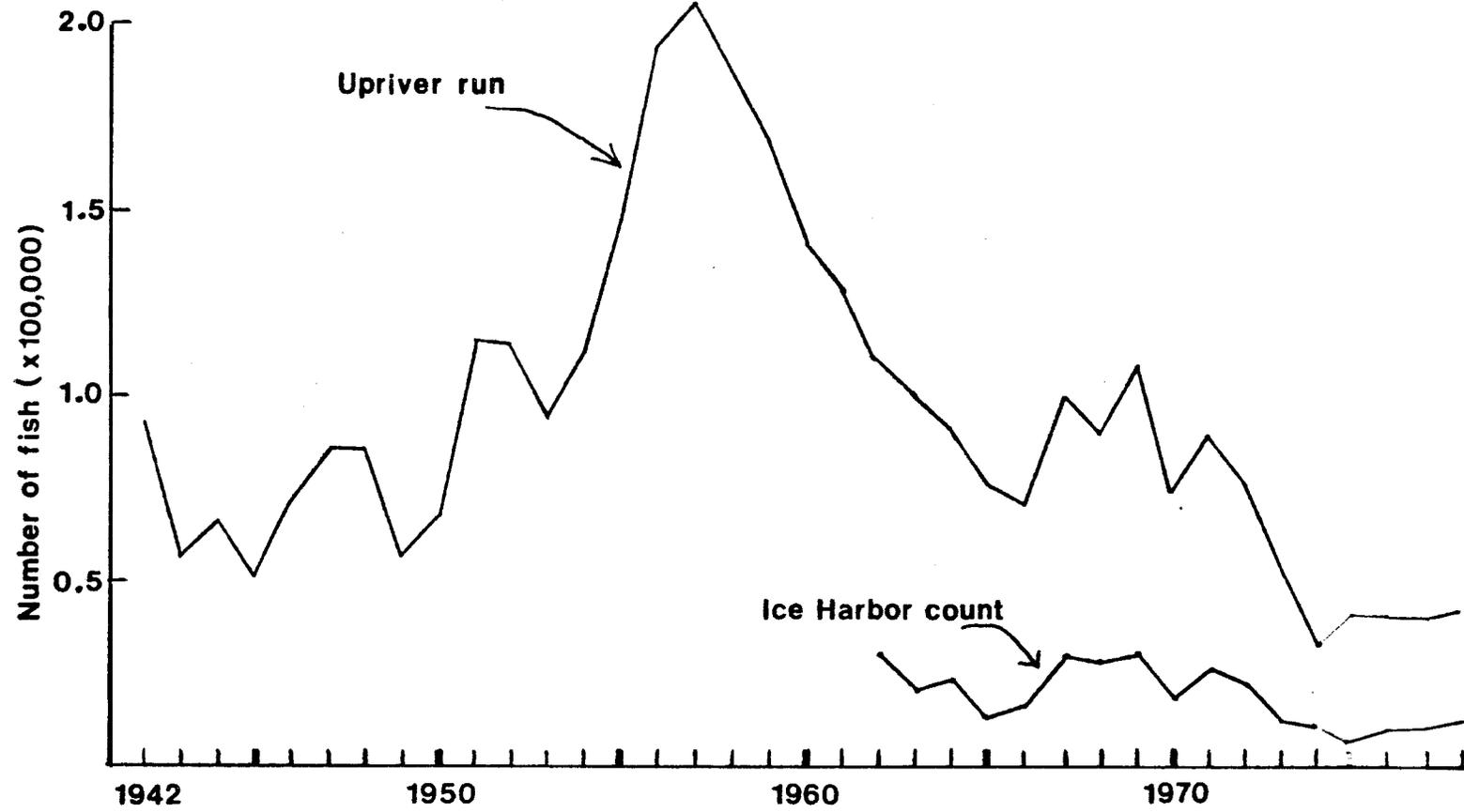
The Pahsimeroi Rearing Pond stocked 218,200 1977 brood year summer chinook in May into the Pahsimeroi River. These fish averaged 41 per pound. This program, which began in 1969, is being discontinued.

With the discontinuance of summer chinook rearing for the Pahsimeroi River, Idaho's sole summer chinook propagation effort will be at McCall Hatchery. The McCall Hatchery program is preliminary to construction of a new hatchery as part of the Lower Snake River Fish and Wildlife Compensation Plan. The year 1978 was the fifth effort to obtain brood stock and rear fish to smolt size for release into the South Fork of the Salmon River.

In July, National Marine Fisheries Service and IDFG personnel trapped 595 brood fish at Little Goose Dam. These fish were transported to Rapid River Hatchery for holding and spawning. About 373,500 eggs were taken and transferred to McCall Hatchery.

In April, 79,300 smolts of the 1976 brood year were stocked in the South Fork. This was the third year of stocking for this program.

By late 1978 all fish and eggs had been transferred to Mackay Hatchery as construction of the new McCall Hatchery began.



SUMMER CHINOOK

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

SUMMER STEELHEAD (1977-1978 RUN)

The 1977 run into the Columbia River, at 196,100 fish, was the third highest of the preceding 10-year period (Fig. 4). An estimated 4,400 were landed in the Columbia River sport fishery and 31,400 in the treaty commercial fishery (Oregon Department of Fish and Wildlife and Washington Department of Fisheries, 1979).

The run totalled 57,000 over Lower Granite Dam. The fall 1977 - spring 1978 sport harvest in Idaho was estimated at 23,414 (Ortmann, 1979).

Artificial Propagation

Clearwater River

A run of 12,700 adult steelhead returned to Dworshak National Fish Hatchery. An additional 14,000 fish of DNFH origin were estimated to have been caught by sport anglers in the lower Clearwater River, North Fork Clearwater River, and the Snake River from Lewiston to Asotin (Pettit and Lindland 1979).

In the spring of 1978 Dworshak NFH stocked over 1.5 million smolts into the Clearwater system. DNFH also provided nearly 5 million steelhead fry and eyed eggs for the Clearwater drainage (Table 4).

Salmon River

Over 1.25 million 1977 brood year steelhead smolts were trucked from Idaho Power Company's Niagara Springs Hatchery and released into the Pahsimeroi River in the spring of 1978. 2,803 adult steelhead returned to the Pahsimeroi River weir in 1978. The 1977-78 run is estimated to have contributed 4,200 fish to the upper Salmon River fishery (Reingold 1979).

Research activities at Hayden Creek Research Station included comparing Skamania (Washington) and Dworshak stocks in the raceway and pond rearing program, and sympatric pond rearing of steelhead and chinook. Researchers concluded that Dworshak stock was more suited to that station's rearing regime and that growth of each species when sympatrically reared was less than when reared separately (Anderson 1979).

In all, there were over 4.2 million steelhead stocked in the Salmon River drainage in 1978. This included 1.5 million smolts, 33,000 fingerlings, and 2.7 million fry (Table 5).

Snake River

Thirty-six males and 150 female steelhead were trapped at Hells Canyon Dam from September 13, 1977 to April 27, 1978. Additional males for spawning were obtained from Pahsimeroi Hatchery. 452,250 eggs were taken for rearing at Niagara Springs Hatchery (John Siple, inter-department correspondence).

In the fall of 1977, Niagara Springs Hatchery stocked the Snake River below Hells Canyon Dam with 281,200 fingerling steelhead of the 1977 brood year.

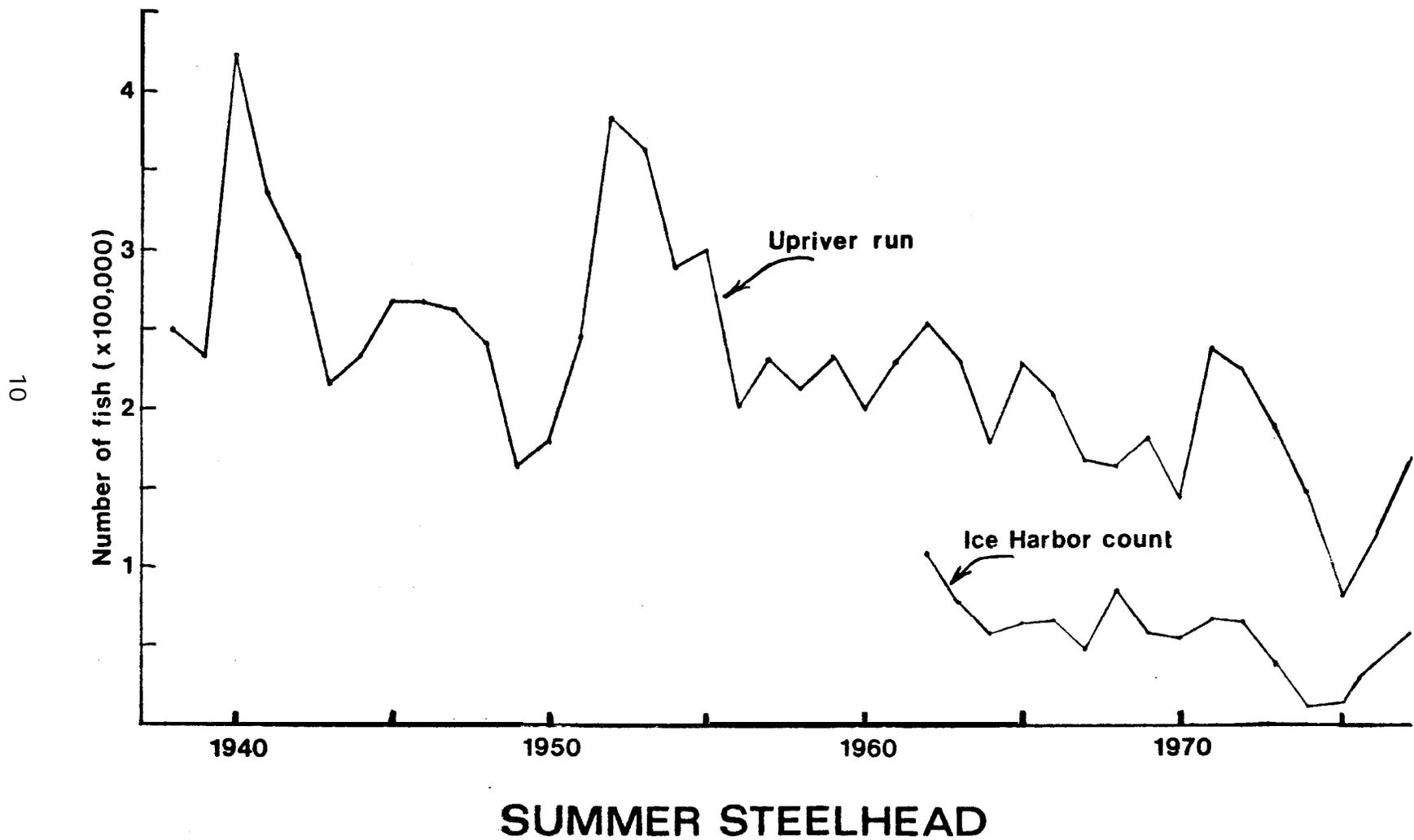


Figure 4. Columbia River summer steelhead upriver run size and Ice Harbor Dam counts.

Table 4. Steel head stocking summary, Clearwater River drainage, 1978.

Stocking area	Number	Size	Rearing facility
Clearwater River	24,417	smol ts	Dworshak NFH
N. Fk. Clearwater	1,197,863	smol ts	"
Clear Creek	320,039	smol ts	"
E. Fk. Potlatch	120,000	fry	"
Lolo Creek	520,000	fry	"
Lochsa River	750,000	fry	"
Pete King Creek	150,000	fry	"
Canyon Creek	150,000	fry	"
Deadman Creek	300,000	fry	"
Squaw Creek	150,000	fry	"
Papoose Creek	200,000	fry	"
S. Fk. Clearwater	500,000	fry	"
Leggett Creek	100,000	fry	"
Newsome Creek	100,000	fry	"
Crooked River	300,000	fry	"
Red River channel	<u>1,618,000</u>	eyed eggs	"
TOTAL	6,500,319		

Table 5. Steel head stocking summary, Salmon River drainage, 1978.

Stocking area	Number	Size	Rearing facility
S. Fk. Salmon	193,450	fry	Hayspur Hatchery
E. Fk. of S. Fk.	193,450	fry	Hayspur Hatchery
Johnson Creek	96,725	fry	Hayspur Hatchery
Iron Creek	38,512	fry	Mackay Hatchery
Morgan Creek	38,512	fry	Mackay Hatchery
E. Fk. of Salmon	192,560	fry	Mackay Hatchery
E. Fk. of Salmon	79,548	fry	Hayden Creek Research Station
Herd Creek	48,140	fry	Mackay Hatchery
Squaw Creek	48,140	fry	Mackay Hatchery
Thompson Creek	48,140	fry	Mackay Hatchery
Slate Creek	50,547	fry	Mackay Hatchery
Warm Springs Creek	50,547	fry	Mackay Hatchery
Yankee Fork	255,142	fry	Mackay Hatchery
West Fk. Yankee Fk.	103,501	fry	Mackay Hatchery
Basin Creek	52,954	fry	Mackay Hatchery
Alturas Lake Creek	93,873	fry	Mackay Hatchery
Pole Creek	24,070	fry	Mackay Hatchery
Pahsimeroi River	1,266,025	smolts	Niagara Springs
Owl Creek	50,000	fry	Hayden Creek Research Station
Clear Creek	25,000	fry	"
Pine Creek	61,000	fry	"
Indian Creek	106,000	fry	"
North Fk. Salmon	55,000	fry	"
Hugher Creek	75,000	fry	"
Sheep Creek	20,000	fry	"
Lemhi Creek	499,750	fry	"
Hayden Creek	236,845	smolts	"
Hayden Creek	32,956	fingerlings	"
Pahsimeroi River	<u>185,000</u>	fry	Pahsimeroi Hatchery
TOTAL	4,220,387		

Table 6. Summary of coded wire tagged fish released in Idaho, 1976-1978.

<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	<u>129</u>	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	
1978	McCall	72	summer chinook
1978	Pahsimeroi	101	Summer chinook
1978	Hayden Creek	99	spring chinook
1978	Kooskia NFH	248	spring chinook
1978	Rapid River	128	spring chinook
1978	Dworshak NFH	134	steel head
1978	Kooskia NFH	60	steel head
1978	Niagara Springs	75	steel head
	Subtotal	917	
	TOTAL	2,521	

FALL CHINOOK

A small run of 1,485 fall chinook was counted over Lower Granite Dam in 1978, compared to 1,924 in 1977.

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.

In 1978 we tagged and released over 900,000 salmon and steelhead. The total of fish tagged since the program began exceeds 2.5 million. Information for tag recoveries from Pacific Ocean and Columbia River fisheries will be reported by the Mark Processing Center of the Pacific Marine Fisheries Commission.

LITERATURE CITED

- Anderson, Donald R. Jr. 1979. Evaluation of "quality" anadromous smolt production techniques. P.L. 88-309 project. Idaho Department of Fish and Game, Mimeo.
- Oregon Department of Fish and Wildlife and Washington Department of Fisheries, 1979. Columbia River Fish Runs and Fisheries, 1957-1978. Vol. 2, No. 4.
- Ortmann, David W. 1979. Annual survey of the salmon and steelhead sport fishery harvest in Idaho. Federal Aid to Fish and Wildlife Restoration. Project F-73-R-1. Idaho Department of Fish and Game, Mimeo.
- Parrish, Evan M. and Lawrence R. Wimer. 1978. Evaluation of spring chinook salmon emigration, harvest and return to Rapid River Hatchery, 1978. Idaho Department of Fish and Game, Mimeo.
- Pettit, Stephen W. and Ronald L. Lindland. 1979. Clearwater River steelhead investigations. Federal Aid to Fish and Wildlife Restoration. Project F-73-R-1. Idaho Department of Fish and Game, Mimeo.
- Reingold, Melvin. 1979. Evaluation of transplanting Snake River steelhead trout to the Pahsimeroi River, 1978. Idaho Department of Fish and Game, Mimeo.
- Robinson, William L. 1978. Columbia River treaty ceremonial fishing - 1978. Oregon Department of Fish and Wildlife, Mimeo.
- U. S. Army Corps of Engineers. 1979. Annual Fish Passage Report, Columbia River Projects, Snake River Projects, 1978. North Pacific Division Corps of Engineers.

APPENDIX

Table 1. Estimated sport catch of chinook salmon and steelhead, Idaho, 1954 to 1978.

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
1978	7,000	11,500

^{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, 1960-1978.

Year	Description	Spring chinook	Summer chinook	Fall chinook	Coho	Steel head
1978	Fish	9,088,659	297,500	--	--	9,383,906
	Eyed eggs	<u>1,250,000</u>	--	--	--	<u>1,618,000</u>
	Total	10,338,659	297,500	--	--	11,001,906
1977	Fish	7,731,369	481,842	--	--	8,190,952
	Eyed eggs	<u>1,037,340</u>	--	--	--	--
	Total	8,768,709	481,842	--	--	8,190,952
1976	Fish	6,389,000	519,952	--	--	4,281,807
	Eyed eggs	<u>1,400,000</u>	--	--	--	--
	Total	7,789,000	519,952	--	--	4,281,807
1975	Fish	6,425,107	114,560	--	--	3,913,651
	Eyed eggs	--	--	--	--	--
	Total	6,425,107	114,560	--	--	3,913,651
1974	Fish	4,912,600	330,000	--	--	6,627,898
	Eyed eggs	<u>2,207,000</u>	--	--	--	--
	Total	7,119,600	330,000	--	--	6,627,898
1973	Fish	4,725,852	217,100	--	--	12,986,027
	Eyed eggs	<u>3,511,544</u>	--	--	--	--
	Total	8,237,396	217,100	--	--	12,986,027
1972	Fish	5,535,446	231,690	--	--	5,529,973
	Eyed eggs	<u>3,047,372</u>	--	--	--	--
	Total	8,582,818	231,690	--	--	5,529,973
1971	Fish	3,626,790	400,318	--	--	3,617,598
	Eyed eggs	<u>2,423,000</u>	--	--	--	<u>256,000</u>
	Total	6,049,790	400,318	--	--	3,873,598
1970	Fish	3,618,647	--	--	--	2,473,555
	Eyed eggs	<u>7,578,917</u>	--	--	--	<u>2,007,500</u>
	Total	11,197,564	--	--	--	4,481,055
1969	Fish	1,316,063	--	497,298	--	2,076,743
	Eyed eggs	<u>1,704,826</u>	--	--	--	<u>700,000</u>
	Total	3,120,889	--	497,298	--	2,776,743
1968	Fish	1,652,788	--	255,536	--	2,508,415
	Eyed eggs	<u>3,680,890</u>	--	--	<u>2,000,000</u>	<u>963,340</u>
	Total	5,333,678	--	255,536	2,000,000	3,471,755
1967	Fish	465,736	--	202,350	--	2,355,263
	Eyed eggs	<u>2,014,460</u>	--	<u>1,548,000</u>	<u>3,066,000</u>	<u>848,455</u>
	Total	2,480,196	--	1,750,350	3,066,000	3,183,718
1966	Fish	583,883	--	2,061,507	--	142,769
	Eyed eggs	<u>2,029,000</u>	--	<u>1,500,000</u>	<u>3,000,000</u>	<u>480,598</u>
	Total	2,612,883	--	3,561,507	3,000,000	623,367

Table 2 (Cont'd). Anadromous fish stocking in Idaho, 1960-1978.

Year	Description	Spring chinook	Summer chinook	Fall chinook	Coho	Steelhead
1965	Fish	--	--	214,720	--	24,291
	Eyed eggs	<u>635,000</u>	<u>--</u>	<u>--</u>	<u>1,180,000</u>	<u>249,682</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>1,000,000</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	--	--