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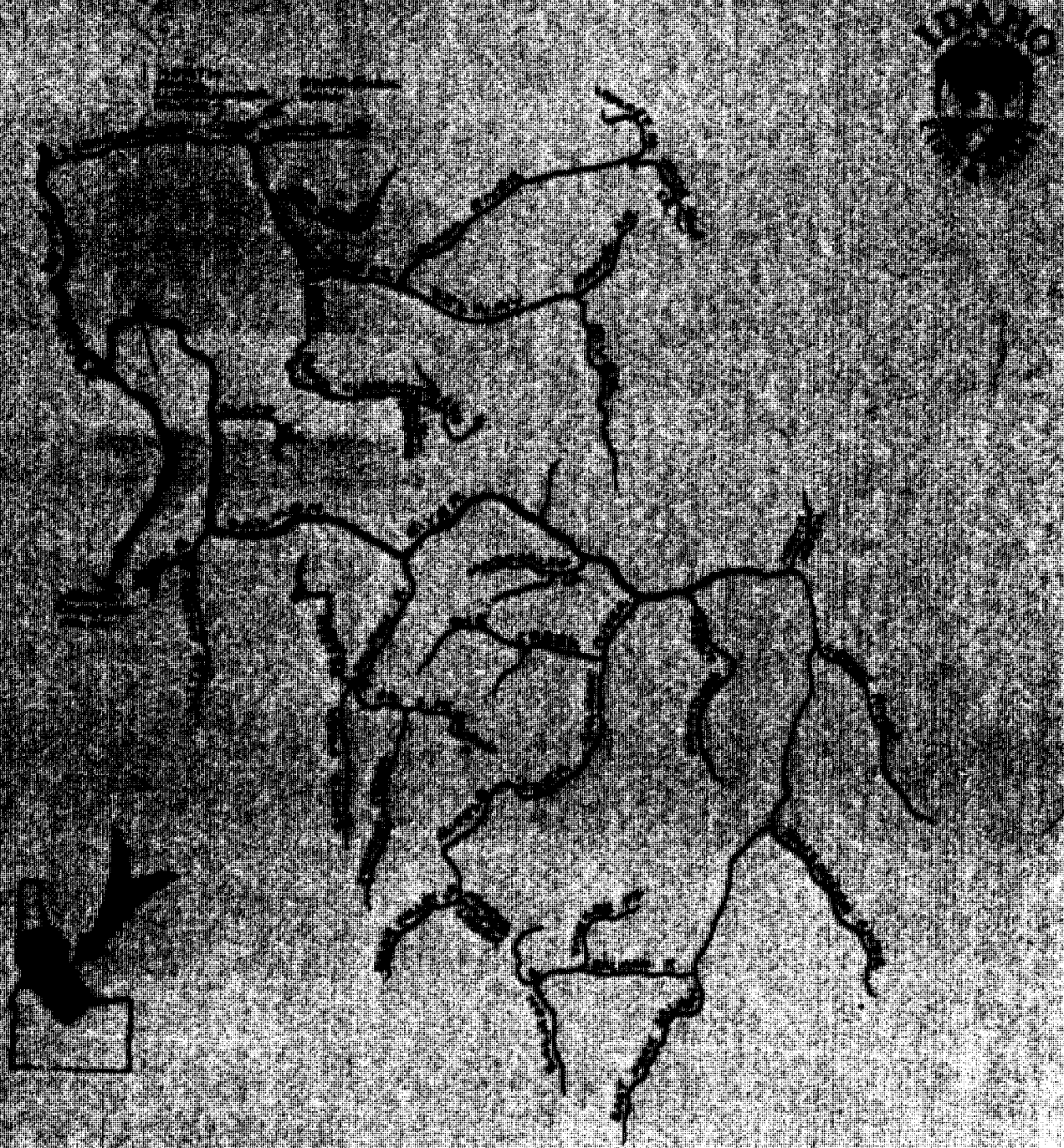

IDAHO ANADROMOUS FISHERIES MANAGEMENT PLAN 1985-1990

MARCH 1985

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

TABLE OF CONTENTS (Continued)

LIST OF APPENDICES

LIST OF TABLES

LIST OF FIGURES

FOREWORD

This document presents the Idaho Department of Fish and Game's goals, policies, and strategies for production and harvest of anadromous salmon and steelhead for the period 1984-1990.

This plan does not encompass non-game anadromous fish such as lamprey and shad or non-anadromous salmonids such as kokanee, coho, and chinook which may be stocked for resident fisheries.

Title 36, Idaho Code declares all wildlife including fish within the state to be the property of the State of Idaho, and mandates the Idaho Fish and Game Commission to "preserve, protect, and perpetuate such wildlife and provide for the citizens of the State and, as by law permitted to others, continued supplies of such wildlife for hunting, fishing, and trapping." Under the Commission's guidance, the Idaho Department of Fish and Game manages the fish and wildlife of the state.

Anadromous salmon and steelhead historically have been one of Idaho's most prized renewable natural resources. The initial Idaho Fish and Game Code in the 1930's required fish ladders at dams and screens on diversion ditches. Since that time the Department has actively sought habitat protection, provisions for passage at or removal of migration obstacles and artificial production of anadromous fish to replace fish lost to water development projects within and outside the State of Idaho.

During the past two decades Idaho's once-productive salmon and steelhead runs have been reduced to critically low levels, principally by construction and operation of hydroelectric dams on the main-stem Columbia and Snake Rivers. After many years of effort by Idahoans and citizens of other states, major initiatives are now underway to revitalize the salmon and steelhead runs of the Columbia River Basin including those produced in the vast areas of productive natural habitat in Idaho.

This plan has two major purposes. First, to provide firm guidance to management of anadromous fish resouces in Idaho during a time of rapidly expanding programs. Second, to inform the public and other managers of the goals and programs of Idaho Department of Fish and Game.

During the formulation of this plan, other federal and state agencies, adjacent states, Indian tribes, and members of the general public have been consulted at several stages and input has been assimilated into this final document.

PART I: THE RESOURCES

Introduction

"The Columbia River basin produces the world's largest runs of anadromous chinook salmon and steelhead trout, major runs of coho and sockeye salmon and small numbers of pink and chum salmon. Collectively these runs comprise an unparalleled natural resource of international renown."

--Columbia River Basin Management Framework Plan

Columbia River Fisheries Council, March 1981.

The Snake River Basin within Idaho, including the Salmon, Clearwater, and upper Snake River drainages, once produced an estimated 40% of the total spring chinook salmon, 45% of the total summer chinook salmon and 55% of the total summer steelhead trout in the Columbia River Basin. Substantial numbers of sockeye and fall chinook and lesser numbers of coho also were produced.

The anadromous fish resource provided an important seasonal food source for Indians within Idaho for thousands of years. Soon after the arrival of white settlers in the 1800's non-Indian commercial and subsistence fisheries developed. As the state became more settled, popular sport fisheries developed. Indian ceremonial and subsistence fisheries continue to this day.

By the late 1970's, however, naturally-produced stocks of salmon and steelhead appeared to be headed toward extinction in Idaho. Hatchery-produced anadromous fish were in a similarly depressed condition. This condition led to severe restrictions or closures of Idaho fisheries. Popular sport fisheries disappeared and local economies dependent on tourism suffered.

The precarious condition of many once-productive stocks of anadromous fish is a result of many interrelated factors, however development of the northwest hydroelectric power system played the major role. Hydroelectric dams block access to large amounts of important spawning and rearing habitat, cause high mortalities of migrating fish, and reduce stream flows during critical migration phases.

Other factors leading to the decline of anadromous fish populations include loss of habitat due to water development projects such as irrigation storage and diversion, degradation of habitat due to land-disturbing activities such as logging and road building, and overfishing.

In recent years hatchery production has been dramatically increased in an attempt to offset losses to natural production throughout the basin. Hatchery fish have come to be the dominant component of many runs. Attempts to harvest the more abundant hatchery fish, particularly those produced in the large complex of lower Columbia River hatcheries, led to overfishing of natural runs and upper river hatchery populations which had already been severely impacted by dam-related mortalities.

The plight of the Snake River anadromous fish runs has been recognized in several recent actions of national significance. The Pacific Northwest Electric Power Planning and Conservation Act of 1980 mandated a program to protect, mitigate, and enhance the anadromous fish resources of the Columbia River Basin affected by the development of the federal hydroelectric system. The Salmon and Steelhead Conservation and Enhancement Act of 1980 recognized the need for cooperative management programs for the northwest anadromous fishery resource and authorized funds for fishery enhancement projects. The Lower Snake River Fish and Wildlife Compensation Plan is in the process of being implemented to mitigate for salmon and steelhead losses at four federal hydroelectric dams on the lower Snake River. In 1980 the Federal Energy Regulatory Commission approved a settlement agreement regarding compensation for fishery impacts of the Hells Canyon Dam complex between Idaho Power Company and the fishery agencies.

These major salmon and steelhead restoration programs bring new sources of funds and new management entities into the arena of restoring anadromous fish populations. They also increase the necessity for coordination and cooperation in management efforts to prevent wasteful duplication of effort or unproductive disputes over authority.

As the agency responsible for management of anadromous fish within Idaho, the Idaho Department of Fish and Game, in consultation with other state, federal, and tribal entities, and the general public has developed this proposed plan to direct all efforts at restoration of upper Snake River anadromous salmon and steelhead, to provide estimates of production potentials and goals, and to make clear the Department's intentions and commitments to restoration of Idaho's anadromous salmon and steelhead resources.

The following sections of this report briefly describe the status and trend of Idaho's salmon and steelhead runs and present the goals, policies, and implementation strategies of the Department as the foundation and framework for future anadromous salmon and steelhead management initiatives in the State of Idaho.

Anadromous fish managemement is an extremely complex and dynamic function, subject to many variables both within and without Idaho waters. This plan is subject to change by Commission action at any time to accomodate changed conditions, regional plans, court orders, and other factors which may arise prior to 1990.

The Anadromous Fish Resources of Idaho

This plan directs the management of Idaho streams for three species of anadromous salmonids, including chinook salmon (Oncorhynchus tshawytscha), sockeye salmon (Oncorhynchus nerka) and steelhead trout (Salmo gairdneri). A small population of coho salmon (Oncorhynchus kisutch) once existed in the Snake River, but the native stock is apparently extinct and no reintroduction program is presently proposed in Idaho.

The life history of all three species is similar. Adult fish ascend the Columbia and Snake Rivers into tributary streams where they spawn. The eggs hatch and young fish spend one to three years rearing in freshwater streams or lakes. The young fish, now called "smolts", migrate to the ocean where they feed on abundant supplies of forage and grow rapidly. After one to three years in the ocean, mature fish again ascend the rivers to continue the cycle.

Chinook Salmon

Three "races" of chinook salmon--based on their time of entry into freshwater at the Columbia River--are produced in Idaho.

Spring chinook enter the Columbia River in March, April, and May, and spawn in August and early September. This race spawns in many streams throughout the Salmon River drainage and in the Clearwater River drainage. Idaho historically produced an estimated 40% of the spring chinook salmon that entered the Columbia River.

Summer chinook enter the mouth of the Columbia River in May, June, and July, and spawn in late August and September. A greatly reduced number of summer chinook have been entering the Columbia River in recent years. Summer chinook are found throughout the Salmon River drainage, with its South Fork being the main producer. A few summer chinook are mixed with Clearwater River spring chinook. Idaho historically produced about 45% of the summer chinook salmon that entered the Columbia River.

Spring and summer chinook eggs hatch in mid winter and fry emerge from the gravel in early spring. Most spring and summer chinook remain in freshwater for one year and enter the ocean during their second year. Most mature spring and summer chinook salmon return from the ocean in their fourth or fifth year of life. Chinook returning in their third year of life are small males (usually under 21 inches in

length) called "jacks". Four-year fish are usually 27-30 inches in length and average 8-10 pounds, and 5-year fish 34-37 inches and 15-18 pounds.

Fall chinook enter the Columbia River from August through October and spawn in late October and November. This race of fish was once widespread throughout the mainstem Snake River. Because of dam construction, it is now limited to the Snake River below Hells Canyon Dam with a small number of fish entering the Lower Clearwater River. Fall chinook fry emerge from the gravel in the spring with the young fish usually entering the ocean during their first year. Adults return after spending one to four years in the ocean. Idaho historically produced about 5% of the fall chinook that entered the Columbia River.

Status and Trend

Naturally-spawning chinook populations have declined drastically and steadily since 1960. **(Figure 1)** Present redd counts in natural spawning areas indicate approximately 10% as many spawners as 20 years ago in the Salmon River drainage. Portions of the Clearwater drainage have shown increases in natural spawners due to hatchery-produced smolt out-plants, but the available spawning habitat is 90%-95% unused.

Many wild populations are remnant status. Complete loss of some spawning populations appears to be a possibility. If these populations are lost, it may be difficult or impossible to restore chinook runs into headwater areas because few stocks of salmon have the ability to make the 700-950 mile spawning migration of Idaho stocks.

Downstream migrant passage problems at main-stem Columbia and Snake River dams and low ocean survival rates have held hatchery supported chinook runs at a break-even, severely depressed level of abundance. However, enough spawners are returning to allow hatchery programs to expand rapidly if dam-related and ocean mortalities decreased significantly. Returns to existing hatcheries and rearing ponds are sufficient to indicate that artificial propagation is capable of significantly enhancing Idaho's chinook salmon populations.

Present hatchery capacity could produce about five million smolts if enough spawning escapement occurred. Facilities under construction or planned by 1990 will increase smolt production capacity to more than 10 million spring chinnok smolts **(Figure 2)**. Spawning escapement to Idaho will have to be increased to provide enough eggs to fill the new hatching and rearing facilities. Improved disease control and nutrition to improve the quality of hatchery smolts will be necessary to allow hatchery programs to reach their full potential.

In spite of the present status and continuing decline of chinook salmon runs, there are some encouraging developments. These include:

1. Reduction in ocean harvests.

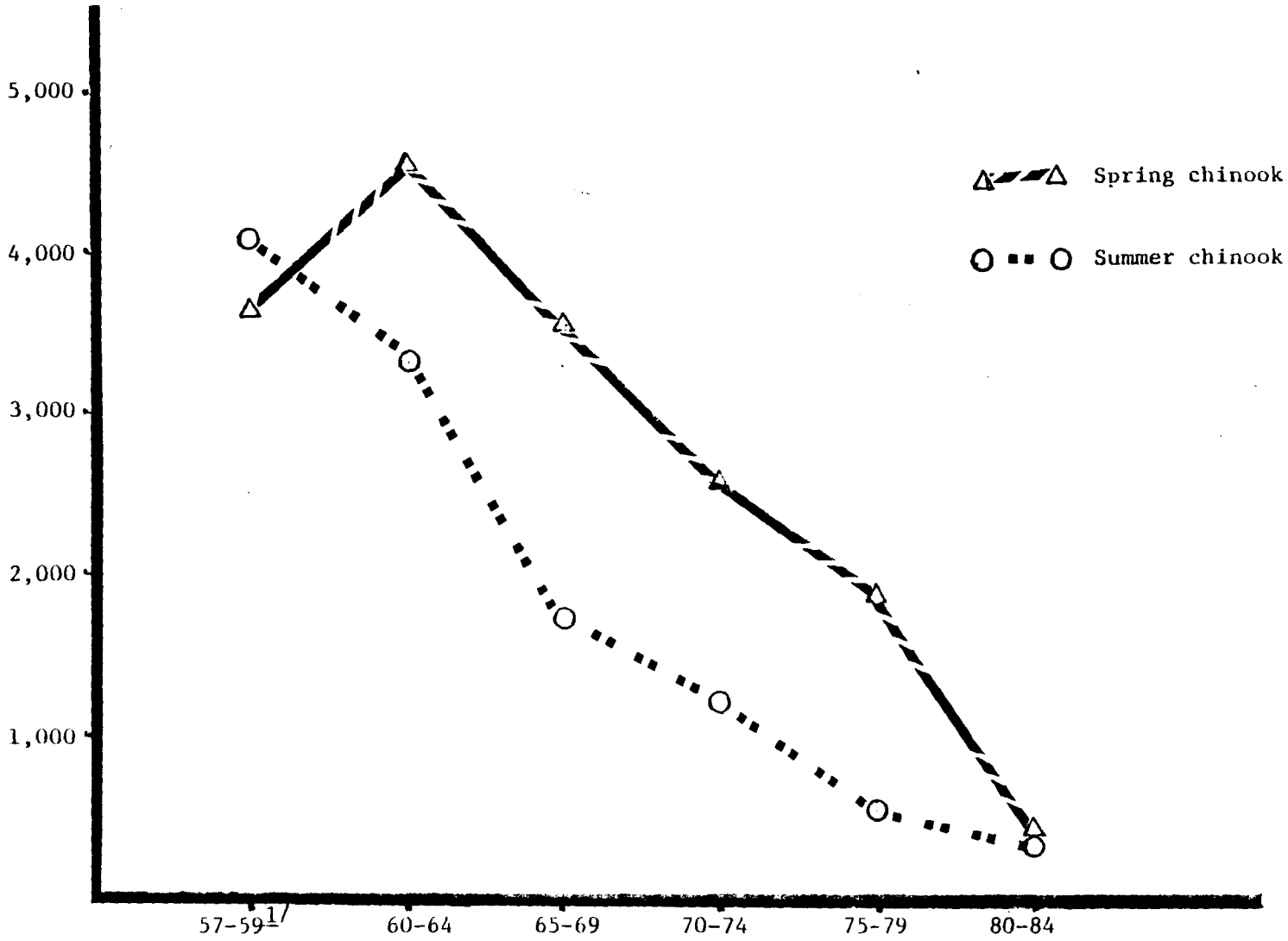

Figure 1. Salmon River chinook redd counts. Five-year averages 1957-1984.

1/ Three-year average.

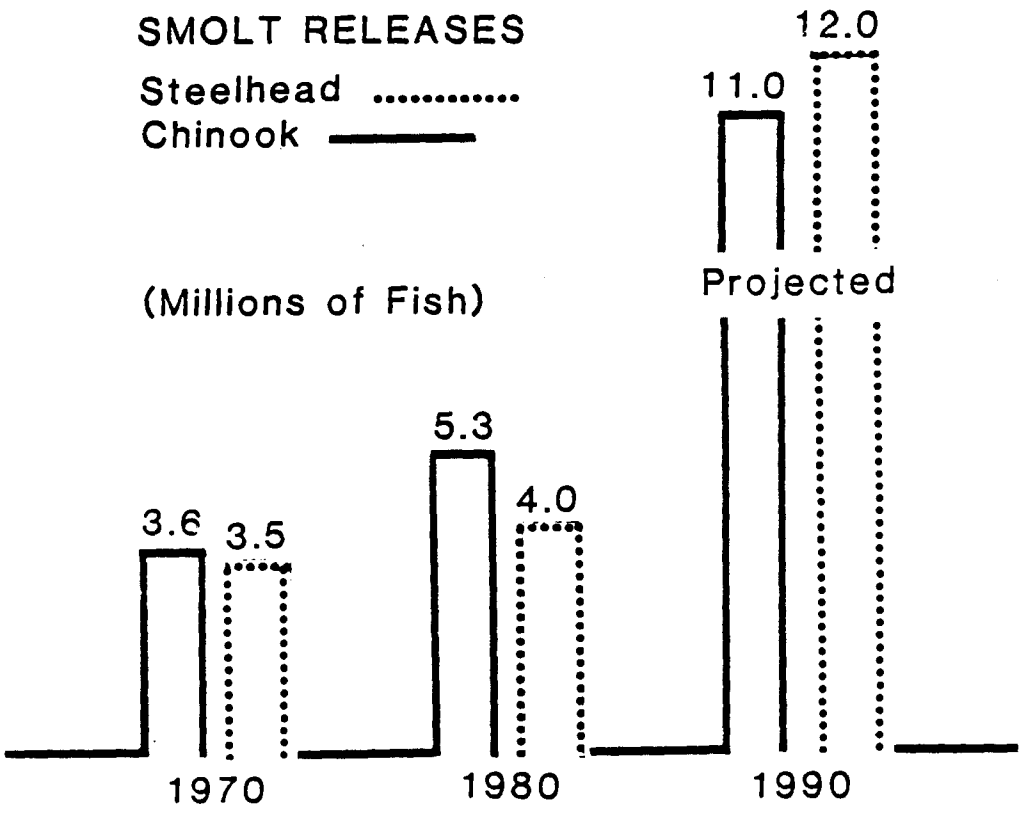

Figure 2. Anadromous fish smolt production capacities in Idaho hatcheries 1970, 1980, and projected 1990 totals.

2. Increased survival of downstream migrants through improved passage facilities and flow regulation at main-stem Snake and Columbia River dams.

3. Expansions in artificial production facilities.

4. Restoration and enhancement of natural spawning and rearing habitat.

5. Increasing returns to spawning areas.

Steelhead Trout

Idaho waters have produced between 50 and 75 percent of the Columbia River summer steelhead trout run in recent years and this species is found throughout the Salmon River and Clearwater River drainages.

Most of the steelhead trout destined for Idaho streams migrate into Idaho during the fall while the remainder lie over the winter in the Snake and Columbia Rivers and then move into spawning areas in the spring. A portion of the fish that migrate to Idaho waters in the fall are taken there in the fall and winter fisheries. As the water temperatures warm in the spring and the remainder of the fish move upstream, additional fish are taken in spring fisheries.

Steelhead spawning takes place from late March through early June in small tributary streams. The young steelhead trout emerge from the gravel in late summer and remain in freshwater one to three years (normally two years) before migrating to the ocean. Steelhead rear one to three years in the ocean before returning to spawn.

Two distinct groups of summer steelhead occur in Idaho waters. The separation between the groups is based on the time of passage over Bonneville Dam. Steelhead passing Bonneville Dam before August 25 are called "A" steelhead. These fish are a predominantly 1-ocean stock which originate in the Snake and Salmon River drainages. Steelhead passing Bonneville Dam after August 25 are called "B" steelhead. The "B" run is predominantly 2-ocean fish which originate in the Clearwater drainage. There is some overlap in timing and range of the two stocks.

Status and Trend

Wild steelhead populations were extremely depressed in the middle and late 1970's. A combination of protective regulations, downstream passage improvements and excellent habitat conditions has allowed some

increases in wild steelhead populations. Three large drainages, the Selway River, the Middle Fork Salmon River, and the South Fork Salmon River have been reserved for wild steelhead management. These drainages have shown substantial increases in spawning escapement and smolt production in the past three years, but are estimated to be only 20%-50% of potential.

Wild and natural runs into other drainages, such as the Lochsa River and Salmon River tributaries above the Middle Fork, are slowly increasing. In order to increase wild steelhead populations to the capacity of the habitat, fishing seasons and limits will remain selective and more restricted for wild fish than for hatchery supported runs.

Steelhead trout have responded well to artificial propagation programs. For the past several years, two hatchery programs have provided the bulk of steelhead harvest in the state. Dworshak Hatchery, located at the confluence of the North Fork of the Clearwater River and the Clearwater River which was constructed by the Corps of Engineers as mitigation for Dworshak Dam, currently releases about 2.3 million smolts and has returned up to 30,000 adult fish. The Pahsimeroi River/Niagara Springs complex, which was established by Idaho Power Company to transplant the Middle Snake River steelhead run into the Salmon River after Hells Canyon Dam blocked the Snake, has released between 1 and 2 million smolts and returned up to 30,000 adults. Surplus fry and eggs from these two programs are contributing to building natural spawning runs in many tributaries.

Additional hatchery capacity for approximately seven million steelhead smolts will be constructed during this planning period, and egg supplies of suitable upper river stocks are currently ample to fill the hatchery capacity as it comes on line. Hatchery returns to Idaho should more than double by 1990 if harvest rates in the Columbia River do not exceed those detailed in this plan.

Although hatchery steelhead runs are healthy and expanding, some serious problems exist which must be resolved in order for hatchery programs to achieve their goals. Disease, water quality, and nutritional problems have caused large losses of juvenile steelhead in the hatcheries. In the warmer water hatcheries, juvenile steelhead become larger than the desired size before they are ready to release. A facility designed to produce one million smolts at five per pound (200,000 pounds of fish) can hold only 500,000 fish at 2.5 per pound without overcrowding. Hatchery selection caused by accelerated rearing, non-random selection of adults for spawning, or other influences of artificial propagation may change the timing, age composition, or fecundity of runs; factors which eventually could pose a threat to continuance of the run.

Sockeye Salmon

A small sockeye salmon run returns to Redfish Lake (897 miles from the Pacific Ocean) each year. This run was considerably larger during the 1800's, but was eliminated by the construction of Sunbeam Dam in 1913. A portion of the dam was removed in 1934 and the present small run was re-established. A program to re-establish sockeye runs to other Sawtooth Basin lakes has been initiated with releases of fingerlings in Stanley Lake since 1981 and in Alturas Lake since 1983 from eggs taken at Babine Lake, British Columbia.

The majority of the Redfish Lake sockeye salmon spend two years in the sea after one or two years in freshwater as juveniles. The adults enter the Columbia River during June and July and reach Redfish Lake from July to September. They spawn in Redfish Lake and tributary streams in September and October. The fry emerge in the spring and the young stay in the lake one to two years prior to migrating to the ocean.

Sockeye are seldom caught in Idaho and this run contributes between 0.5%-1.0% of the Columbia River run. Most of the value in Idaho comes from fish watching by the many tourists in the Sawtooth National Recreation Area during the summer months and the fact that these fish represent a small but philosophically valuable part of Idaho's natural resource heritage.

Long-term Salmon and Steelhead Production and Harvest Goals

Long-term objectives for total production, harvest, and spawning escapement are displayed in **Table 1.** Objectives are presented by both hatchery, and wild and natural components. The "Harvest and Mortality" portion of total production will be allocated between passage mortalities and fishery mortalities throughout the range of each run of fish. The objectives for production and spawning escapements are presented by species and sub-basin in **tables 2, 3, 4, and 5.** No harvest goals are presented for fall chinook and sockeye reflecting their minimal harvest value in Idaho fisheries, and emphasis on harvest outside the state.

Juvenile production objectives and projected survival rates are summarized in **Table 6.** In each of **Tables 1-6,** wild fish production and natural fish production are combined because they are not readily separated in harvest management.

Table 1. Long term Idaho harvest and escapement objectives for steelhead trout, chinook salmon, and sockeye salmon.

	Natural	Hatchery	Totals
STEELHEAD			
Total Production[1/]	92,000	163,000	255,000
Spawning Escapement	37,000	10,500	47,500
Harvest and Mortality[2/]	55,000	152,500	207,500
SPRING CHINOOK			
Total Production[1/]	97,000	72,000	169,000
Spawning Escapement	38,000	11,000	49,000
Harvest and Mortality[2/]	59,000	61,000	120,000
SUMMER CHINOOK			
Total Production[1/]	37,000	24,000	61,000
Spawning Escapement	15,000	3,000	18,000
Harvest and Mortality[2/]	22,000	21,000	43,000

FALL CHINOOK AND SOCKEYE SALMON

Idaho's escapement objectives are 8,000 fall chinook spawners for the Snake River between Lewiston and Hells Canyon Dam and 6,000 sockeye spawners for Stanley Basin lakes. There will be no targeted fishery for fall chinook or sockeye in Idaho waters, however, incidental harvest will be allowed after spawning escapements have been reached.

1/ Total production is defined as the total number of adult fish resulting from Idaho production at the time they are fully recruited to the fishery.

2/ Harvest and mortality includes fish which will be lost to migration passage mortalities; the remainder will be available for harvest.

Table 2. Steelhead trout production and escapement objectives for basins and sub-basins.

	STEELHEAD							
	Spawning Escapement Objectives			Total Production Objectives			Smolt Production	
	Hatchery	Natural	Total	Hatchery	Natural	Total	Hatchery	Natural
Snake River								
(SN-1) Lewiston to Imnaha	-	200	200	4,800	500	5,300	300,000	25,000
(SN-2) Imnaha to Hells Canyon Dam	1,000	400	1,400	16,000	1,000	17,000	1,000,000	50,000
Total	1,000	600	1,600	20,800	1,500	22,300	1,300,000	75,000
Clearwater River								
(CL-1) Mouth to North Fork	-	700	700	4,800	1,750	6,550	300,000	87,000
(CL-2) North Fork	2,700	-	2,700	20,800	-	10,400	1,300,000	-
(CL-3) North Fork to South Fork	-	900	900	-	2,300	2,300	-	115,000
(CL-4) South Fork	300	3,500	3,500	12,800	9,000	21,800	800,000	450,000
(CL-5) Middle Fork	2,500	400	2,900	16,000	1,000	17,000	1,000,000	50,000
(CL-6) Lochsa	-	4,500	4,500	6,400	11,200	17,600	400,000	560,000
(CL-7) Selway	-	7,000	7,000	-	17,500	17,500	-	875,000
Total	5,500	17,000	22,200	60,800	42,750	103,550	3,800,000	2,137,000
Salmon River								
(SA-1) Mouth to Little Salmon	-	600	600	24,000	1,500	25,500	1,500,000	75,000
(SA-2) Little								

Table 2. (Continued)

	STEELHEAD							
	Spawning Escapement Objectives			Total Production Objectives			Smolt Production	
	Hatchery	Natural	Total	Hatchery	Natural	Total	Hatchery	Natural
Salmon to South Fork	-	400	400	-	1,000	1,000	-	50,000
(SA-3) South Fork	-	3,600	3,600	-	9,000	9,000	-	450,000
(SA-4) South Fork to M. Fork	-	1,000	1,000	-	2,500	2,500	-	125,000
(SA-5) Middle Fork	-	6,000	6,000	-	15,000	15,000	-	750,000
(SA-6) Middle Fork to Lemhi	-	1,800	1,800	12,800	4,500	17,300	800,000	225,000
(SA-7) Lemhi	-	500	1,000	-	1,250	9,250	-	62,000
(SA-8) Lemhi to Pahsimeroi	1,500	700	1,700	16,000	1,750	17,750	1,000,000	87,000
(SA-9) Pahsimeroi to East Fork	800	1,200	2,000	16,000	3,000	19,000	1,000,000	150,000
(SA-10) East Fork to Yankee Fork	-	1,100	1,100	-	2,750	5,950	-	138,000
(SA-11) Yankee Fork to Headwaters	900	2,300	3,200	12,800	5,750	20,150	800,000	288,000
Total	3,200	19,200	22,400	94,400	48,000	142,400	5,900,000	2,400,000
Supplemental Program	800	-	800	-	-	-	-	-
Idaho Total	10,500	36,800	47,300	163,200	92,250	255,450	10,200,000	4,612,000

Table 3. Spring chinook salmon production and escapement objectives for basins and sub-basins.

	SPRING CHINOOK							
	Spawning Escapement Objectives			Total Production Objectives			Smolt Production	
	Hatchery	Natural	Total	Hatchery	Natural	Total	Hatchery	Natural
Snake River								
(SN-1) Lewiston to Imnaha River	-	-	-	-	-	-	-	-
(SN-2) Imnaha to Hells Canyon Dam	1,000	200	1,200	8,000	500	8,500	1,000,000	31,000
Total	1,000	200	1,200	8,000	500	8,500	1,000,000	31,000
Clearwater River								
(CL-1)Mouth to North Fork	-	-	-	-	-	-	-	-
(CL-2) North Fork	300	-	300	2,400	-	2,400	300,000	-
(CL-3) North Fork to South Fork	-	600	600	800	1,500	2,300	100,000	94,000
(CL-4) South Fork	1,000	3,100	4,100	8,000	7,750	15,750	1,050,000	484,000
(CL-5) Middle Fork	700	300	1,000	3,200	750	3,950	400,000	47,000
(CL-6) Lochsa	800	3,700	4,500	7,200	9,250	16,450	900,000	578,000
(CL-7) Selway	-	8,000	8,000	-	20,000	20,000	-	1,250,000
Total	2,800	15,700	18,500	21,600	39,250	60,850	2,750,000	2,453,000
Salmon River								
(SA-1) Mouth to Little Salmon	2,000	600	2,600	16,000	1,500	17,500	2,000,000	94,000

Table 3. (Continued)

SPRING CHINOOK

	Spawning Escapement Objectives			Total Production Objectives			Smolt Production	
	Hatchery	Natural	Total	Hatchery	Natural	Total	Hatchery	Natural
(SA-2) Little Salmon to South Fork	-	300	300	-	750	750	-	47,000
(SA-3) South Fork	-	-	-	-	-	-	-	-
(SA-4) South Fork to M. Fork	-	800	800	-	2,000	2,000	-	125,000
(SA-5) Middle Fork	-	9,000	9,000	-	22,500	22,500	-	1,406,000
(SA-6) Middle Fork to Lemhi	-	2,800	2,800	500	7,000	7,500	65,000	438,000
(SA-7) Lemhi	700	2,000	2,700	4,400	5,000	9,400	550,000	312,000
(SA-8) Lemhi to Pahsimeroi	-	100	100	-	250	250	-	16,000
(SA-9) Pahsimeroi to East Fork	900	1,800	2,700	7,200	4,500	11,700	550,000	281,000
(SA-10) East Fork to Yankee Fork	-	1,200	1,200	1,600	3,000	4,600	200,000	188,000
(SA-11) Yankee Fork to Headwaters	1,500	4,200	5,700	13,000	10,500	23,500	1,420,000	656,000
Total	5,100	22,800	27,900	42,700	57,000	99,700	4,785,000	3,563,000
Supplemental Program	1,100	-	1,100	-	-	-	-	-
Idaho Total	10,000	38,700	48,700	72,300	96,750	169,050	8,535,000	6,047,000

Table 4. Summer chinook salmon production and escapement objectives for basins and sub-basins.

	SUMMER CHINOOK							
	Spawning Escapement Objectives			Total Production Objectives			Smolt Production	
	Hatchery	Natural	Total	Hatchery	Natural	Total	Hatchery	Natural
Salmon River								
(SA-1) Mouth to Little Salmon	0	500	500	-	1,250	1,250	-	78,000
SA-2) Little Salmon to South Fork	-	-	-	-	-	-	-	-
(SA-3) South Fork	1,500	7,000	8,500	12,000	17,500	29,500	1,500,000	1,094,000
(SA-4) South Fork to Middle Fork	-	1,000	1,000	-	2,500	2,500	-	156,000
(SA-5) Middle Fork	-	2,000	2,000	-	5,000	5,000	-	312,000
(SA-6) Middle Fork to Lemhi	-	500	500	-	1,250	1,250	-	78,000
(SA-7) Lemhi	-	-	-	-	-	-	-	-
(SA-8) Lehmi to Pahsimeroi	1,000	12,000	2,200	8,000	3,000	11,000	1,000,000	188,000
(SA-9) Pahsimeroi to East Fork	-	1,400	1,400	-	3,500	3,500	-	219,000
(SA-10) East Fork to Yankee Fork	-	1,000	1,000	4,000	2,500	2,500	500,000	156,000
(SA-11) Yankee Fork to Headwaters	-	-	-	-	-	-	-	-
Total	3,000	14,600	17,600	24,000	36,500	60,500	3,000,000	2,281,000
Supplemental Program	500	-	500	-	-	-	-	-
Idaho Total	3,500	14,600	18,100	24,000	36,500	60,500	3,000,000	2,281,000

Table 5. Fall chinook and sockeye salmon production and escapement objectives for basins and sub-basin.

	Spawning Escapement Objectives			Total Production Objectives			Smolt Production	
	Hatchery	Natural	Total	Hatchery	Natural	Total	Hatchery	Natural
FALL CHINOOK								
Snake River								
(SN-1) Lewiston to Imnaha River	-	2,000	2,000	2,000	4,000	6,000	200,000	200,000
(SN-2) Imnaha River to Hells Canyon Dam	-	6,000	6,000	8,000	12,000	20,000	800,000	600,000
Total	-	8,000	8,000	10,000	16,000	26,000	1,000,000	800,000
Idaho Total	-	8,000	8,000	10,000	16,000	26,000	1,000,000	800,000
SOCKEYE								
Salmon River								
(SA-3) South Fork	-	500	500	-	2,000	2,000	-	149,000
(SA-11) Yankee Fork to Head waters	-	5,500	5,500	-	22,000	22,000	-	1,642,000
Total	-	6,000	6,000	-	24,000	24,000	-	1,791,000
Idaho Total	-	6,000	6,000	-	24,000	24,000	-	1,791,000

Table 6. Long term smolt production objectives for Idaho by species and sub-basin. All numbers presented in millions

	Natural & Wild			Hatchery		
	Number of Smolts	Percent Survival to adult	% Survival of adults to Idaho	Number of Smolts	Percent Survival to adult	% Survival of adults to Idaho
Summer steelhead	4.60	2.0	1.0	10.2	1.6	0.8
Spring chinook	6.05	1.6	0.80	8.5	0.8	0.36
Summer chinook	2.28	1.6	0.80	3.0	0.8	0.34
Fall Chinook	0.80	2.0	0.50	1.0	1.0	0.25
Sockeye	0.96	1.34	0.36	-	-	-

Projected Smolt Yield by Major Stream Systems

	Natural & Wild	Hatchery	Total
Clearwater River			
Summer Steelhead	2.14	3.80	5.94
Spring Chinook	2.45	2.75	5.20
Summer Chinook	-	-	-
Fall Chinook	-	-	-
Sockeye	-	-	-
Salmon River			
Summer Steelhead	2.40	5.90	8.30
Spring Chinook	3.57	4.79	8.36
Summer Chinook	2.28	3.00	4.78
Fall Chinook	-	-	-
Sockeye	0.96	1.50	2.46
Snake River			
Summer Steelhead	.07	1.30	1.37
Spring Chinook	.03	1.00	1.03
Summer Chinook	-	-	-
Fall Chinook	0.80	1.00	1.80
Sockeye	-	-	-

The basis for these proposed escapement and harvest goals is: 1) a hatchery production goal which was developed from historic records and losses identified as caused by water and power developments; 2) a natural production goal developed from estimates of the available production capacity of natural spawning and rearing habitats, including production of wild indigenous stocks and introduced naturally spawning stocks.

The goals for escapement of adult salmon and steelhead into Idaho waters are based upon the following principles for natural and hatchery produced fish:

Natural Production

Full utilization of all natural spawning and rearing habitat, including habitats restored or enhanced by projects identified in this proposed long-term plan. National production includes wild, indigenous fish and fish of hatchery ancestry which have returned to reproduce and rear naturally.

Hatchery Production

Full compensation for natural production lost as the result of construction and operation of hydroelectric facilities, including loss of production from habitat blocked and inundated and dam-related mortalities of migrant adult and juvenile fish.

The long-term goals proposed in **Tables 1-6** do not include mitigation for all identifiable losses of salmon and steelhead production in Idaho, but do represent a realistic level of production from remaining natural habitat and compensation for the development of the federal hydropower system since the mid-1950's.

The production, survivial, and harvest goals listed in **Tables 1-6** have been developed from the best available knowledge and judgement of Idaho Fish and Game Management and Research Biologists. Refining and verifying these numbers will be a high priority during this planning period.

Policies Guiding Anadromous Fishery Management in Idaho

To achieve the long-term production, harvest, escapement goals proposed in the preceding section of this report, the Department proposes to adopt the following policies to guide a) natural production,

b) hatchery production, c) harvest, d) habitat restoration and enhancement funding, and e) coordination of Idaho and regional planning activities.

Wild and Natural Production

WILD (NATURALLY-PRODUCED, UNASSISTED BY ARTIFICIAL PROPAGATION) SALMON AND STEELHEAD POPULATIONS WILL RECEIVE PRIORITY CONSIDERATION IN ALL FISHERIES MANAGEMENT DECISIONS.

In the event of a conflict between management for wild fish and management for hatchery fish, wild fish will be given first consideration. The preservation of the genetic characteristics of these wild stocks is very important to the future of Idaho's anadromous fish management program. Certain streams such as the Middle Fork Salmon River, the Selway River, and the South Fork Salmon River will be designated as wild fish production areas, and will not be stocked with hatchery fish.

ALL IMPORTANT ANADROMOUS FISH HABITAT IN IDAHO WILL BE PROTECTED FROM ANY FURTHER DEGRADATION BY WATER AND/OR ENERGY DEVELOPMENT.

This plan delineates anadromous fish habitat proposed for protection from development. Every effort will be made to eliminate detrimental impacts of development in these areas. All state and regional water and energy management plans should accommodate the designation of these critical habitats as areas to be protected from development.

PROTECT AND ENHANCE THE NATURAL PRODUCTION HABITAT OF THE STATE CONSISTENT WITH THE STREAM CLASSIFICATION CRITERIA.

Production goals and the habitat protection criteria necessary to sustain those production goals will be specified for each major anadromous fish production stream in the state. These goals and criteria must be integrated into land management planning for the state if the fish production objectives of this plan are to be achieved. The Com-

mission and its representatives will seek the full cooperation of the Forest Service, BLM, and other management entities in achieving the level of habitat protection and enhancement that is needed.

JUVENILE ANADROMOUS FISH WILL BE PROTECTED FROM HARVEST IN TROUT FISHERIES AS NECESSARY TO ACHIEVE PRODUCTION GOALS.

1. "Wild" and important natural production areas, including the Selway, Lochsa, and Middle Fork Salmon, are catch-and-release areas. Other areas have limited access or are protected by salmon spawning closures. Closures, length limits, or other regulations may be used to resolve particular problems in specific areas.

2. Trout fishing will be closed in areas and at times of concentrated smolts such as release sites.

3. Residualized hatchery smolts will contribute to trout fisheries. These fish should be harvested to reduce competition with wild steelhead and chinook. When hatchery programs reach full production residual smolts may add substantially to resident trout fisheries.

Hatchery Production

HATCHERY PRODUCTION PROGRAMS WILL BE MANAGED IN A MANNER THAT MINIMIZES ADVERSE EFFECTS ON THE QUANTITY AND QUALITY OF NATURAL PRODUCTION OF ANADROMOUS FISH.

The location of hatchery production programs, the timing of smolt releases, the construction of hatchery facilities, and the stock of fish propagated will be designed to avoid adverse impacts to natural production habitats and naturally produced fish. Every effort will be made to achieve the fisheries benefits of artificial production while maintaining and enhancing natural production in adjacent areas. No more than two-thirds of a natural spawning run will be trapped to build hatchery brood stock; the remaining third will be allowed to spawn naturally.

A LIMITATION ON HATCHERY-PRODUCED STEELHEAD SMOLTS AND HATCHERY-PRODUCED CHINOOK SALMON SMOLTS, TO BE RELEASED IN IDAHO WATERS, WILL BE IMPOSED DURING THIS PLANNING PERIOD.

The large numbers of hatchery fish produced to compensate for production and passage losses complicate harvest management, disease control, and preservation of desirable genetic characteristics. There is concern that if too many hatchery fish are utilized in Idaho's anadromous fish management program, it may become impossible to manage the wild production component of Idaho's salmon and steelhead populations.

Because of this concern, there will be no additional major programs for artificial production of anadromous smolts initiated during this planning period. Until the ongoing and presently approved programs, including Idaho Power Company, Lower Snake River Compensation Plan, and Corps of Engineers programs are fully developed and evaluated, production will be held at the levels outlined in this plan.

HATCHERY PRODUCTION WILL BE MANAGED TO MATCH AS CLOSELY AS POSSIBLE THE SMOLT SIZE AND OUTMIGRATION TIMING WHICH HAS PROVEN TO PRODUCE THE HIGHEST PERCENTAGE OF RETURNING ADULTS.

Hatchery production goals will be set and manipulated by water temperatures, feeding rates, and general hatchery practices to produce and plant smolts of a size which has produced the highest percentage of returning adults in test programs. Steelhead smolts should be programmed to be between four and eight fish per pound (7.0 to 9.0 inches total length) during the planting period of April 1 to May 1. Chinook salmon smolts should be programmed for between 15 and 20 fish per pound (5.5 to 6.0 inches) during the planting period of March 15 to April 15.

ANADROMOUS FISH DISEASES WILL BE CONTROLLED IN A MANNER THAT PREVENTS NATURAL STOCKS AND OTHER HATCHERY STOCKS FROM BEING INFECTED.

Department staff will develop a comprehensive fish disease control program for the Commission's adoption by May 1985. Until the program is adopted, all hatchery fish and eggs will be inspected prior to transfer or planting. Fish or eggs found to be infected with emergency status diseases will not be planted, or transferred, and will be destroyed.

NO EGGS OR CARCASSES FROM RETURNS TO ANADROMOUS FISH HATCHERIES WILL BE SOLD.

1. Needs for egg supplies for anadromous fish propagation and reintroduction are highest priority. Eggs will be distributed in the following order:

   A. Egg supply to continue the run providing that supply.

   B. Egg supply for other Idaho programs.

   C. Release excess adults in underseeded natural spawning areas.

   D. Provide eggs to other programs within the Columbia River basin which are complementary to Idaho programs.

   E. Provide surplus eggs to programs outside the Columbia River basin.

2. After needs for eggs and natural spawning are met, spawned out fish and excess unspawned fish will distributed in the following priority order:

   A. Indian tribes for ceremonial and subsistance purposes.

   B. Non-profit charitable organizations.

   C. Members of the general public.

REARING OF ANADROMOUS SALMON OR STEELHEAD WILL NOT BE ALLOWED FOR COMMERCIAL PURPOSES IN PRIVATE HATCHERIES OUTSIDE OF DEPARTMENT CONTROL.

Anadromous fish diseases have been particularly troublesome in artificial production facilities. To facilitate the control of disease and to ensure that control of anadromous fish management remains with the state, rearing of anadromous fish other than in facilities operated by state or federal agencies will be discouraged. Future hatchery facilities will be managed by the state except for tribal facilities on tribal lands.

RESEARCH SHALL NOT BE CONDUCTED IN A MANNER THAT DEGRADES OR REDUCES THE PRODUCTIVITY OF IDAHO'S SALMON AND STEELHEAD RESOURCES.

Requirements for test animals will not be met if those requirements would deter from achievement of production objectives for a stream or artificial production facility. Research projects will not be approved by the Department or Commission if that research imposes a disease risk or any other hazard to the state's anadromous fish resources. However, it is recognized that some research activities risk short-term decreases in fish production in order to test management techniques which promise to enhance long-term productivity.

Harvest

A DIVERSITY OF FISHING OPPORTUNITIES WILL BE PROVIDED FOR ANADROMOUS FISH IN IDAHO.

Traditional salmon and steelhead fisheries as well as new types of fisheries will be included in future management. High yield and intensive participation will be featured in some areas, particularly those fisheries supported by hatchery fish, and low harvest rates with fewer participants will occur in other areas. Catch and release fisheries will be employed where the conditions merit such regulation.

ALL FISHERIES WILL BE REGULATED TO MEET NATURAL AND HATCHERY SPAWNING ESCAPEMENT OBJECTIVES.

The best available information, including fish counts at Columbia and Snake River dams and catch data from ocean and river fisheries, will be used to project the numbers of fish returning to Idaho production areas (natural and hatchery). When data projections indicate that more fish will return to the production areas than are needed to meet the spawning escapement objectives, fisheries for the harvestable surplus will be authorized by the Commission.

At no time will fisheries be authorized to harvest a stock of fish that is projected to be returning at a level below the spawning escapement objective with the exception of a limited tribal fishery, or limited trophy or quality fisheries.

SPRING CHINOOK, SUMMER CHINOOK, AND STEELHEAD WILL BE MANAGED FOR BOTH TRIBAL AND NONTRIBAL FISHERIES IN IDAHO.

Harvest opportunities will be provided for both tribal and nontribal fishermen when there is an allowable harvest. Spawning escapement objectives are designed to sustain fishery benefits for both groups of fishermen into future years.

A treaty fishery will be allowed each year when run size exceeds minimum conservation needs. No specific allocation formula for dividing catch between tribal fishermen and nontribal fishermen will be adopted or recognized by the Commission in this plan.

NONCONSUMPTIVE USES OF ANADROMOUS FISH WILL BE ENCOURAGED.

Fish facilities will be developed in a manner that encourages viewing of fish by interested publics. Where existing aesthetic values of anadromous fish are not being utilized, efforts will be made to increase public awareness of the availability of salmon and steelhead observation opportunities.

KNOWN STOCK HARVEST OPPORTUNITIES FOR HATCHERY SALMON AND STEELHEAD WILL BE DEVELOPED.

Since there will always be a need to harvest hatchery fish at a higher rate than natural fish, all opportunities to develop known stock fisheries for harvesting hatchery fish will be exploited. Stocking sites for hatchery-produced smolts will be located in areas where harvest of hatchery fish can be maximized while imposing minimum conflicts with management of natural stocks of fish.

TO FACILITATE ACHIEVING KNOWN STOCK HARVEST OF HATCHERY STEELHEAD, ALL HATCHERY-PRODUCED STEELHEAD SMOLTS WILL BE MARKED WITH AN ADIPOSE FIN CLIP PRIOR TO BEING RELEASED FROM THE HATCHERY.

Most fishing for steelhead occurs in the main Clearwater, Salmon, and Snake Rivers where natural and hatchery stocks are mixed together. With the adipose clip on hatchery fish, regulations can be set to acquire the desired rate of harvest on the hatchery fish while achieving

a lower harvest rate or complete protection of naturally-produced fish. By using the mark to differentiate hatchery fish, it is possible to manage harvest of hatchery fish in a manner that is compatible with natural and wild fish management. Some hatchery produced fish may not be marked to facilitate research or to protect fish from harvest during establishment of new runs.

HARVEST OF SALMON AND STEELHEAD IN IDAHO FOR COMMERCIAL PURPOSES WILL BE DISCOURAGED.

It is unlawful to sell fish taken from Idaho waters without a commercial permit. It shall be the policy of the Commission to not issue permits for the sale of anadromous fish taken in Idaho waters.

FALL CHINOOK WILL BE MANAGED PRIMARILY FOR DOWNRIVER AND OCEAN FISHERIES.

In Idaho, no directed fisheries are anticipated for fall chinook salmon. Snake River fall chinook are highly valued in the Columbia River and ocean fisheries, but fall chinook fisheries in Idaho will be incidental to steelhead fishing and limited in scope.

NO ADDITIONAL ENHANCEMENT OF FALL CHINOOK WILL BE UNDERTAKEN IN IDAHO WATERS UNTIL DOWNRIVER HARVEST MANAGEMENT QUESTIONS ARE RESOLVED. SOCKEYE WILL BE MANAGED PRIMARILY FOR AESTHETIC VALUES.

Commerical gill net fisheries for fall chinook incidentally harvest large numbers of steelhead trout bound for Idaho. Until downriver fishery managers devise methods to reduce these impacts, no additional enhancement of fall chinook populations in Idaho waters will be undertaken.

Harvest of sockeye in Idaho will be recognized as a beneficial use, but will be secondary to esthetic values derived by observers in the Stanley Basin and Warm Lake areas. It is also recognized that some Idaho-produced sockeye will contribute to Columbia River and ocean fisheries.

NO REINTRODUCTION OF ANADROMOUS COHO TO IDAHO WATERS WILL BE UNDERTAKEN.

There is no record of coho ever being an important component of Idaho's anadromous fish runs. Any native stocks which may have existed are now extinct and attempts to reintroduce coho from downriver populations into Idaho have failed. No futher reintroduction attempts will be made.

FISHERIES OF THE CLEARWATER RIVER, SALMON RIVER, AND SNAKE RIVER DOWNSTREAM FROM HELLS CANYON DAM WILL BE MANAGED WITH PRIMARY EMPHASIS ON ANADROMOUS FISH.

Although the major fisheries management effort in these areas will be for anadromous fish, this policy does not mean that management will be exclusively for anadromous fish. Some very important species of resident fish such as westslope cutthroat, bull trout, and sturgeon will be managed in these waters with no anticipated conflicts between resident fishery management and anadromous fishery management.

Restoration & Enhancement Responsibility and Funding

BONNEVILLE POWER ADMINISTRATION FUNDING WILL BE UTILIZED TO SUPPLEMENT, RATHER THAN TO REPLACE, OTHER SOURCES OF FUNDING FOR ANADROMOUS FISH RESTORATION.

The Northwest Power Planning Council Fish and Wildlife Program and its capability to resolve critical problems for the anadromous fishery resources should be used in a manner that complements existing authorities and responsibilities rather than supplanting those existing responsibilities. If the production goals of this plan are to be achieved, the combined capability of all authorities must be brought to bear on the problems confronting the anadromous fishery resource in the most efficient manner. This plan will assign responsibility for the various actions that are needed to implement the plan. The plan should be used as a vehicle to achieve compatible and complementary action by the involved authorities.

Coordination Between Idaho & Regional Fisheries Management

ALL EFFORTS WILL BE MADE TO ENSURE THAT NORTHWEST REGIONAL MANAGEMENT PLANS ARE COMPLEMENTARY OR COMPATIBLE WITH IDAHO'S ANADROMOUS FISH MANAGEMENT PLAN.

The linkage that must occur between Idaho's management plan and Columbia River fisheries management or ocean fisheries management can be established by all entities involved adopting common escapement objectives at Lower Granite Dam. These management plans should be constructed by building the production area plans first and then using the production area plans to build regional plans and ocean fisheries management plans.

Idaho has taken the first step, in adopting a production and harvest management plan for instate waters. Every opportunity will be used to integrate Idaho's plan into the regional plans that must follow if anadromous fisheries management is to be effective in the future.

PART II: PLAN IMPLEMENTATION MEASURES

This section of this draft plan briefly reviews some of the factors limiting salmon and steelhead production in Idaho and focuses on three measures for which detailed strategies and implementation plans are proposed: 1) protection of natural habitats; 2) hatchery production to supplement natural production and enhance fisheries; 3) harvest management; coordination with other entities and the public.

Limiting Factors

Anadromous salmon and steelhead produced in Idaho are exposed to a complex array of natural and man-made conditions which limit return of adult fish to Idaho and which must be mitigated in order to achieve the long-term spawning and harvest objectives proposed in this plan.

The tributary streams where anadromous fish spawn and rear in Idaho range from 500 to 950 miles from the ocean. On their downstream migration, smolts are subject to predators and losses at hydroelectric dams. In the ocean, some fish from Idaho travel as far north as the Bering Sea where they are subject to additional predators and begin to enter commercial fisheries. Upon returning to the Columbia, mature fish are subject to sport, commercial, and treaty Indian fisheries, and must pass eight hydroelectric dams on their return to Idaho.

Overfishing

Fishing has substantial impacts on anadromous fish populations, particularly when habitat degradation and obstacles to migration have increased mortality and reduced populations. Idaho stocks are mixed with coastal and lower river stocks in the ocean and Columbia River sport, commercial, and treaty fisheries. Many stocks of fish have harvestable surpluses; however, it is difficult to harvest surplus fish without overharvesting depressed stocks in a mixed stock fishery.

Ocean sport and commercial troll fisheries and in-river gill net fisheries have the capability to harvest anadromous salmonids at a very high rate.

Water Development Projects

Hydroelectric dams and other water development projects have major adverse effects on anadromous fish. Construction and operation of federal dams on the main-stem Snake and Columbia Rivers is the principal cause of the present depressed condition of Idaho salmon and steelhead runs. Downstream migrants are killed outright or stunned while passing through turbines. High volumes of spill water which plunge below dams can cause nitrogen supersaturation, resulting in "gas bubble disease" which affects both smolts and adult fish. Impoundments behind the Snake and Columbia River dams slow the river current and delay migration. Upstream storage projects reduce or eliminate the spring freshet, compounding downstream migration delays. Upstream migrants must pass dams via fish ladders. Delays occur in finding the ladder entrances and ascending the ladders.

Dworshak Dam on the North Fork Clearwater River and Hells Canyon Dam in the Snake River eliminated all or portions of anadromous fish populations in upstream areas. Early hydroelectric dams at Lewiston on the Clearwater River, at Harpster on the South Fork Clearwater, and Sunbeam Dam on the upper main-stem Salmon River eliminated major salmon and steelhead populations in upstream areas. These three dams have since been removed, but anadromous fish populations have not been restored to productive historic levels.

Even before the Hells Canyon dam complex was constructed, the Boise, Payette, Owyhee and other tributaries were blocked by flood control and irrigation dams, starting in the 1800's.

Irrigation diversions were impacting anadromous fish production as early as the 1850's. In some areas, such as the Lemhi River, diversions are still a serious problem.

Irrigation projects dewater spawning and rearing streams. Diversions from natural streams may block upstream migrating adults and strand downstream migrating juveniles.

Recently, increased energy costs and laws which encourage development of small hydroelectric power projects have threatened to adversely impact already critically depressed anadromous fish populations. The same problems of turbine injuries and migration blockages attend the small projects as do larger projects, only on a smaller scale. However, the cumulative impacts of construction and operation of many small projects could substantially limit salmon and steelhead populations.

Habitat Losses

Much anadromous fish habitat has been irretrievably lost to high dams. Other habitat has been lost or severely degraded due to land use practices which cause siltation or pollution. Dredge mining destroys

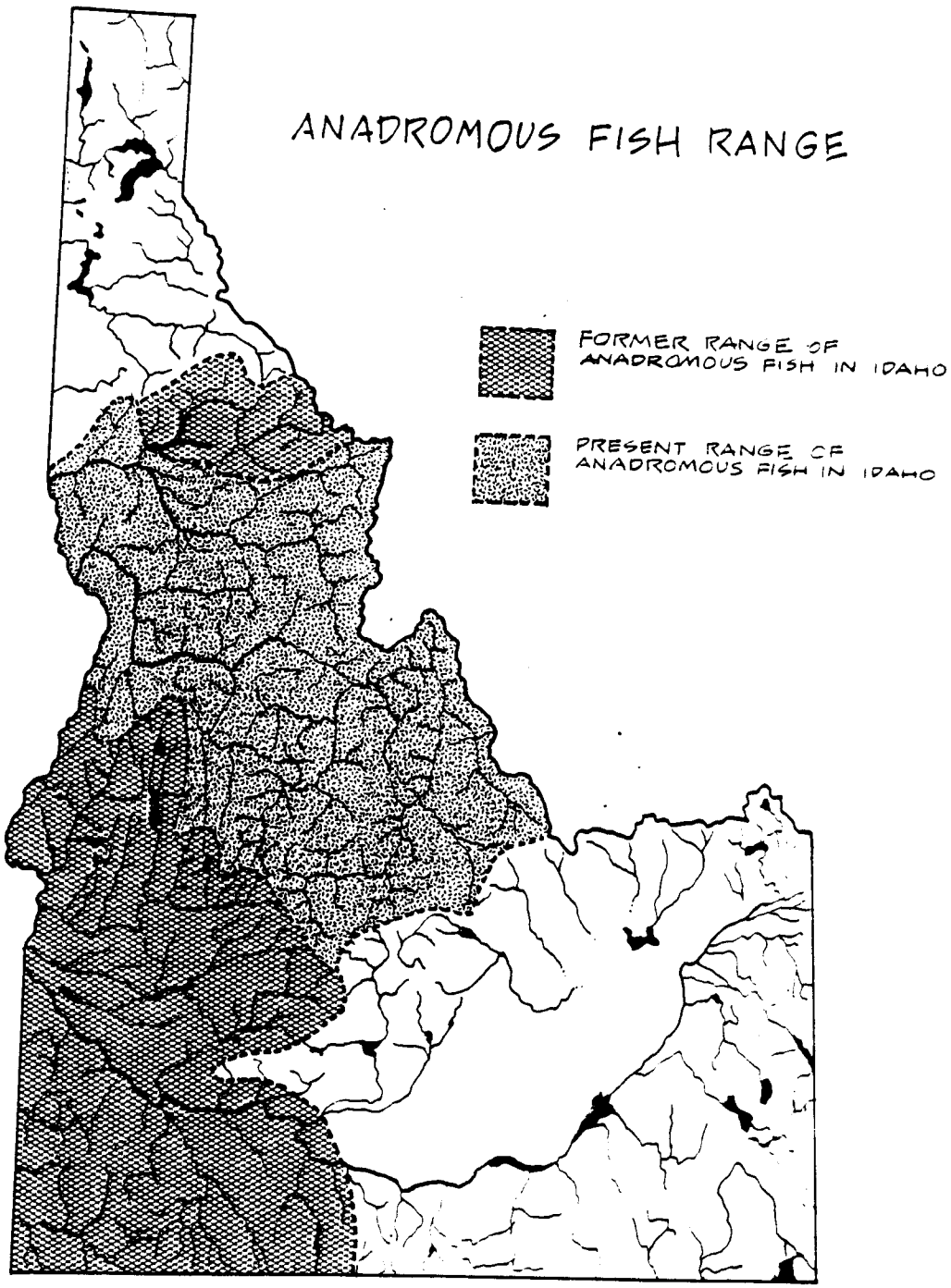

Figure 3. Former and present range of anadromous fish in Idaho.

natural stream channels which are necessary for spawning and rearing fish. Heavy metal pollution from mine wastes and drainage can eliminate all aquatic life and, in some cases, blocks access to valuable spawning and rearing habitat. Grazing, logging, road building, and other land-disturbing activities can lead to erosion or fine sediments entering streams which reduces available food supplies, egg and fry survival, and rearing space. The problem of stream siltation resulting from disturbed lands is especially critical in the Clearwater and Salmon River drainages.

Approximately 8,000 miles of stream were once utilized by anadromous fish in Idaho for spawning, rearing, and/or migration routes. Today there are 5,322 stream miles (66%) available for use by anadromous fish (Table 7). This total includes 2,403 miles of relatively undamaged streams, 2,705 miles of stream from which barriers have been removed, and 214 miles of stream which are not blocked but whose habitat has been seriously damaged as a result of dredge mining, road building, logging, and grazing practices. Runs in these latter streams have been reduced, but fish still have access to and use them (Table 8).

The Salmon River drainage contains the largest number of stream miles (2,981) of available anadromous fish habitat. Chinook and steelhead occur throughout the drainage.

Approximately 2,158 miles of anadromous fish habitat are available in the Clearwater River drainage.

The Snake River drainage has 183 miles presently available to anadromous fish and is used primarily as a migration route, although a limited number of fall chinook still spawn in this stream and steelhead utilize the tributaries.

Summer and Spring Chinook. Summer and spring chinook have been eliminated permanently from the Snake River and tributaries above Hells Canyon Dam, and have been severely depressed in the Clearwater River system and Panther Creek. Sediment from road building, mining, and logging has severely degraded the summer chinook habitat in the South Fork Salmon River, while mining has reduced runs into Yankee Fork and Bear Valley Creek. Irrigation diversions have limited spring chinook in the Lemhi River.

Fall Chinook. Idaho once had a very large number of fall chinook spawning in the Snake River. This run was reduced by construction of early water development projects and by Brownlee, Oxbow, and Hells Canyon dams. Only a small remnant of the former run now spawns below Hells Canyon Dam in the Snake River. The value of the present fall chinook run to Idaho anglers is rather small. Approximately 108 miles of Idaho's streams are presently utilized by fall chinook salmon.

Steelhead. Steelhead were eliminated from the South Fork Clearwater River by a Washington Water Power dam. The dam was removed in 1963 and a reintroduction program started. Runs are still a very small portion of their former magnitude, but are rebuilding. The North Fork

Table 7. Estimates of anadromous fish spawning, rearing, and migration habitat for sub-basins used in Idaho anadromous fisheries management plan.

Basin/Sub-basins	Stream miles	Habitat Inventory Acres	Square Meters (Millions)
Snake River			
1. Lewiston to Imnaha	69	2960	12.0
2. Inmaha to Hells Canyon Dam	114	1887	7.6
Snake Basin Total	183	4847	19.6
Clearwater River			
1. Mouth to North Fork	305	2429	9.8
2. North Fork	2	35	0.1
3. Upper Clearwater (N. Fk. to S. Fk.)	212	1537	6.2
4. South Fork Clearwater	379	951	3.8
5. Middle Fork Clearwater	112	675	2.7
6. Lochsa River	397	2079	8.4
7. Selway	751	3698	15.0
Clearwater Basin Total	2158	11349	45.9
Salmon River			
1. Mouth to and incl. Little Salmon	504	3414	13.8
2. L. Salmon to S. Fork	150	879	3.6
3. South Fork Salmon	515	2423	9.8
4. S. Fork to M. Fork	216	103	0.4
5. Middle Fork	685	2308	9.3
6. Middle Fork to Lemhi	163	1631	6.6
7. Lemhi River	98	174	0.7
8. Lemhi to and incl. Pahsimeroi	98	994	4.0
9. Pahsimeroi to and incl. East Fork	174	855	3.5
10. E. Fk. to and incl. Yankee Fork	190	524	2.1
11. Salmon River upstream of Yankee Fork	188	531	2.1
Salmon Total	2981	13,836	56.0
State Total	5322	30,032	121.5

IDAHO ANADROMOUS FISHERY MANAGEMENT PLAN
SUB-BASIN DESIGNATION

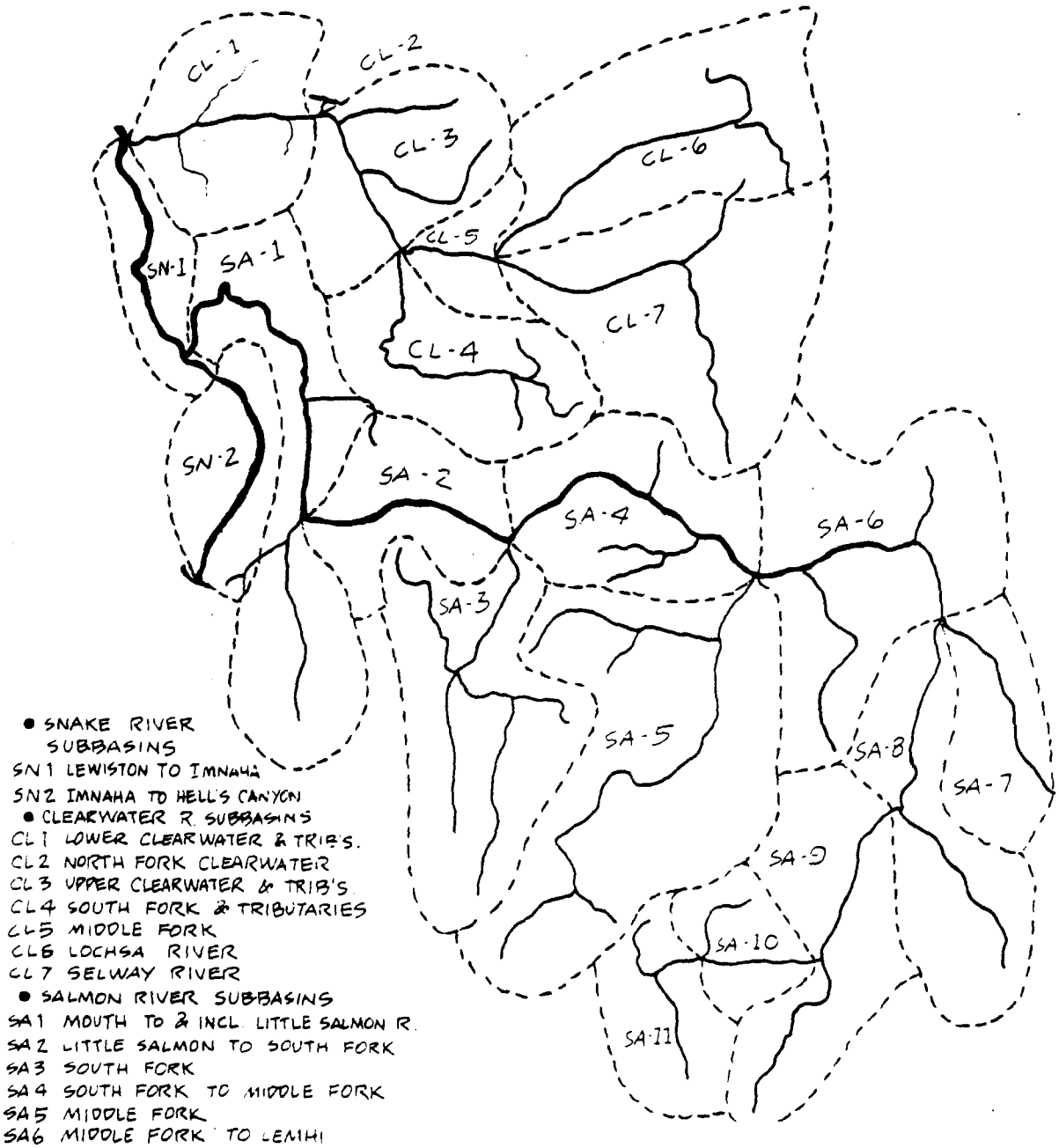

Figure 4. Designated sub-basins for Idaho anadromous fishery planning.

Table 8. Idaho streams lost or severely reduced in value for use by anadromous fish.

Stream	Stream Miles			
	Presently unavailable	Barriers removed rehabilitation underway	Run size greatly reduced	Reason for degradation
Snake River	468	--	--	Blocked--Hells Canyon Dam
Weiser River	256	--	--	Blocked--Hells Canyon Dam
Payette River	470	--	--	Blocked--Hells Canyon Dam
Owhyee River	195	--	--	Blocked--Hells Canyon Dam
Boise River	520	--	--	Blocked--Hells Canyon Dam
Bruneau/Jarbidge	200	--	--	Blocked--Hells Canyon Dam
N. F. Clearwater River	627	--	--	Blocked--Dworshak Dam
Panther Creek	--	--	88	Mining pollution
S. F. Clearwater River	--	359	--	WWP Dam--dredge mining
Clearwater River	--	2,158	--	Lewiston Dam
Salmon River	--	188	--	Sunbeam Dam
S. F. Salmon River	--	--	82	Building, grazing logging road
Yankee Fork	--	--	44	Dredge mining
Bear Valley Creek and Elk Creek	--	--	42	Dredge mining
Totals	2,736	2,705	256	

Clearwater River was lost due to construction of Dworshak Dam. The access for steelhead was also blocked to the Snake River and tributaries above Hells Canyon Dam. Steelhead continue to be Idaho's most valuable anadromous fishery resource because of the long duration of time during which they can be fished, and their wide distribution. Approximately 5,322 miles of Idaho streams are presently utilized by steelhead trout.

Sockeye. Idaho's major sockeye runs were eliminated by a series of dams on the Payette River and by Sunbeam Dam on the upper Salmon River. After Sunbeam Dam was breached, the sockeye run was re-established in Redfish Lake but has not approached former magnitudes.

Mitigation Measures

A variety of measures have been applied to mitigate man-caused impacts on anadromous salmonids. The early dams had crude and ineffective fish ladders which have evolved into sophisticated and effective collection and passage systems. Fish hatcheries have been constructed to replace natural spawning and rearing areas which have been blocked or flooded by dams. Screen and bypass systems have been developed to shunt downstream migrants safely around turbines. Spillways have been modified to reduce conditions which cause nitrogen supersaturation during periods of high spill. Trapping smolts at upper dams and transporting them by barge or truck to the estuary has reduced dam and predator mortalities and shortened travel times. Flushing flows to help transport smolts downstream through the main stem reservoirs have improved survival. At some dams, special spill flows provide safe passage for downstream migrants.

Habitat restoration and enhancement projects have mitigated for some habitat losses. Natural migration barriers have been removed or bypassed. Sediment problems have been reduced by changes in land management practices. Diversion screens and bypass systems reduce smolt losses. Instream flows can reduce dewatering of streams.

The effectiveness of the different mitigation measures has been variable. Many of the more promising measures, such as smolt transportation and flow regulation, are relatively new developments which are not yet fully perfected.

These mitigation measures, particularly those aimed at reducing the mortality of Idaho salmon and steelhead at main-stem Snake and Columbia River dams, will play key supporting roles to the habitat protection, artificial propagation, harvest management, and coordination initiatives central to achieving the long-term production and harvest goals proposed in this plan.

Habitat Protection

Although the goal for natural production outlined in this plan is full production from all available habitat, some degradation of habitat quality as a consequence of other resource uses must be anticipated. Important and highly productive habitats should recieve high levels of protection, while lesser habitats may be subject to lesser protection.

Table 9 displays the habitat protection classifications proposed for key salmon and steelhead production habitats in sub-basins of the Snake, Salmon, and Clearwater drainages. The Department believes these classifications should not be used to justify degradation, in fact, zero degradation should be the standard for which all agencies strive for.

Habitat Management

Success in achieving the goals which have been set for natural production of anadromous fish depends on preserving and enhancing habitat. The majority of Idaho's natural rearing habitat is in streams flowing through lands administered by the U.S. Forest Service and the Bureau of Land Management. Land use activities such as logging, grazing, and road building which the land management agencies administer have major influence on stream habitats. Other state agencies such as the Idaho Department of Lands and Idaho Department of Health and Welfare have important responsibilities for protection of water quality and stream habitat.

Private land owners and managers have major impacts on water quality and stream habitats. Public awareness of the effects of land uses on water is important. The Soil Conservation Service can play an important role in protecting fish habitats.

Most of the Salmon and Clearwater basins lie in a geologic formation known as the Idaho Batholith which consists of granitic rock. Batholith lands are characterized by steep slopes and unstable soils composed largely of granitic sand. Any activity which disturbs the soil or disrupts vegetative cover has the potential to result in increased amounts of fine sediments being transported by runoff into streams. Fine sediment reduces production of anadromous fish by filling the interstices in gravels which (1) smothers incubating eggs and fry, (2) reduces production of aquatic insects which provide most of the food for juvenile anadromous fish, and (3) eliminating the spaces between rocks which many juveniles use for rearing and overwintering. Sediments also fill pools which are important rearing habitats for juvenile salmon.

Table 9. Classification of Idaho's anadromous fish streams for production purposes.

HABITAT DEGRADATION STANDARDS

(Allowable short-term impacts due to sediment occuring no more than 3 years out of 10, with expectation of full recovery)

CLASS1	No man-caused reduction from full natural production capacity
CLASS 2	Up to 10% reduction from natural production capacity
CLASS 3	Up to 20% reduction from natural production capacity
CLASS 4	Up to 30% reduction from natural production capacity

Stream	Classification
Snake - Sub-basin 1	
Snake River (Lewiston to Imnaha R.) and Tributaries	2
Snake - Sub-basin 2	
Snake River (Imnaha R. to Hells Canyon Dam)	3
Tributaries	2
Clearwater - Sub-basin 1	
Clearwater River (mouth to Orofino Bridge)	3
Potlatch Creek	3
Lapwai Creek	3
Big Canyon Creek	2
All other tributaries	2
Clearwater - Sub-basin 2	
North Fork Clearwater River	4
Clearwater - Sub-basin 3	
Clearwater River (Orofino Bridge to South Fork)	2
Orofino Creek	2
Jim Ford Creek	2
Lolo Creek	2
Lawyers Creek	2
Clearwater - Sub-basin 4	
South Fork Clearwater River	2
Red River	2
Crooked River	2
Ten Mile Creek	1
Johns Creek	1
All other tributaries	variable

Table 9 (Continued)

Stream	Classification
Clearwater - Sub-basin 5	
Middle Fork Clearwater River	2
Clear Creek	2
Maggie Creek	2
Clearwater - Sub-basin 6	
Lochsa River	2
Fish Creek	1
All other tributaries	2
Clearwater - Sub-basin 7	
Selway River and tributaries	1
Salmon - Sub-basin 1	
Salmon River (mouth to Little Salmon River)	2
Little Salmon River	3
Rapid River (above weir)	1
Hazzard, Hard, and Boulder Creeks	1
All other tributaries	2
Salmon - Sub-basin 2	
Salmon River (Little Salmon R. to South Fork)	2
Wind River	1
Sheep Creek	1
Crooked Creek	1
All other tributaries	2
Salmon - Sub-basin 3	
South Fork Salmon River	2
All tributaries	2
Salmon - Sub-basin 4	
Salmon River (South Fork to Middle Fork)	2
Bargamin Creek	1
Chamberlain Creek	1
Sabe Creek	1
Horse Creek	1
All other tributaries	2
Salmon - Sub-basin 5	
Middle Fork Salmon River	1
All tributaries	1
Salmon - Sub-basin 6	
Salmon River (Middle Fork to Lemhi River)	2
All tributaries	2
Salmon - Sub-basin 7	
Lemhi River	2
All tributaries	2

Table 9 (Continued)

Stream	Classification
Salmon - Sub-basin 8	
Salmon River (Lemhi R. to Pahsimeroi R.)	2
Pahsimeroi River and tributaries	3
All tributaries	2
Salmon - Sub-basin 9	
Salmon River (Pahsimeroi R. to East Fork)	2
Morgan Creek	3
East Fork Salmon River	2
All other tributaries	2
Salmon - Sub-basin 10	
Salmon River (East Fork to Yankee Fork)	2
Yankee Fork	3
All tributaries	2
Salmon - Sub-basin 11	
Salmon River (Yankee Fork to Headwaters)	2
All tributaries	2

Habitat Restoration and Enhancement Projects

Habitat losses can be mitigated in part by restoring or enhancing damaged habitat or by providing access past barriers. Many opportunities to improve or restore productive capacities of natural habitats are available in Idaho. Streams that have been degraded by mining, grazing, road construction, and other forms of development can be improved for the purpose of producing anadromous fish through a variety of instream and riparian habitat restoration measures. Streambank vegetation can be improved with livestock exclosure fencing of critical spawning and rearing areas. In severely damaged dredge mined areas, stream channels can be reconstructed to restore production capability for anadromous fish. Structures can be placed in existing stream channels to restore pools for rearing, spawning riffles, or any other desired type of habitat that has been eliminated or reduced by past activities.

Although it is possible to improve production capacities of anadromous fish habitat, once habitat has been damaged it is difficult to completely restore or replace. Even with the best available technology, altered streams are rarely as productive as pristine streams. Artificial habitat enhancement or restoration may not be cost-effective and should not be regarded as an adequate substitute for protecting existing habitat.

One of the most effective habitat improvement measures is removal of natural migration barriers, providing anadromous fish with access to suitable habitats.

The benefits accruing from habitat restoration and enhancement projects and barrier removal to provide unimpeded passage for migrating anadromous fish are closely tied to development of artificial propagation and harvest management programs. Stocking hatchery produced juvenile anadromous fish of the appropriate stock into the enhanced habitat is the quickest way to assure full utilization of the habitat and re-establishment of spawning runs. Harvest management must be designed to provide adequate spawning escapements to seed the increased habitat capacity. Enhancing habitat and providing passage does not yield timely benefits unless fish are provided to utilize the increased habitat capacity.

Artificial Propagation

Artificial propagation will play a dominant role in restoration of anadromous fish resources during the remainder of this decade. Returns of adult fish from hatchery produced smolts to hatcheries and other terminal areas will provide most of the harvestable fish for the next several years and will support major fisheries. Release of smolts

and/or sub-smolts into natural spawning and rearing areas is essential to full utilization of the available habitat and restoration of adequate spawning runs.

Hatchery capacities for both chinook salmon and steelhead trout will approximately double by 1990 (**Tables 10 and 11**). This increase in hatchery capacity is primarily from compensation for development of the four-dam complex on the Lower Snake River. When added to existing compensation facilities funded by Idaho Power Company and the Corps of Engineers, the Lower Snake River Compensation hatcheries will have a large influence on anadromous fish runs (**Table 12**).

In the case of artificial production facilities for steelhead, it appears that adequate supplies of eggs of the proper upper river stocks are available to fill the hatching and rearing capacity of new facilities as they become operable. For chinook, however, the present brood stock returns may not be adequate to fill existing facilities. Brood stock development for chinook will be critical to fill the new rearing facilities.

At present, large numbers of steelhead smolts and sub-smolts are available to stock natural spawning and rearing habitat for restoration of naturally spawning runs and are being used for this purpose. For chinook, the major emphasis in the immediate future will be on release of smolts which will return to hatchery racks as adults to provide expanded egg supplies. Some outplanting of chinook smolts and sub-smolts into natural habitat will be initiated as early as 1985 but this program will be limited until adequate egg supplies for hatchery programs are secure. If rebuilding of chinook runs procedes as outlined in this plan, approximately half of hatchery production will be outplanted in the future.

The dangers of artificial production programs include genetic dilution, spread of diseases, and lowered survival of hatchery fish. It is in the best interest of the resource to maintain separate stocks and preserve various characteristics of different runs. **Table 13** lists the stocks of management emphasis and the appropriate donor stocks to introduce into different watersheds.

Harvest Management

The preceding discussion focuses on means of and impediments to increasing production of Idaho anadromous salmon and steelhead. Regulating harvests throughout the thousands of miles-long range of the fish produced in Idaho to achieve spawning escapement objectives is integral to achieving the long-term objectives of this plan.

Out-of-state overfishing of depressed Idaho stocks intermingled with more productive stocks, particularly hatchery fish, has been a serious problem. Improved coordination with other fishery management agencies (discussed in the following section), and development of selective fishing regulations or techniques can ameliorate the problems in mixed stock fisheries.

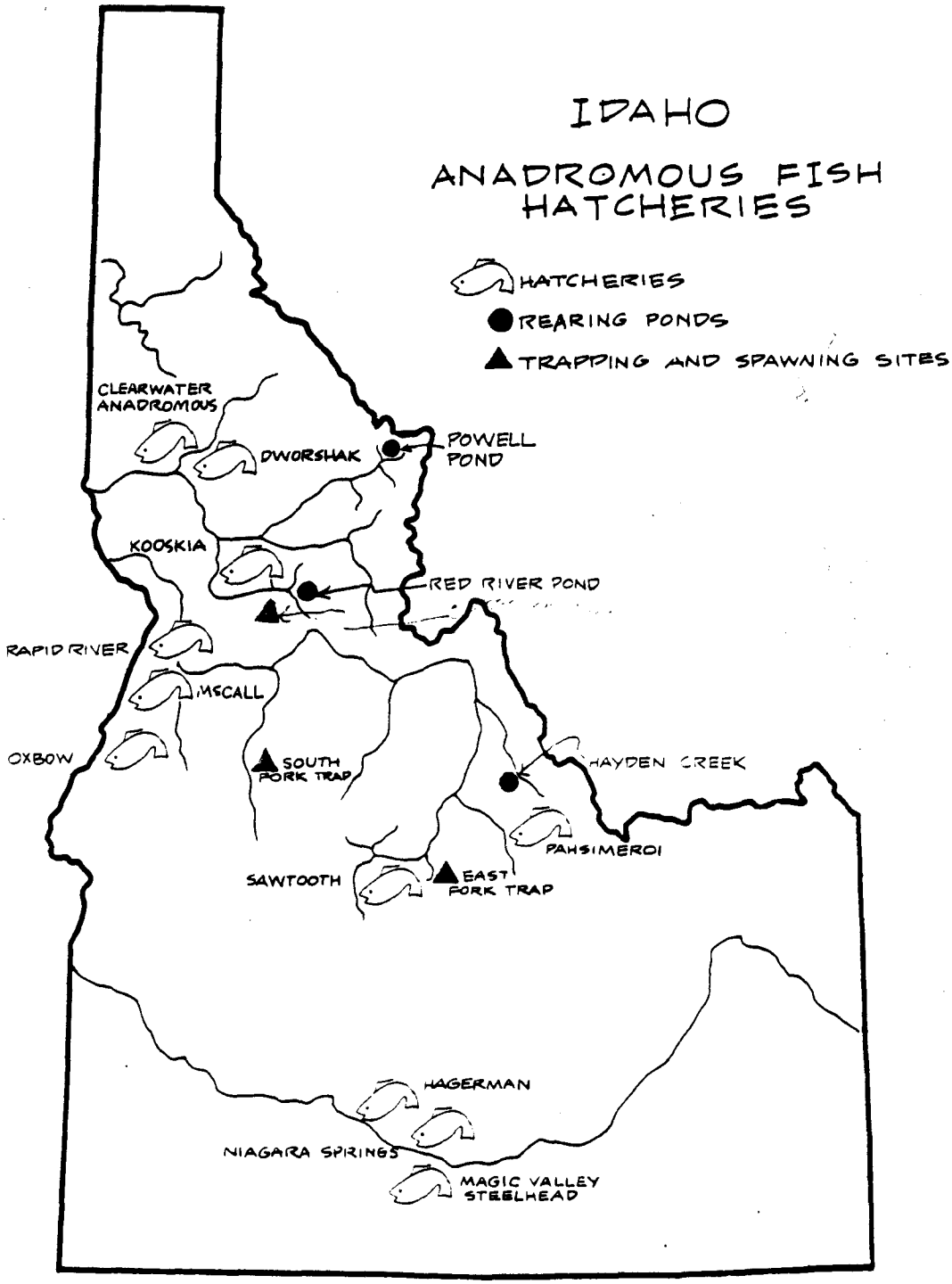

Figure 5. Location of anadromous fish rearing facilities in Idaho.

Table 10. Chinook smolt production capacities (in millions of smolts) of Idaho hatcheries, 1984-1990.

Spring Chinook

Hatchery	1984	1985	1986	1987	1988	1989	1990
Rapid River	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Sawtooth	0.5	0.5	1.0	2.0	2.2	2.2	2.2
Dworshak	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Clearwater	0.0	0.0	0.0	1.0	1.0	1.5	2.2
Pahsimeroi	1.0	1.0	1.0	1.0	0.0	0.0	0.0
Kooskia	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Hayden Creek	0.0	0.0	0.4	0.4	0.4	0.4	0.4
Total Spring Ck.	5.9	5.9	6.8	8.8	8.0	8.5	9.2

Summer Chinook

McCall	0.5	0.5	1.0	1.0	1.0	1.0	1.0
Pahsimeroi	0.0	0.0	0.0	0.0	1.0	1.0	1.0
Total Summer Ck.	0.5	0.5	1.0	1.0	2.0	2.0	2.0

Table 11. Steelhead smolt production capacity[1/] (in millions of smolts) in Idaho hatcheries, 1984-1990.

Hatchery	1984	1985	1986	1987	1988	1989	1990
Dworshak	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Niagara	1.6	1.6	2.0	2.0	2.0	2.0	2.0
Hagerman	1.0	1.7	1.7	1.7	1.7	1.7	1.7
Magic	0.0	0.0	0.8	1.5	1.5	1.5	1.5
Clearwater	0	0	0	0	1.5	2.0	2.7
Total	5.1	5.8	7.0	7.7	9.2	9.7	10.4

1/ Steelhead smolt capacity estimates are based on smolts averaging approximately 7 per pound at Dworshak and Clearwater hatcheries and approximately 5 per pound at the other hatcheries at the time of release.

Table 12. Summary of existing and approved salmon and steelhead (anadromous) hatchery facilities.

Funded by[2]	Hatchery	Release site	Smolt release at design capacity: Number (x 1,000,000)	Smolt release at design capacity: Pounds	Year of initial operation
		SPRING CHINOOK			
IPC	Rapid River*	Rapid River[1]	2.0	130,000	1964
		Snake River	1.0	65,000	1981
IPC	Pahsimeroi*	Pahsimeroi River	1.0[3]	65,000	1981
COE FWS	Dworshak	Clearwater Drainage	1.0	66,700	1981
LSRCP	Clearwater*	Upper Clearwater	2.2	86,000	1987
LSRCP	Sawtooth	Upper Salmon River	2.4	149,000	1984
FWS	Kooskia	M.F. Clearwater	0.4	26,000	1970
Total			10.0	587,700	
		SUMMER CHINOOK			
LSRCP	McCall*	S.F. Salmon River	1.0	61,400	1980
		SUMMER STEELHEAD			
COE/FWS	Dworshak	Clearwater River	2.5	328,000	1969
IPC	Niagara Springs*	Pahsimeroi River	1.0	200,000	1964
		Hells Canyon	1.0	200,000	1983
LSRCP	Hagerman	Upper Salmon River	1.7	340,000	1983
LSRCP	Magic Valley*	Salmon River	1.5	292,000	1985
LSRCP	Clearwater*	Clearwater, Snake, and lower Salmon	2.7	350,000	1987
Total			10.4	1,710,000	

(Continued on next page)

Table 12 (Continued)

1/ Prior to 1981 all 3,000,000 smolts were released to Rapid River.

2/

LSRCP - Lower Snake River Compensation Plan - mitigation for fish losses caused by mortality at COE dams on the Snake River.

IPC - Idaho Power Company - mitigation for anadromous fish losses at three Hells Canyon Dams.

COE/FWS - Corps of Engineers - mitigation for Dworshak Dam; operated by Fish and Wildlife Service.

FWS - Congressional authorization for general mitigation.

* Operated by Fish and Game personnel.

3/ Pahsimeroi hatchery will be converted to summer chinook production as soon as an egg source is available.

Table 13. List of Idaho anadromous fish stocks indicating identified stocks of management emphasis and appropriate donor stocks for inter-basin transfers.

Stream	Stock	Appropriate Donor Stock
Summer Chinook		
South Fork Salmon	Indigenous	None
Middle Fork Salmon	Indigenous	None
Main Salmon (SA-10)	Indigenous	East Fork Salmon
Pahsimeroi	Indigenous	None
East Fork Salmon	Indigenous	None
Main Salmon(SA-9)	Indigenous	East Fork Salmon, Pahsimeroi
Fall Chinook		
Snake River	Indigenous	None
Clearwater River	Snake River	Snake River
Sockeye		
Redfish Lake	Indigenous	None
Alturas Lake	Babine Lake	Redfish Lake
Warm Lake	Babine Lake	Redfish Lake
Stanley Lake	Babine Lake	Redfish Lake
Spring Chinook		
Snake (SN-2)	Rapid River	None
North Fork (CL-2)	Rapid River	Leavenworth, any Clearwater returns
Clearwater (CL-3)	Rapid River	Leavenworth, any Clearwater returns
South Fork (CL-4)	Rapid River	Lochsa, Kooskia
Middle Fork (CL-5)	Rapid River	South Fork, Lochsa, Kooskia
Lochsa (CL-6)	Indigenous	Rapid River, Kooskia, South Fork
Selway (CL-7)	Indigenous	None
Salmon (SA-1)	Indigenous	Rapid River
Salmon (SA-2)	Indigenous	Rapid River
South Fork (SA-3)	None	None
Salmon (SA-4)	Indigenous	None
Middle Fork (SA-5)	Indigenous	None
Salmon (SA-6)	Indigenous	East Fk., Upper Salmon
Lemhi (SA-7)	Indigenous	East Fk., Upper Salmon
Pahsimeroi (SA-8)	Indigenous	Lemhi, East Fork, Upper Salmon, Rapid River
East Fork (SA-9)	Indigenous	Upper Salmon
Yankee Fork (SA-10)	Indigenous	Upper Salmon, East Fork Salmon
Upper Salmon (SA-11)	Indigenous	East Fork Salmon, Lemhi

Table 13 (Continued)

Stream	Stock	Appropriate Donor Stock
Steelhead		
Snake (SN-1)	Indigenous	Snake A
Snake (SN-1)	Snake A	None
Clearwater (CL-1)	Indigenous	None
North Fork (CL-2)	Clearwater B	None
Clearwater (CL-3)	Indigenous	Clearwater B
South Fork (CL-4)	Clearwater B	None
Middle Fork (CL-5)	Indigenous	Clearwater B
Lochsa (CL-6)	Indigenous	Clearwater B
Selway (CL-7)	Indigenous	None
Salmon (SA-1)	Indigenous	Snake A
Salmon (SA-2)	Indigenous	Snake A
South Fork (SA-3)	Indigenous	None
Salmon (SA-4)	Indigenous	None
Middle Fork (SA-5)	Indigenous	None
Salmon (SA-6)	Indigenous	Snake A
Lemhi (SA-7)	Indigenous	Snake A
Pahsimeroi (SA-8)	Snake A	None
East Fork (SA-9)	Clearwater B	None
Yankee Fork (SA-10)	Indigenous	Snake A
Salmon (SA-11)	Indigenous	Snake A

This plan provides guidelines to manage Idaho's harvest of salmon and steelhead in a manner which will provide the greatest long-term benefit to sport and Indian fishermen within the state, consistent with treaty rights, while recognizing the needs and rights of Indian and non-Indian fisheries that occur on fish of Idaho origin outside the state.

The following principles are proposed to guide all anadromous salmon and steelhead harvest management in Idaho:

1) **Meeting and maintaining natural and hatchery spawning escapement objectives will be the primary criteria upon which anadromous fish are managed. Seeking to meet short-term harvest pressure and in so doing never allowing spawning escapement to reach objective levels, would be the ultimate disservice to the resource and Idaho fishermen. This type of mismanagement would not only reduce long-term benefits to be obtained from the resource and lead toward stock instability, but by continually underescaping natural habitat an extremely weak position would be established to protect that habitat from being degraded by competing uses or to ever obtain funding or commitments to enhance the habitat.**

2) **Preserving genetic integrity within and among our anadromous stocks will have priority over maximizing harvest potential. Anadromous fish from Idaho are subject to an imposing and ever changing array of obstacles to their survival. Both naturally spawning and hatchery reared fish must be capable of overcoming these obstacles if we are to preserve a healthy, harvestable resource. We will continue to maintain some completely wild native runs without artificial supplementation. Where this is not possible, we will manage more than one distinct hatchery stock and continually integrate our hatchery and naturally spawning broodstock to maintain a hatchery stock which is capable of successfully surviving through natural production.**

3) **The productive capability of all available natural habitat will be utilized. Experience with the Lower Snake River Compensation Plan has shown very clearly that hatchery compensation for the loss of a portion of the natural production can create problems in managing the remaining natural production. Availability of hatchery sites, disease problems, and high costs will limit future increases in hatchery production. Therefore, all remaining available anadromous fish natural production habitat must be used to fully restore the productive capability of the resource in the future.**

4) **Provide a maximum amount of fishing opportunity on the anadromous fish resource consistent with principles 1 through 3 above.**

All fisheries will be managed to meet the spawning escapement objectives for criteria streams. Both tribal and nontribal fisheries will be managed to allow sufficient numbers of spawners to escape. Opportunities to harvest fish will be provided to non tribal as well as tribal fishermen when the numbers of adult fish that are returning exceed the spawning escapement objectives.

When managing mixed stock fisheries, the fisheries will be regulated to meet both natural and hatchery spawning escapements. In many cases, some harvest of hatchery salmon stocks will have to be foregone in mixed stock fisheries to meet natural spawning escapement objectives. Natural spawning escapement objectives will require limitations to be placed on mixed stock fisheries which will result in underharvest of hatchery stocks in the mixed stock fisheries. Special fisheries for tribal and nontribal fishermen will be developed in areas where the stocks can be separated to harvest additional hatchery fish.

In order to harvest the allowable catch of hatchery-produced salmon and steelhead, special known-stock fisheries for hatchery fish are proposed in this draft plan.

The qualitative aspect of salmon and steelhead sport fishing also is given consideration in this plan with emphasis on quality fishing experiences proposed on such streams as the Middle Fork Salmon River, Middle Fork Clearwater River, Lower Clearwater River (prior to harvest seasons) and the Selway River.

In other areas, it is proposed to provide a maximum amount of sport fishing opportunity. Streams in this category include:

Snake River - Lewiston to Hells Canyon Dam
Clearwater River - Mouth to South Fork Clearwater
Salmon River - Mouth to Sawtooth Hatchery weir
Lemhi River, Little Salmon River, North Fork Clearwater River, Lochsa River, South Fork Clearwater River

Special tags may be used to limit entry and control harvest in the quality salmon and steelhead fisheries proposed on the Selway and Middle Fork Salmon Rivers. Special tags may also be used to provide quality fisheries for steelhead on the South Fork Salmon River when allowable harvest is available.

Angler Management

Increasing numbers of steelhead anglers have created litter, sanitation, and access problems. As the programs outlined in this plan come into effect, additional steelhead and salmon will attract even more anglers. Conflicts between anglers and litter problems will increase in proportion to numbers of anglers.

Some particular measures are necessary to accomodate additional anglers and reduce conflicts. Boat ramps, sanitary facilities, and fishing access areas need to be developed. Information and education programs on angler ethics and courtesy could help reduce conflicts between anglers. Additional fish and game law enforcement may be neces-

sary as additional participants are drawn into the anadromous fisheries. Regulation alternatives which reduce angler conflicts will be considered by the commission.

Although improving fisheries will attract some increase in license sales, the additional income will not be adequate to fund the management, enforcement, and administrative efforts which will be necessary. During this planning period the Department will sponsor legislation to increase the salmon and steelhead permit fees from the present $2.50 (including $.50 vendor fees) to $5.50. Income from salmon and steelhead permit fees will be designated to fund management and public service for permittees.

Fishing Opportunities

The improved salmon and steelhead runs that result from implementing this proposed plan will be managed to provide increased harvest opportunities for fishermen in Idaho. A diversity of fishing experiences will be offered by use of special regulations (**Figures 6 and 7**).

The approach to managing salmon fisheries will be different from the methods employed to manage harvest of steelhead, and the two approaches are displayed separately in the following discussion.

Steelhead Fisheries

All hatchery steelhead will be marked by a clipped adipose fin.

In most areas, anglers will have to discern the difference between hatchery fish and natural fish as regulations will be more liberal for harvesting hatchery fish than for harvesting natural fish. The following listing of steelhead fishing areas and proposed fishing opportunity by area is provided for public information:

Snake River - Lewiston to Imnaha River. Fisheries in this area will be managed to maximize the harvest of hatchery fish consistent with escapement objectives for both hatchery and natural fish for upstream areas. Sport fishing for steelhead will occur in this area throughout the fall, winter, and spring months. Fisheries in this area are managed cooperatively with Washington Department of Game and Oregon Department of Fish and Wildlife.

Snake River - Imnaha River to Hells Canyon Dam. Fisheries in this area are primarily supported by hatchery fish and are managed to maximize the catch of hatchery fish consistent with hatchery spawning escapement objectives. Steelhead fisheries will be provided in this area from September through April and will be managed cooperatively with Oregon Department of Fish and Wildlife.

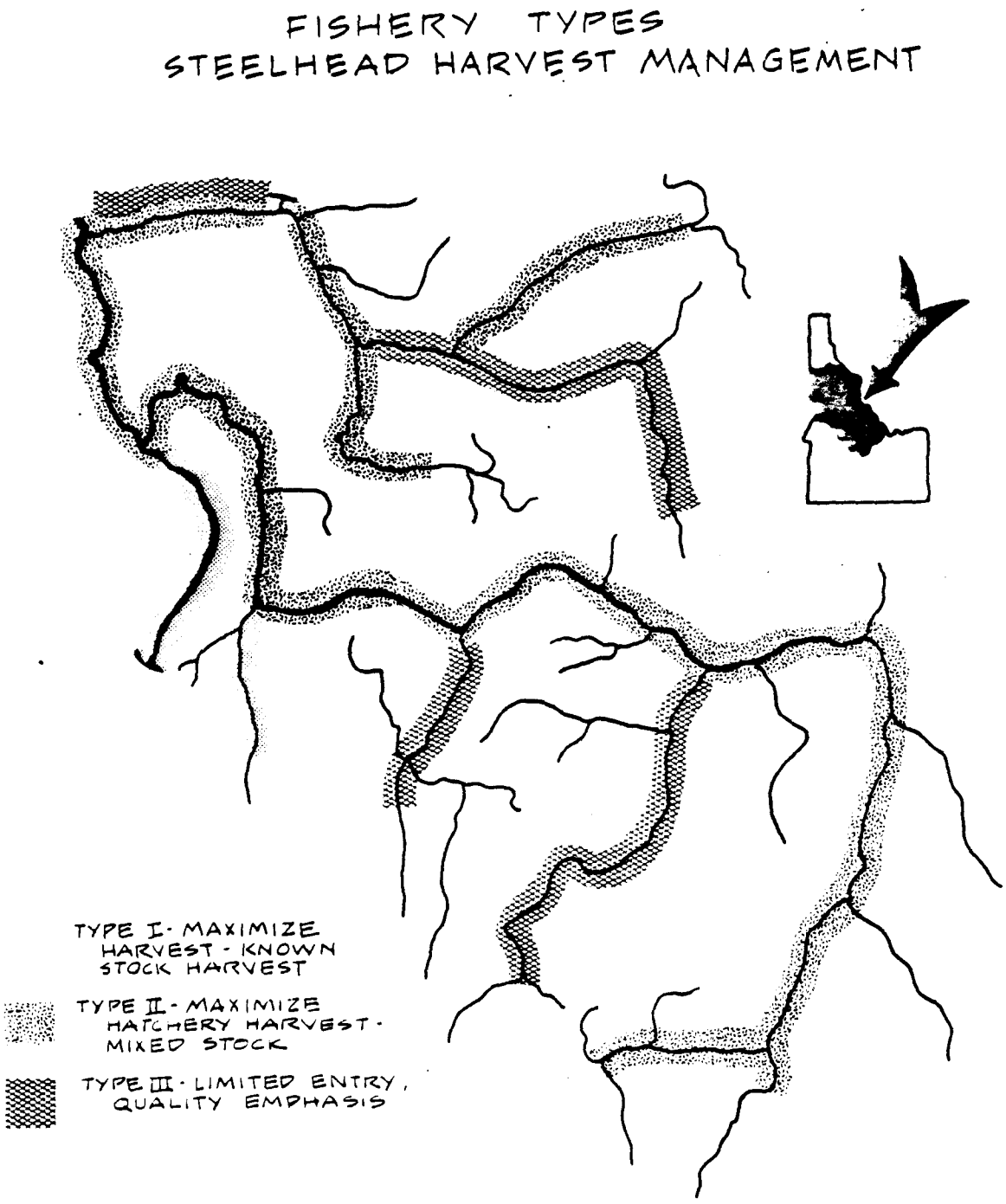

Figure 6. Steelhead trout fishing areas and types.

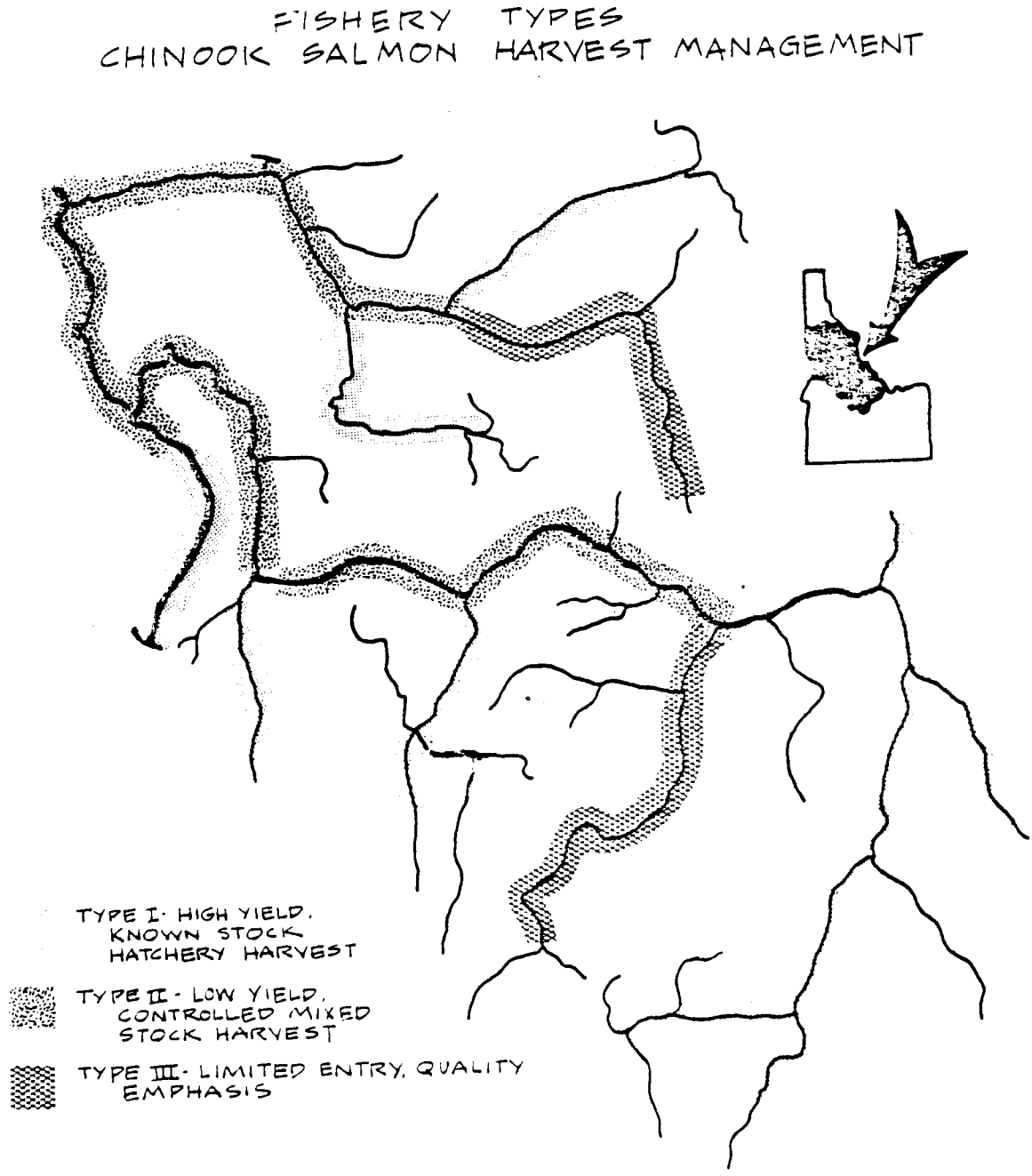

Figure 7. Chinook salmon fishing areas and types.

Clearwater River - Mouth to South Fork. Prior to the Saturday nearest October 15, this area is managed for catch-and-release fishing. After October 15, this important fishing area will be managed to maximize the harvest of hatchery fish consistent with spawning escapement objectives. Harvesting of natural fish is limited by spawning escapement objectives. Fishing from motorized boats is restricted upstream from Orofino to reduce angler conflicts.

Fishing opportunity is provided from September through April in most years.

North Fork Clearwater River - Mouth to closure below Dworshak Dam.

This fishery is managed to maximize the harvest of hatchery steelhead consistent with achieving the spawning escapement objective at Dworshak Hatchery. Fishing opportunity is provided in this area from October through April.

South Fork Clearwater River - Mouth to Red River/American River confluence. The fishery in the South Fork will be primarily a spring fishery. As more fish are planted in the upper tributaries and adults return, a good quality fishery should develop in March and April. Water conditions and ice will limit winter fisheries and spring fishing in the lower reaches.

Middle Fork Clearwater River - South Fork to Lowell. The fishery in this area will be managed to limit the catch of natural fish, to meet spawning escapement objectives, and to maximize the harvest of hatchery fish. This scenic stream will provide excellent sport fishing in October, November, and March with ice conditions hampering winter fishing.

Lochsa River - Mouth to White Sands Creek. This stream will be managed to maximize the harvest of hatchery fish, but the time period that steelhead are available for harvest is confined to the month of March and the early part of April. Harvesting of natural fish will be limited to meet spawning escapement objectives.

Selway River - Mouth to Paradise. A limited number of special tags or restrictive regulations will be used to control harvest and the number of participants in this high quality fishery for wild steelhead. The fishing period will be short, being confined to the month of March and the first two weeks in April.

The harvest of wild fish will be strictly limited to meet the spawning escapment objective.

Salmon River - Mouth to Middle Fork. This important fishing area will be managed to maximize the catch of hatchery steelhead consistent with meeting hatchery spawning escapement objectives. Harvest of wild

and natural fish is limited to meet the upstream natural spawning escapement objectives, particularly the spawning escapement objectives for the Middle Fork Salmon River and South Fork Salmon River.

Little Salmon River - Mouth to Falls. As additional steelhead hatchery capacity becomes available, smolt releases into the Little Salmon River will be increased in order to provide a known-stock terminal area fishery. Fishing will be managed on the Little Salmon River to maximize the harvest of hatchery fish. Fishing opportunities will primarily occur in February, March, and early April.

South Fork Salmon River. The South Fork will be managed for wild steelhead and harvest opportunities will be limited by management for a wild spawning escapement.

Fall or spring catch and release fisheries will be considered as population status data becomes available. Spring fisheries may be constrained by road conditions, access, and conflicts with big game animals on winter range.

Harvest will be controlled by restrictive regulations or limited permits after spawning escapement goals are met.

Middle Fork Salmon River. Fishing opportunities in the Middle Fork are limited to March and April by the migration timing of steelhead. This fishery will be managed for a wild spawning escapement objective, and a catch-and-release fishery might be allowed when no harvestable surplus is available. Harvest will be controlled by restrictive regulations or limited permits after spawning escapement goals are reached.

Salmon River - Middle Fork to Sawtooth Weir. This fishing area will be managed to maximize the harvest of hatchery fish consistent with spawning escapement objectives. Fishing opportunities are available from October through April with ice conditions interrupting the fishery during the winter. Fall fishing will occur primarily in the lower portion of this sector.

Salmon Fisheries

Unlike steelhead fisheries, most salmon fishing is proposed to occur in tributaries or in the upper portions of the main-stem Clearwater, Salmon, and Snake Rivers. Marks or clipped fins will not be used to allow fishermen to selectively harvest hatchery salmon in mixed-stock fisheries. Harvest rates in mixed-stock fishing areas will have to be held at low levels to achieve sufficient escapement of wild and natural fish to upstream spawning areas. By confining most of the harvest to tributary or terminal areas, it will be possible to vary harvest rates according to the allowable harvest projected for individual stocks. There are no plans for salmon catch-and-release fisheries because of anticipated post-release mortality.

The following listing of salmon fishing areas and proposed fishing opportunities is provided for public review and comment:

Snake River - Lewiston to Imnaha River. High flows and turbid water limit the fishing opportunity in this area during most years. Harvest must be limited in this area by regulation to ensure that natural spawning escapements in upstream areas can be met. During years when there is a late runoff or a low runoff, opportunities for spring chinook fishing will be available during the months of May, June, and July, consistent with meeting upstream spawning objectives. This fishery will be managed cooperatively with Washington Department of Fisheries and Oregon Department of Fish and Wildlife.

Snake River - Imnaha River to Hells Canyon Dam. In most years, this section of the Snake River should provide excellent conditions for harvesting spring chinook salmon. This fishery will be managed to maximize fishing opportunities and catch of hatchery fish, consistent with meeting the hatchery spawning escapement objective at the fish trap below Hells Canyon Dam. The fishery will occur in this area during the months of May, June, and July. Management of the fishery will be done cooperatively with the Oregon Department of Fish and Wildlife.

Clearwater River - Mouth to South Fork. In most years, two factors will limit the salmon fishing opportunities in this area: (1) high, turbid stream flow, and (2) the need to restrict this fishery to meet natural spawning escapement objectives. Fishing opportunities will be made available in some years during the months of May, June, and July.

North Fork Clearwater River - Mouth to closure below Dworshak Dam. This fishery will be managed to maximize fishing opportunity and harvest of hatchery fish consistent with meeting the spawning escapement objective at the Dworshak fish trap. This area should provide fishing opportunity for spring chinook during May, June, and July.

South Fork Clearwater River - Mouth to Red River. The fishery in this stream will be managed to maximize the harvest of hatchery fish consistent with meeting spawning escapement objectives. Fishing opportunities will be available primarily during the month of July with some fishing in June if water conditions are suitable.

Middle Fork Clearwater River - South Fork to Lowell. The fishery in this area will be limited to meet natural spawning escapement objectives in the Selway River. When harvestable surpluses of natural fish are available, this area will provide fishing opportunity in June and July.

Lochsa River - Mouth to White Sands Creek. This stream will be managed to maximize the harvest of hatchery fish consistent with meeting spawning escapement objectives. Water conditions should be excellent for catching spring chinook during the latter part of June and during July. This area is expected to be one of the better salmon fisheries in the state.

Selway River - Mouth to Whitecap Creek. A limited number of special tags or other restrictive regulations will be used to control harvest and the number of participants in this high-quality fishery for wild salmon. The fishery will be confined to the month of July, and will be managed in a manner compatible with wilderness area management.

Harvest will be allowed only when achievement of the spawning escapement objective is assured.

Salmon River - Mouth to Middle Fork. High turbid stream flow will limit fishing opportunities in this large stream section in most years. The need to limit harvest of natural fish in this area to meet natural spawning escapement objectives also limits the fishing opportunity provided. Adult salmon migrate through this area in May, June, and July.

Little Salmon River - Mouth to Falls. This fishery will be managed to maximize harvest of hatchery fish consistent with meeting spawning escapement objectives. In most years, an intensive fishery for salmon will occur during May, June, and early July.

South Fork Salmon River - Mouth to Camp Creek. This stream will provide fishing opportunity in late June and July, and will be managed to maximize harvest of hatchery fish consistent with meeting natural and hatchery spawning escapement objectives.

Middle Fork Salmon River - Mouth to Bear Valley Creek. Harvest in the Middle Fork Salmon River will be restricted to ensure meeting the spawning escapement objective. Fishing opportunities that emphasize a minimum amount of angler interference will be offered in June and July when the salmon run is returned to levels that would allow harvest.

Salmon River - Middle Fork to Alturas Lake Creek. This important stream section will be managed to maximize the harvest of hatchery fish and to provide fishing opportunities for harvesting natural fish consistent with meeting spawning escapement objectives. Fishing will occur in this stream section during the months of May, June, and July with high water often making the river unfishable during June.

This area is expected to provide some of the best salmon fishing in the state.

Panther Creek - Mouth to Moyer Creek. This fishery will be managed to maximize the harvest of hatchery fish, consistent with meeting spawning escapement objectives. When the water pollution problems associated with the Blackbird Mine are resolved, this stream will provide salmon fishing opportunities in the months of June and July.

Lemhi River - Mouth to Hayden Creek. This fishery will be managed to maximize the harvest of hatchery fish, consistent with meeting spawning escapement objectives. Fishing will occur in this area in June and July, with dewatering of the stream and a lack of public access hampering fishing opportunities.

East Fork Salmon River - Mouth to closure below Weir. This stream will provide fishing opportunities in late June and July. The fishery will be managed to maximize the harvest of hatchery fish, consistent with meeting spawning escapement objectives.

Limited access to streambanks on private lands may restrict fishing opportunity in some stream sections.

Harvest Regulations

Determination of annual fishing regulations will be based on the best available scientific information, and will be accomplished by the Commission using the following procedure:

1. Preseason data compilation.

   Department staff will collect all available pertinent information concerning the current year's fish run which could include these data:

   a) Survival of downstream migrant juveniles that will contribute to current year's adult return.

   b) Estimated ocean catch of current year's adult production.

   c) Columbia River dam counts.

   d) Estimated Columbia River catch of current year's adult production.

   e) Snake River dam counts to include estimates of relative strength of hatchery and natural components of run.

   f) Relative strength of previous year's return of jack salmon or one-ocean steelhead.

   g) Recent trends in spawning escapements, redd counts, and natural smolt production.

2. IDFG staff development of preliminary recommendation for regulation and submission to Commission.

   The time frame for developing and adopting regulations for salmon and steelhead is very restrictive. Steelhead run projections cannot be developed before early August and seasons usually start September 1. For salmon, run projections cannot be made before May 1 for seasons opening May 15 or June 1. Regulations are developed on an emergency basis with limited opportunity for public review. As

the goals of this plan are accomplished and anadromous fish runs are increased and stabilized, it may be possible to establish regulations on an annual basis as are general fishing regulations.

Public input has been incorporated into the fishing regulation framework described in this plan and will be gathered in other public contacts.

3. The Commission adopts regulations with any modifications they deem appropriate.

   Steelhead regulations will be considered between August 1 and 10 each year for seasons within the framework outlined on the preceding pages.

   Salmon regulations will be considered between May 1 and May 10.

4. IDFG staff publication of regulations.

   Within ten days of adoption, staff will distribute regulations to vendors and make the regulations available to the public at all Department offices.

5. IDFG staff collection of in-season data.

   Dam counts will be monitrored, catch information will be analyzed, and projected survival for the criteria components of the run will be estimated.

6. Monitoring of effectiveness of regulations.

   If inseason data indicates a change in regulation is needed, staff will develop an emergency regulation recommendation and submit it to the Commission.

7. Adjustment in regulations.

   Commission will consider emergency regulation recommendation and adopt or return the recommendation to staff for further consideration.

8. Notification of adjustments in regulations.

   If adopted, the emergency regulation will be immediately announced to the news media and an addendum to the season regulations published and issued as soon as possible.

Fishing seasons for salmon and steelhead will be set within the following frameworks:

Steelhead - September 1 to April 30

Spring and Summer Chinook Salmon - May 1 to August 15

Fall Chinook Salmon - September 1 to October 30

Depending on the timing, abundance, and composition of the salmon and steelhead runs, the season length, bag and possession limits will be determined within these frameworks. The starting and closing dates for each season will be set during the regulation adoption process.

Coordination

Salmon and steelhead produced in Idaho pass through the jurisdiction of some 20 agencies including Indian tribes, other states, fishery management councils, regional compacts, and international treaties. Even within Idaho, the Department of Fish and Game only has authority to produce, manage, and regulate the fish and fisheries. Fish habitat and water quality is managed by state, federal, and private land owners or managers. Irrigators, hydropower producers, and water management agencies control river flows. Public health agencies regulate water quality which determines fish production.

Success of this plan depends on many other authorities being informed and protective of the needs of anadromous fish.

The Commission recognizes that an Idaho anadromous salmon and steelhead management plan will not succeed unless it is well coordinated within the entire Columbia River Basin and tied into ocean harvest management as well.

Implementation of this plan and realization of the improved salmon and steelhead runs will require coordinated and cooperative efforts by a number of fisheries management agencies, land management agencies, and Indian tribes. In addition, regional organizations such as the Pacific Fisheries Management Council, the Columbia Basin Fish and Wildlife Council and the Northwest Power Planning Council will also be involved in the implementation of this plan. It is recognized that this plan will have to be integrated with other state plans into regional plans, and the intent is to entertain any changes that are needed in this plan to make it compatible with other state plans or regional plans as those recommended changes are identified.

Fish and Wildlife Agencies

Downriver and ocean fisheries must be managed for both natural and hatchery spawning escapements. In addition, these fisheries must be controlled in a manner that allows the producing entity to share in the

catch. All of the management entities must share the burden of controlling catch to ensure that spawning escapement objectives are met.

Idaho submits the following long-term management criteria numbers for integration into regional fisheries management plans that must be implemented if Idaho is to achieve its full production potential for the benefit of Idaho's citizens as well as fishermen in Oregon, Washington, California, Alaska, and British Columbia.

Although not all of the fish and wildlife agencies are ready to commit to specific long-term escapement objectives at this time, there is agreement on the need for establishing common long-term escapement objectives at Lower Granite Dam. (Table 14) There is also agreement on the need to establish additional escapement objectives at key points such as McNary Dam, Bonneville Dam, and the mouth of the Columbia River, although these objectives have not yet been established. If all of the fishery management agencies adopt a common set of objectives at the aforementioned key sites, Idaho's anadromous fish management can be linked to Columbia River and Pacific Ocean anadromous fish management. These common objectives could also be used to resolve catch allocation arguments.

Most of the coordination with other state fish and wildlife agencies and federal fish and wildlife agencies will be accomplished through monthly meetings of the Columbia Basin Fish and Wildlife Council's committees. On water management issues, the interagency water budget management office established to coordinate main-stem Snake and Columbia River downstream migrant flows will be used to facilitate a coordinated response from the fish and wildlife agencies and Indian tribes. The Pacific Fishery Management Council will be the forum used to coordinate with other fish management entities on management of ocean fisheries. The Columbia River Law Enforcement Committee will provide opportunity for better communication and enforcement with regard to the anadromous fisheries of the Columbia River. Any new regional management structure that evolves from the Salmon and Steelhead Conservation and Enhancement Act of 1980 should facilitate improved inter-agency coordination.

Idaho Department of Fish and Game intends to maintain an active and aggressive participation in basinwide management decision making. Coordination, data exchange, and negotiation will be essential to achievement of program goals. As the Department continues a vigorous rebuilding of anadromous fish resources, additional personnel may be required to provide a high level of representation on regional committees and councils.

Land Management Agencies

The production objectives and the habitat protection classifications proposed in this plan (Tables 1-6 and 9) provide a focal point for coordination between the land management agencies and the fish and

Table 14. Long-term (1990-1995) chinook salmon and steelhead trout escapement objectives at lower Granite Dam

	Hatchery	Natural	Total
SPRING CHINOOK			
Spawning Escapements			
Idaho	10,000	35,000	45,000
Ore.-Wash.	1,000	8,000	9,000
Total	11,000	43,000	54,000
Potential Harvest above Dam	25,700	11,000	36,700
Total Escapement	36,700	54,000	90,700
SUMMER CHINOOK			
Spawning Escapement			
Idaho	3,000	14,600	17,600
Ore.-Wash.	--	4,000	4,000
Total Spawners	3,000	18,600	21,600
Potential Harvest above Dam	4,500	4,700	9,200
Total Escapement	7,500	23,300	30,800
SUMMER STEELHEAD			
Spawning Escapements			
Idaho	10,500	37,000	47,500
Ore.-Wash.	2,700	13,500	16,200
Total Spawners	13,200	50,500	63,700
Potential Harvest above Dam	89,800	12,250	66,300
Total Escapement	103,000	62,750	165,750
FALL CHINOOK			
Spawning Escapements	--	8,000	8,000
Potential Harvest above Dam	--	--	--
Total Escapement	--	8,000	8,000

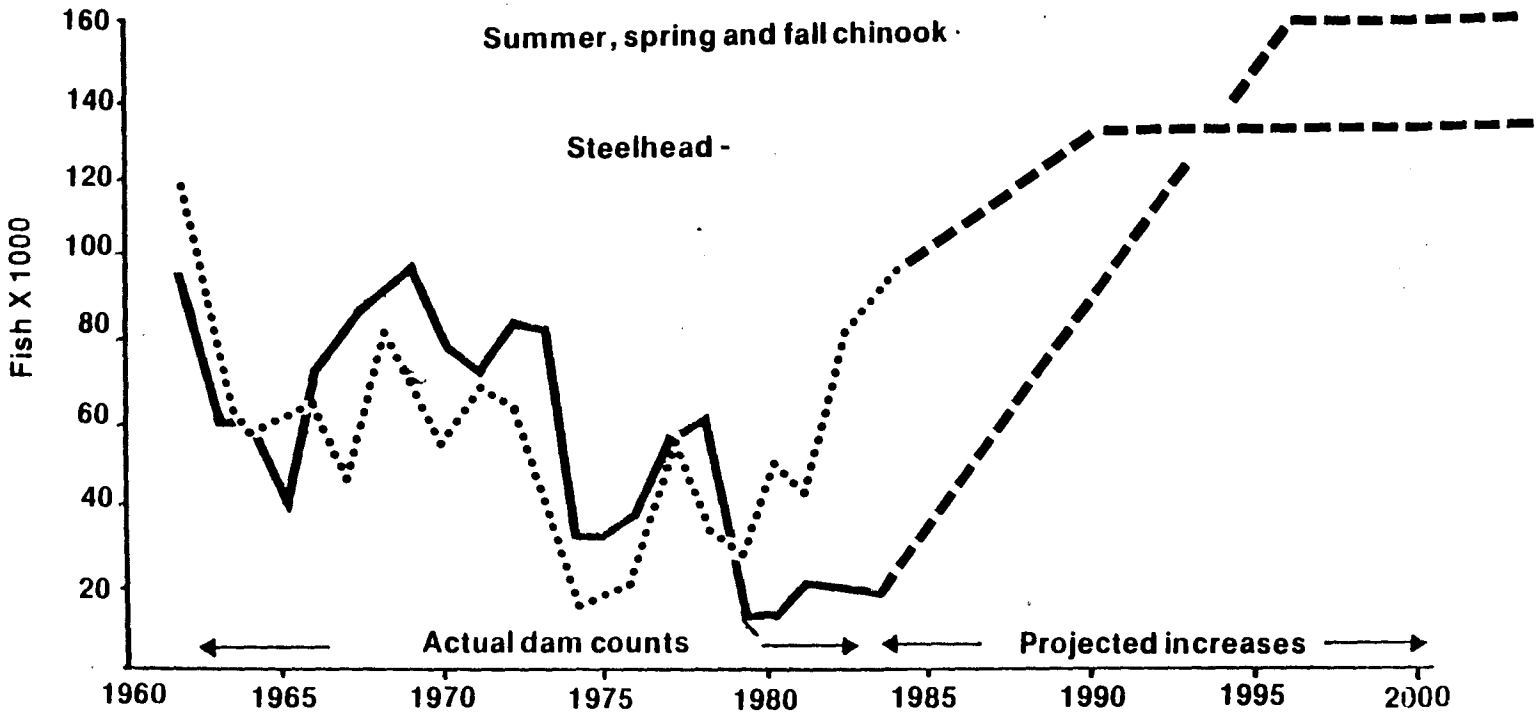

Figure 8. Ice Harbor Dam total chinook and steelhead counts 1962 - 1983 compared to projected increases.

wildlife management agencies regarding habitat protection and natural fish production capability. Land use plans and fishery management plans must be complementary if the large amount of natural production capability in Idaho is to be realized. With common fish production objectives established for each producing sub-basin, coordination between fishery management agencies and land management agencies should be less of a problem in the future than it has been in the past. Production objectives are displayed in numbers of adult fish and numbers of smolts produced or released. Habitat management actions necessary to support the proposed fish production objectives are displayed in this plan and are intended to represent common priorities for both fish management agencies and the appropriate land management agency.

Indian Tribes with Treaty Rights

The 1855 and 1863 treaties with the Nez Perce Tribe and the 1868 Fort Bridger Treaty with the Shoshone-Bannock Tribes and more recent court cases clearly establish that these tribes have a reserved right to harvest salmon and steelhead in their traditional ceremonial and subsistence fisheries.

As stated in State v. Tinno, 94 Idaho 759, 766, 767 (1974), "As part of its conservation program, the State must extend full recognition to these rights, and the purposes which underlie them."... "The State, which has special knowledge and statewide conservation powers, must come forward with justification for regulatory schemes affecting the Indian's fair share of the fishing harvest. Cooperation between conservation experts and the tribe in determining appropriate fish management programs is necessary if the treaty rights are to be observed."

In recognition of their treaty rights, the tribes will be extended opportunity for input into all management decisions which apply to tribal fisheries. The Idaho escapement goals proposed in this plan include tribal harvest. Tribal fisheries (and non-tribal fisheries) will be accommodated after conservation needs of anadromous fish populations are satisfied. Treaty rights to share in the harvest of both naturally and hatchery-produced fish will be recognized.

The tribes are responsible for regulating tribal members in reservation and off-reservation fisheries, and regulating both tribal and nontribal fishermen on Indian-owned or controlled lands. This right includes the responsibility to control fishing to meet the conservation needs of the resource.

Court rulings clearly state that the ceremonial and subsistence fisheries of the Shoshone-Bannock and Nez Perce tribes have a priority right over sport fisheries.

The courts have also stated: "It is clear that the state has the full and complete power to regulate all kinds of fishing, including the Indian fishery, to the end that the resource is preserved." Sohappy v. Smith 302 F. Supp. 899, 911 (D. Or 1969).

There are, then, three levels of fisheries. First, when conservation of the resource is in question, the fishery must be closed, under state responsibility. Second, when enough fish have returned to Idaho, to ensure continuance of the resource at a reasonable level, some amount of tribal ceremonial and subsistence fishing will take place. Third, when a harvestable surplus of fish exists over and above the number needed to supply eggs to hatchery programs and seed natural habitat, the opportunity to harvest the surplus will be shared between treaty and nontreaty fishermen. The third level is comparable to the objective level identified in this plan. Even in the third case, the special right of Indians to fish at their traditional places and times and with their traditional methods is recognized.

The numbers of fish which may be taken by tribal fisheries to satisfy priority ceremonial and subsistence fisheries must be established by negotiations between the state and tribes. These numbers should be designed to allow rebuilding of fish populations to the point where shared harvest can be provided and not to depress populations or hold them at a low level. The courts have stated in the case of the Stevens treaties (Nez Perce) that "It is in this sense treaty and nontreaty fishermen hold equal rights. For neither party may deprive the other of a fair share of returns." Washington v. Fishing Vessel Ass'n, 443 U.S. 658, 684 (1979). While this principle has not been directly addressed in the Fort Bridger Treaty, it seems a reasonable approach to quide all allocation of harvest in this plan.

If negotiations cannot produce an agreed-upon tribal harvest, judicial review and decision may be sought to assure that a "fair share" of the harvest is not precluded to either tribal or nontribal fisheries.

In managing to meet treaty rights, fish will be managed on a stream-by-stream basis where possible.

There will be full exchange of data between tribal and Department biological staff on a timely basis. A Memorandum of Understanding will be developed with each tribe which will set out the procedures for cooperative management of the fish runs.

Water and Energy Management Agencies

Coordination with water management agencies for the purpose of improving flow and spill conditions for migrating salmon and steelhead will be accomplished through the Columbia Basin Fish and Wildlife

Council and Water Budget Center. Coordination dealing with water management that affects spawning and rearing habitats will be accomplished by the Fish and Game Department in consultation with the tribes dealing directly with the appropriate water management entity.

The Northwest Power Planning Act provides the opportunity to gain equitable management of streamflows for anadromous fish. The Fish and Wildlife Program produced by the Power Planning Council addressed the need to provide flows for anadromous fish by establishing a water budget for the fish and wildlife agencies and tribes to manage. Unfortunately, this concept will assure provision for the needs of anadromous fish only in better than average water years. When anadromous fish really need improved flows is in those years that have below average runoff. The water budget will often be insufficient in those years.

To assure that the flows essential to the survival of upriver salmon and steelhead runs are provided, two actions are necessary:

1. Changes in the management of existing reservoirs, particularly modification of flood control operations.

2. Construction of new storage projects that would be used to release water to supplement anadromous fish flows in the spring.

If Dworshak Reservoir and Brownlee Reservoir were operated differently, substantial improvements could be made in fish flows.

These kinds of changed operations coupled with development of fish flow storage projects in the Snake River basin, including the Galloway Project on the Weiser River, would assure that sufficient flows could be provided during the spring to have good survival of downstream migrant salmon and steelhead every year.

Water development for hydroelectric energy production and other purposes has had severe adverse impacts on Idaho's anadromous fish resources. It is possible to restore a major portion of those resources, but restoration is dependent on some constraint of future water development. If Idaho and the Pacific Northwest are to enjoy the significant benefits of the improved anadromous fishery resource, important anadromous fish habitat must be protected from hydroelectric project development and other forms of water development. Table 15 lists the important anadromous fish habitat that this management plan will strive to preserve from degradation by water and/or energy development. This list includes only areas that must be preserved for anadromous fish production, and does not indicate areas where critical habitat for other fish and wildlife resources may be a constraint to future water or energy development.

Table 15. List of Idaho streams that should not be considered for future hydroelectric or water development.

MAJOR RIVERS

1. Snake River - Lewiston to Hells Canyon Dam
2. Clearwater River
3. Salmon River

SNAKE RIVER TRIBUTARIES

1. Captain John Creek
2. Divide Creek
3. Wolf Creek
4. Getta Creek
5. Sheep Creek
6. Granite Creek

CLEARWATER RIVER TRIBUTARIES

1. Lolo Creek and Tributaries
2. South Fork Clearwater River
   - A. Red River
   - B. Crooked River
   - C. American River
   - D. Ten Mile Creek
   - E. Newsome Creek
3. Middle Fork Clearwater River
4. Lochsa River and Tributaries
5. Selway River and Tributaries

SALMON RIVER TRIBUTARIES

1. Whitebird Creek
2. Slate Creek
3. Little Salmon River
   - A. Rapid River
4. Wind River
5. Sheep Creek
6. South Fork Salmon River and Tributaries
7. Johnson Creek
8. Five Mile Creek
9. Bargamin Creek
10. Sabe Creek
11. Chamberlain Creek
12. Horse Creek
13. Middle Fork and Salmon River and Tributaries
14. Panther Creek and Tributaries
15. East Fork Salmon River and Tributaries
16. Warm Springs Creek
17. Yankee Fork
18. Valley Creek
19. Red Fish Lake Creek
20. Alturas Lake Creek
21. Pole Creek

Public Involvement

The Department of Fish and Game staff will seek public input on anadromous fish management at every opportunity. Some of the following points of contact will be used to determine public opinion regarding anadromous fishery management:

1. Check stations

2. Field interviews

3. Sportsmen group meetings

4. Harvest Surveys

In addition, the Commission will hold hearings each year where fisheries will be the primary topic of discussion and where the public will be invited to comment on any facet of anadromous fish management. These hearings will be conducted in different parts of the state to assure that interested citizens of all parts of the state can attend one of the hearings.

The Department and the Commission will strive to inform the public regarding anadromous fisheries management through newspaper, television, and radio announcements. This plan provides an important communication mechanism for informing the public regarding concepts, principles, and policies for anadromous fish management in Idaho.

Evaluation

Certain data must be collected to evaluate the status of anadromous fish populations and the success of the measures outlined in this plan. The plan is a dynamic document that can change to adapt to new knowledge relative to effectiveness of management or trends in fish populations.

Some of the more important data needs are discussed in the following section.

Dam Counts: Adult anadromous fish on their upstream migration pass fish ladders at the dams. The counts of fish passing the ladders are one of the most reliable sources of information on production of fish. Downstream counts are a good prediction of eventual return to Idaho. The differences between counts at successive dams as the fish move upstream help trace harvests, mortalities and fish which turn off into tributaries. Dam counts have some inaccuracies. Water conditions can make counting and species identification difficult. Fish may drop back

over dam spillways and be counted repeatedly. Because dam count data is used to make many decisions and evaluate management programs throughout the drainage, every effort to improve accuracy must be made.

In recent years sampling of fish at the dams has described age composition and wild fish:hatchery fish ratios at various times in the run. In the future this sort of information will be more useful to fine-tune run projections and harvest management.

Weir Records: Returns to hatchery weirs are important sources of data. Because every fish can be handled, run size, age and sex composition, and mark and tag recoveries are complete. Most of the newer hatchery programs involve weirs which can trap or sample a large number of naturally spawning fish which are returning to areas upstream from the weir. Weir counts, compared to redd counts and juvenile rearing densities, will help fine-tune spawning escapement goals in the future.

Harvest Surveys: The basic goal of anadromous fish management in Idaho is to provide the maximum amount of fishing opportunity consistent with meeting spawning escapements, preserving genetic integrity of native populations and utilizing all natural habitat. Harvest surveys are essential to estimate the amount of participation and harvest in fisheries. Harvest surveys also are important to evaluate the success of management programs in achieving goals and to support decision-making regarding these mmanagement programs. Harvest estimates, weir counts and dam counts provide data needed to estimate natural spawning escapements.

Redd Counts: Since the late 1950's, counts of redds (spawning nests) have been conducted annually on key chinook spawning sites. Redd counts provide data on spawning escapement and help follow population trends. Redd counts in index areas are the earliest predictors available for run sizes four or five years into the future.

Because steelhead spawn in the spring when water is high and turbid, redd counts have limited utility in steelhead management.

Juvenile Rearing Densities: In recent years the density of rearing juvenile anadromous fish has been used to evaluate the adequacy of spawning escapements, quality of habitat and population status. Juvenile density has some advantages over redd counts as an indicator of population trends. In the future, juvenile rearing density will be one of the most important evaluators of the success of management measures, particularly with regard to habitat quality, and will be an important predictor of future run trends. Additional effort to collect and evaluate juvenile rearing density data will be needed.

Tag and Mark Recoveries: Recovery and reporting of tagged or marked fish in the fisheries, at dams and weirs and during spawning surveys provides data on the success of hatchery programs, the contri-

bution of different groups of fish to fisheries, run timing and fish distribution. Mark recovery and reporting is a very important part of other data collection activities.

At the present time, marking hatchery-produced smolts with microscopic wire tags ahd freeze brands to aid in tracking the fish on their downstream migration and through the fisheries is dominating the tagging studies in the Columbia River Basin.

Additional tagging studies which should be undertaken in the near future include marking adult fish at Bonneville Dam to provide updated information on run timing, passage rates, distribution and contribution to fisheries.

PART III: SUB-BASIN PLAN IMPLEMENTATION

To facilitate this planning effort, the anadromous fish habitat in Idaho has been separated in sub-basins.

The following sections describe the fisheries management directions in the three basins (Clearwater, Salmon and Snake) and 20 sub-basins. In each sub-basin section, planned management actions are listed by year of initiation and by the appropriate implementing agency.

Snake River

Overview

The Snake River from Lewiston to Hells Canyon Dam provides excellent rearing habitat for juvenile anadromous fish and represents the last remaining section of the Snake River that is suitable for fall chinook spawning.

Adult steelhead hold in this area throughout the fall and winter months and angling opportunity is available for salmon or steelhead during every month of the year. Washington and Oregon anglers share in the extensive steelhead harvest opportunities that are available in this large stream.

Idaho's intent is to develop coordinated management plans with Oregon and Washington for the Snake River. Harvest opportunities on hatchery stocks for sport fishermen will be maximized in this area consistent with upstream escapement needs.

The Hells Canyon NRA protects most of the remaining free-flowing stream from the impacts of additional dams on the Snake River.

Due to extensive development of storage reservoirs in upstream areas, a major problem has been inadequate flows during the months of April, May, and June. These flows are needed to move downstream migrant salmon and steelhead from Idaho to the sea in the proper time frame.

Important features of the anadromous fishery management program in the Snake River Basin include:

1. The Snake River serves as a migration corridor for all anadromous fish returning to Idaho. It will serve as a major fishery for steelhead. Spring and summer chinook pass through this area during peak spring flows and will provide little fishing opportunity.

2. Upstream from the Imnaha River, hatchery fish will dominate the fisheries. Providing fishermen access and achieving desired harvest rates on hatchery fish will require special emphasis.

Snake River Sub-basins

Sub-basin 1 - Snake River and Tributaries, Clearwater River to Imnaha River

This sector of the Snake River is the most important spawning and rearing area for fall chinook salmon in Idaho. Some spring chinook, summer chinook, and steelhead fingerlings overwinter in this area. Adult steelhead use this area extensively for overwintering with steelhead fishing activity occuring throughout the fall and winter months. Of course, this area is an extremely important migratory habitat with all of the Salmon River fish passing through this area on their upstream and downstream migrations.

The tributaries are short and steep in this area. While no chinook salmon are produced in the small tributaries of this sub-basin, all but the smallest tributaries produce steelhead.

MANAGEMENT ACTIONS

Year	Action	Implementing Agency
--	Acquire streambank access at every opportunity.	IDFG
--	Advocate management of the waters of the State to assist in meeting instream flow requirements for migrating salmon and steelhead in the Lower Snake River.	IDFG
1984-88	Develop smolt timing and relative abundance indices to aid control of water budget flows and storage management.	IDFG
1988	Release steelhead smolts in Captain John Creek to support a known-stock steelhead fishery.	IDFG

Sub-basin 2 - Snake River and Tributaries, Imnaha River to Hells Canyon Dam

The Hells Canyon reach of the Snake River is unique fisheries habitat. The stream is highly productive with diverse and abundant food supplies for fish. Recruitment of fines and gravels into the area has been interrupted by the Hells Canyon Projects. The stream gradient is high for a large river and stream energy is extremely high during spring freshets.

Fall chinook use this area for spawning and rearing. Spring chinook use tributaries such as Granite Creek and Sheep Creek in small numbers. Deep Creek formerly produced steelhead but has been impacted by copper mine effluent. Steelhead are produced in all of the larger tributaries and many of the smaller tributaries. Tributary stream gradients are very steep.

MANAGEMENT ACTIONS

Year	Action	Implementing Agency
--	Advocate management of the waters of the State to assist in meeting instream flow requirements for migrating salmon and steelhead in the Lower Snake River.	IDFG
1985	Investigate, with Idaho Power Company, the possibility of a special flow regulation in November to provide suitable conditions for conducting an aerial spawning ground survey for fall chinook salmon.	IFG
1985	Initiate feasibility study for developing means to control dissolved gas at Hells Canyon Dam.	IPC
1985	Improve access for Idaho fishermen downstream from Hells Canyon Dam.	IPC, IDFG, USFS
--	Advocate management of the waters of the State to assist in meeting instream flow requirements for spawning and rearing anadromous fish in this stream sector.	IDFG
1986	Design Galloway storage project on the Weiser river with substantial fish flow supplementation capability.	IDWR/CE

1987	Initiate discussions to determine operation of Brownlee reservoir accomodating Galloway project releases.	IPC,CE,FERC, WBC,IDFG
1989	Seek necessary authorization and funding to construct Galloway storage project on the Weiser River to supplement flows in the Snake river.	IDWR,CE, IDFG
1989	Seek solution to mine waste drainage problem in Deep Creek.	USFS,IDFG

Clearwater River

Overview

Chinook salmon runs were virtually eliminated from the entire Clearwater drainage when the Washington Water Power Dam was built at Lewiston in 1926, and steelhead runs were greatly reduced because of the inadequate fishways installed at the time of the dam construction. In 1961, the fishways were modified at Lewiston Dam and spring chinook salmon runs were reestablished with stocks from the Salmon River.

Dworshak Dam eliminated the North Fork of the Clearwater River from salmon and steelhead natural production. Dworshak National Fish Hatchery has been providing hatchery-produced steelhead to compensate for the loss of natural steelhead production. No compensation has been sought for the loss of potential production of chinook salmon. This dam also inundated a very important fishing area for salmon and steelhead.

Major features of the anadromous fishery management program in the Clearwater Basin during this planning period include:

1. Restoration of chinook salmon runs throughout the basin.

2. Restoration of natural spawning and rearing habitat which has been degraded by roads, logging, and mining.

3. Development of major artificial production programs for anadromous fish.

Clearwater River Sub-basins

Sub-basin 1 - Clearwater River and Tributaries, Mouth to Orofino Bridge

The main Clearwater River is very important migratory habitat for both juvenile and adult salmon and steelhead. It is also important for overwintering of adult steelhead. A limited amount of salmon and steelhead rearing occurs in the main river. Fall chinook spawning occurs in the lower Clearwater River, but the Clearwater River has not produced large numbers of fall chinook. The suitability of the lower Clearwater for spawning and rearing may have been altered by operation of Dworshak Dam and use of this area by fall chinook may be increasing.

The Lewiston Dam was removed in 1974. The elimination of this Dam restored several miles of important stream habitat. However, the Lower Granite Project which was completed in 1975 eliminated over one mile of important stream habitat in the lower most sector of the Clearwater River.

Tributary streams in this sub-basin are characterized by very low flows in the summer months with most of the annual runoff occurring in the spring months. The tributary streams are too warm in the summer months for suitable spring or summer chinook habitat; however, even the smallest tributaries provide steelhead natural production habitat. A significant portion of the steelhead production habitat in this sub-basin is composed of streams that have intermittent flows during the summer and fall months. High sediment loads, poor streambank cover, scouring during high flows, high water temperatures, and lack of in-stream cover severely reduces steelhead production in tributary streams. A large percentage of the tributaries flow on private lands.

The watersheds of these tributary streams have been developed in the headwater areas by clearing the lands for grain farming. This pattern of land use has reduced the capability of these tributary streams to produce steelhead by decreasing flows during the summer and fall months.

Some of the larger tributaries like Potlatch Creek, Big and Little Canyon Creek, and Lapwai Creek could be enhanced for natural steelhead production by developing storage reservoirs capable of storing high spring flows and releasing water during the summer to supplement the low flows.

Some of the larger tributaries in this sub-basin could be terminal fishing areas for hatchery-produced summer steelhead. Hatchery fish needed for this sub-basin will be produced in the Clearwater Hatchery and Dworshak Hatchery.

MANAGEMENT ACTIONS

Year	Action	Implementing Agency
Ongoing	Develop cooperative agreement between Idaho Department of Fish and Game and the Nez Perce Tribe.	IDFG,NPTEC
1985-88	Investigate storage reservoir development to supplement flows in larger tributary streams.	IDFG,COE, NPTEC
1984-86	Inventory and evaluate larger tributaries for opportunities to enhance steelhead production.	BLM,NPTEC, IDFG
1985	Inventory and evaluate mainstream Clearwater rearing and spawning habitat.	NPTEC
1986	Initiate evaluation of adipose-clipped steelhead in sport fishery.	IDFG
1988	Review status of early season catch-and-release fishery for steelhead.	IDFG
1984-88	Develop smolt timing and relative abundance indices to aid control of water budget flows and storage management.	IDFG
1985	Evaluate potential to develop Sweetwater spring as a low-technology, low capitol expenditure artificial production facility.	IDFG,BPA

Sub-basin 2 - North Fork Clearwater River

One of the most productive salmon and steelhead streams in the State was impounded and eliminated from natural production of anadromous fish by the construction of Dworshak Dam. The lower one mile of the North Fork provides limited rearing of juvenile salmon and steelhead. Following construction of the dam, this stream has been exclusively devoted to artificial production with Dworshak Hatchery and the proposed Clearwater Hatchery being located in the lower one mile of this stream. Because of harvest management problems imposed by changing this stream from total natural production to total hatchery production, a substantial proportion of the hatchery production will be stocked in other Clearwater River tributaries.

Lewiston Dam had blocked access for spring and summer chinook salmon to the North Fork prior to the construction of Dworshak Dam. No compensation for the loss of the extensive chinook salmon natural production capacity in the North Fork drainage was sought at the time of construction, nor was any provided by the Federal Government.

It has been estimated that approximately 16,000 spring or summer chinook could have been produced in the North Fork Clearwater River.

MANAGEMENT ACTIONS

Year	Action	Implementing Agency
1985	Start construction of Clearwater Anadromous fish hatchery under LSRCP funding	IDFG, CE
1985	Investigate feasibility of operating Dworshak Dam and reservoir to improve fish flows in the Snake river.	CE,BPA,WBC, IFG
1986	Review status of chinook salmon mitigation programs and evaluate feasibility of seeking compensation for lost chinook production potential in the North Fork drainage.	IDFG,USFWS
1987	Implement a new operating plan for Dworshak Dam and reservoir to improve fish flows in the Snake river.	CE,BPA,WBC, IDFG
1987	Initiate production from Clearwater Hatchery.	IDFG
1988	Improve stream bank access between hatchery and dam.	CE

Sub-basin 3 - Clearwater River and Tributaries, Orofino Bridge to South Fork

This portion of the main river has a limited amount of rearing for salmon and steelhead. It is very important as migratory habitat for salmon and steelhead and as an overwintering area for steelhead adults. This area of the main river is not important as a spawning habitat.

Tributary streams in the sub-basin are degraded by logging activities and clearing of headwater areas for grain farming. Orofino Creek has a migration barrier approximately 3 miles upstream from its mouth which blocks access to extensive areas of spawning and rearing habitat that could be placed into production by installation of passage facilities. Lolo Creek has a large potential for natural production of salmon and steelhead. Forestry management practices must be conducted in a manner that will allow the recovery of the stream habitats in this sub-basin, particularly Lolo Creek.

Lawyers Canyon Creek has some habitat that is still producing steelhead, but the low summer flows and high stream temperatures in the summer prevent the stream from being an important natural production stream. Upstream storage of the high spring flows and summer releases could improve the natural production of this stream and could improve its utility as a location for outplanting hatchery-produced steelhead and salmon smolts.

MANAGEMENT ACTIONS

Year	Action	Implementing Agency
--	Work toward improved land management practices to allow recovery of stream habitats.	All
--	Clear barriers in Eldorado Creek.	USFS
--	Complete Lolo Creek habitat enhancement.	USFS
--	Initiate chinook and steelhead fry or fingerling plants in Eldorado Creek.	IDFG
1984	Investigate fish passage at Orofino Creek Falls and evaluate rearing habitat in upper Orofino Creek.	NPT,USFWS
1985	Design fish passage at Orofino Creek Falls.	NPT/FWS
1986	Construct fish passage facilities at Orofino Falls.	NPT/FWS
1987	Evaluate smolt acclimation and rearing pond sites in this sub basin.	IDFG,NPTC, USFS
1986	Investigate feasibility of storage reservoir in Lawyers Canyon Creek for improvement of summer flows.	COE

1986	Evaluate tributaries of Lolo Creek for habitat enhancement activities.	IDFG,USFS
--	Acquire and develop additional fishing access areas.	IDFG, Counties
1984-85	Inventory and evaluate lower Lolo Creek for enhancement activities.	BLM

Sub-basin 4 - South Fork Clearwater and Tributaries

The mainstem of the South Fork and many of its tributaries have been adversely affected by roads, mining, and logging activities. This subbasin has great potential for spawning and rearing, and with more responsible land management, and some enhancement of spawning and rearing habitats in tributaries like Red River, Crooked River, Newsome Creek, and American River, the natural production potential of this sub-basin can be restored. Hatchery smolt outplants will be made in Red River, Crooked River, Newsome Creek, and American River. A weir and trap at Red River will allow the trapping of adult spring chinook. A weir and trap on Crooked River will allow the trapping of upstream migrant adult spring chinook and steelhead, as well as sampling downstream migrating juveniles of both species. Hatchery smolts for this sub-basin will be reared at Dworshak Hatchery, Clearwater Hatchery, and Red River Pond.

Tributaries, like Ten Mile Creek and Johns Creek, have high quality stream habitat and fingerling or fry will be stocked in these drainages as needed to adequately seed the habitat. Land management directives should strive to protect and preserve these high quality habitats.

MANAGEMENT ACTIONS

Year	Action	Implementing Agency
1984-90	Restore and enhance spawning and rearing habitat in Red River, Crooked River, Newsome Creek, and American River.	USFS,BLM, IDFG
1987-90	Develop cooperative habitat restoration efforts on Meadow, Mill, and Peasly Creeks.	IDFG,USFS
1984	Investigate impacts of arsenic pollution on fish populations in American River.	IDFG,IDHW
1985	Construct weir and trap in Crooked River.	IDFG,BPA

1984-85	Improve weir and trap at Red River.	IDFG,CE
--	Provide protection of spawning and rearing habitats from the adverse effects of logging, mining, and road building.	All
1984-86	Construct ponds for smolt acclimation and/or short-term low-technology rearing in the Crooked River drainage.	IDFG,USFS
1985	Evaluate the feasibility of constructing a smolt rearing and acclimation pond on the American River Drainage.	IDFG,BLM
1988	Construct smolt rearing and acclimation ponds in the Newsome Creek drainage.	IDFG/USFS
1985-88	Initiate releases of salmon and steelhead smolts and sub-smolts throughout the drainage as hatchery production comes on-line and habitat restoration projects are completed.	IDFG

Sub-basin 5 - Middle Fork Clearwater and Tributaries

The Middle Fork is important migratory and rearing habitat for salmon and steelhead.

Clear Creek and Maggie Creek are the only significant tributaries of the Middle Fork Clearwater River. Clear Creek will have hatchery runs of both spring chinook salmon and steelhead returning to Kooskia National Fish Hatchery. Maggie Creek and smaller tributaries produce natural steelhead only. The Middle Fork is protected by the Wild and Scenic Rivers Act.

MANAGEMENT ACTIONS

Year	Action	Implementing Agency
1984-88	Conduct study of storage reservoir and watershed rehabilitation of Clear Creek.	CE,IDFG, NPTEC,USFS
1987	Provide improved access for boats with installation of launching ramps at key locations.	IDFG, Counties

1986	Release up to 1,000,000 steelhead smolts produced at Dworshak NFH production at Kooskia NFH in order to disperse steelhead fisheries.	IDFG
1987	Provide facilities at Kooskia NFH to accomodate large escapements of steelhead.	USFWS

Sub-basin 6 - Lochsa River and Tributaries

The Lochsa River is excellent rearing and spawning habitat for spring chinook salmon and steelhead trout. The many large tributaries also are excellent spawning and rearing habitat for chinook salmon. Nearly all tributaries are used by steelhead for both spawning and rearing, logging and road building have adversely affected some of these habitats in the past. Streams like Pete King Creek, have been severely affected by poor land use. The Lochsa River is protected by the Wild and Scenic Rivers Act. Hatchery steelhead and spring chinook will be stocked in the vicinity of Powell.

MANAGEMENT ACTIONS

Year	Action	Implementing Agency
1987	Construct an acclimation and rearing pond for juvenile chinook and a weir, trap, and holding pond for collecting spring chinook adults in the vicinity of Powell.	IDFG,USFS
1988	Initiate releases of chinook smolts at the Powell pond.	IDFG
1984-86	Remove barriers and improve passage in Spruce Creek and Crooked Fork.	USFS
--	Control erosion on existing roads and logging areas.	USFS,IDL IDHW,Plum Creek Timber Co.
--	Urge the Idaho Department of Trans portation to correct fish passage barriers at culverts under U.S. Hwy. 12 such as at Badger and Wendover Creek.	IDFG

1984	Rehabilitate anadromous fish habitat in Pete King Creek.	USFS
--	Maintain Fish Creek-Hungry Creek drainage in roadless condition and manage for wild salmon and steelhead production.	USFS,IDFG
1986-90	Reintroduce steelhead and chinook to the White Sands drainage and other Lochsa tributaries using fry and fingerling plants.	IDFG

Sub-basin 7 - Selway River and Tributaries

The Selway River is one of the best natural production streams in the Columbia River Basin. The quality of the spawning gravels and rearing habitats is excellent, and the major management concern is ensuring that this high quality habitat is adequately seeded. The Wild and Scenic Rivers Act provides protection for habitat on the main Selway River and the Selway-Bitterroot Wilderness area provides protection for the major portion of the tributaries. Meadow Creek is a major tributary that is not protected by the wilderness area designation. Selway Falls, located on the Selway River immediately downstream from Meadow Creek, was a partial migration block to steelhead and a total migration block to chinook salmon until the Selway Falls fishway was completed in 1966. Since that time, salmon eggs were stocked in incubation channels located in the Selway River drainage. This program was successful in reestablishing natural production of spring chinook in the Selway River.

MANAGEMENT ACTIONS

Year	Action	Implementing Agency
1987	Using primitive techniques, improve production potential of the Selway drainage by removing migration barriers formed by log jams or large boulders in tributaries.	IDFG,USFS
--	Manage the Selway drainage for wild fish production of indigenous stocks over the long term.	IDFG

Salmon River

Overview

The Salmon River is the most important tributary in the Snake and Columbia River drainages for anadromous fish production. There are nearly 3,000 miles of rivers and streams in the Salmon River drainage which are accessible to anadromous fish. Much of the drainage is located in the River of No Return Wilderness and the Sawtooth National Recreation area or is protected by the Wild and Scenic Rivers Act. The Salmon River is by far the largest undammed drainage in the Columbia Basin. The fisheries habitat in much of the drainage is in good to excellent condition and the potential for production of anadromous fish is enormous.

Natural Production

The Salmon River historically produced 39 percent of the spring chinook salmon and 45 percent of the summer chinook salmon in the Columbia Basin. Annual chinook escapements averaged 29,300 springs and 20,000 summers between 1962 and 1970. However, the escapements approached 100,000 total chinook in the 1955-1960 period. Chinook smolt production from the Salmon river ranged from 1.5 to 3.4 million between 1964 and 1970.

Salmon River steelhead runs ranged from 14,000 to 35,000 between 1962 and 1971, averaging 25,681. Natural steelhead smolt production from the Snake River drainage was estimated to range between 1.4 and 4.2 million from 1964 to 1970. Approximately one-half of this total was produced in the Salmon River.

Sockeye runs in the Salmon River were severely depleted by overfishing and habitat destruction before any estimate of historic run size was made. Runs of several thousand fish were documented in the lakes near the headwaters of the Salmon River in the 1800's. These runs now exist as remnants ranging from 0 to 200 fish per year. However, sockeye rearing and spawning habitat still exists and the potential to reestablish sockeye runs is good.

Natural chinook and steelhead runs which were blocked by Hells Canyon Dam have been mitigated in part by transplanting the run to hatcheries in the Salmon Basin. Compensation for anadromous fish losses due to Lower Snake River Dam development includes additional artificial propagation facilities. The total designed capacity of artificial propagation facilities for releasing anadromous fish to the Salmon River

will be approximately 6.7 million chinook smolts and 5.2 million steelhead smolts plus several million eyed eggs, fry, and fingerling per year by 1990.

Although much of the anadromous fish habitat in the Salmon River Basin is in nearly pristine condition, the productivity of several areas is reduced by siltation, pollution, and migration barriers. Specific problem areas will be identified in the sub-basin sections following.

The highest priority for anadromous fish production in the Salmon River drainage is to restore adequate spawning escapements into natural production areas. Restoration of habitat and clearance of migration barriers will be necessary to achieve the full potential for natural production in the Salmon River. Artificial propagation programs will be employed to re-establish spawning runs and fully stock natural rearing areas as well as provide harvestable surpluses to support fisheries.

Major features of the anadromous fishery management program in the Salmon River Basin during this planning period include:

1. Management of the Middle Fork of the Salmon for natural production of wild indigenous stocks of chinook and steelhead, and management of the South Fork for natural production of wild indigenous steelhead.

2. Initiation of large hatchery supported steelhead programs in the Little Salmon River and other lower Salmon River tributaries to disperse fishing pressure and extend the steelhead fishing season.

3. Restore naturally spawning populations of salmon and steelhead throughout the basin with extensive out-plants of hatchery produced juveniles.

4. Restore migration routes and enhance natural production habitat throughout the basin.

Salmon River Sub-basins

Sub-basin 1 - Salmon River and Tributaries, Mouth to and Including the Little Salmon River

The Little Salmon River enters the Salmon River 82 miles upstream from the Salmon-Snake River confluence. This reach of the Salmon River flows in a deep, rocky canyon. The river is characterized by a series of deep pools separated by rocky rapids. There is limited suitable

spawning habitat in the mainstem. The river is primarily a migration corridor. However, the deep pools provide important overwintering areas for chinook and steelhead smolts, and steelhead adults. The major tributaries in this reach are Slate Creek and the Little Salmon River, both of which provide chinook and steelhead spawning and rearing. There are approximately 12 smaller tributaries in this reach, all of which support steelhead spawning and rearing and a limited amount of chinook salmon production.

The Little Salmon River drainage, including the tributaries of Rapid River and Hazard Creek is the most important production area in this sub-basin. Approximately 50 stream miles of natural habitat is available. Natural rock falls on the Little Salmon River at RM21, on Boulder Creek at RM 4, and on Hard Creek at RM 0.5 limit access to some 60 additional miles of suitable habitat.

This sub-basin is targeted for emphasis on hatchery production. Idaho Power Company's Rapid River Hatchery is a major producer of spring chinook salmon, producing 3.0 million smolts annually which are released into Rapid River and the Snake River at Hells Canyon Dam. Idaho Power Company has also provided steelhead fry plants into the Little Salmon River and tributaries. Hatchery steelhead smolts produced at facilities located outside the sub-basin will be stocked in the tributaries to restore natural runs and provide a major hatchery supported fishery.

All of the natural production in this area takes place in tributary streams. The drainages are mostly high gradient, in deep canyons with very unstable soils. The geology of the area is mostly decomposed granite with many slide and fault areas. Logging and road building on unstable lands has caused severe siltation and instability, notably in the Slate Creek and Little Salmon River areas. Ranching and livestock use has degraded riparian areas and water quality in the Little Salmon River and has contributed to siltation throughout this sub-basin. At the present time, development of small hydroelectic generating facilities threatens to reduce or eliminate production in virtually every tributary stream. Dredge and placer mining has impacted the area and continues to cause turbidity and siltation.

MANAGEMENT ACTIONS

Year	Action	Implementing Agency
1984	Initiate evaluation of steelhead smolt releases in the Little Salmon River and other tributaries.	IDFG
1984	Improve fish passage conditions at Boulder Creek Falls.	IDFG,USFS

1984-88	Develop smolt timing and relative abundance indices to aid control of water budget flows.	IDFG
--	Allow all of native summer chinook run in Rapid River to spawn naturally above the hatchery weir.	IDFG
1984-90	Evaluate Whitebird and Slate Creeks for habitat enhancement and initiate feasible projects.	IDFG,BLM, USFS
1985	Investigate feasibility of removing or bypassing natural rock barriers on the Little Salmon River and other tributaries to increase natural production potentials.	IDFG,BLM, USFS
1986-87	Increase steelhead smolt releases in the Little Salmon River to 1.0 million annually as Magic Valley Hatchery comes into production.	IDFG
1987	Construct salmon and steelhead passage facilities at Little Salmon Falls if feasible.	IDFG
--	All land use activities should be conducted in a manner to reduce or eliminate discharge of silt to streams.	USFS,BLM, Private Landowners
--	Manage sub-basin with emphasis on hatchery supported populations.	IDFG

Sub-basin 2 - Salmon River and Tributaries, Little Salmon River Upstream to South Fork

The South Fork Salmon River enters the main Salmon River at river mile 133, 51 miles upstream from the Little Salmon River. The Salmon River is in a deep canyon, flowing nearly due west between these two tributaries. Like the lower section, this area of the Salmon river is a series of deep pools separated by rapids and runs. This reach serves primarily as a migration corridor and overwinter area. However, there is suitable spawning gravel near some of the tributary mouths. Major tributaries in this reach include Wind River, French Creek, Sheep Creek, and Crooked Creek on the north side, and California Creek and Lake Creek on the south side.

The above-mentioned tributaries and several smaller tributaries are utilized by steelhead for spawning and rearing. Crooked Creek and Sheep Creek have substantial areas suitable for chinook production.

Road access to this sub-basin is limited; therefore, artificial production programs are necessarily limited. Stocking of accessible natural rearing areas with fry and fingerlings will be necessary to achieve full seeding of natural rearing habitat until natural spawning escapements can be achieved. Releases of steelhead smolts in smaller tributaries could potentially provide increased fishing opportunity and increase utilization of natural habitat.

The two largest tributaries in this reach, Crooked Creek and Warren Creek, have been severely impacted by dredge and placer mining for over a century. Logging and road building in steep, unstable drainages has contributed to degraded habitat conditions in most of the tributary streams. The high gradient of tributary streams in this sub-basin creates attractive sites for small hydroelectric developments. The cumulative impact of a number of small hydropower projects could reduce natural production potential of the sub-basin.

MANAGEMENT ACTIONS

Year	Action	Implementing Agency
--	Encourage land managers to conduct land management activities in a manner least detrimental to anadromous fish habitat.	All
--	Oppose hydroelectric developments which have unmitigable detrimental impacts.	IDFG
1986	Provide known-stock hatchery supported steelhead fishery by releasing smolts in tributaries below Vinegar Creek.	IDFG

Sub-basin 3 - South Fork Salmon River

The South Fork Salmon River (SFSR) enters the main Salmon from the South at RM133. The SFSR basin includes about 500 miles of streams accessible to anadromous fish. Tributaries of the SFSR are the Secesh River and the East Fork South Fork Salmon River (EFSFSR) and its major tributary, Johnson Creek. The South Fork and tributaries are generally located in steep, rocky canyons with extensive meadows in headwater areas. The area is entirely within the Idaho batholith and soils consist of decomposed granite.

Historically the SFSR was the major summer chinook salmon stream in Idaho producing 60-70 percent of the annual run. The stream also produced a major steelhead fishery.

During the mid 1960's, unusual precipitation events combined with logging and road construction resulted in massive silt loads flowing in the SFSR. Spawning and rearing areas were buried under several feet of sand, eliminating a major portion of anadromous fish production. The habitat has recovered somewhat in the past 20 years, but the fish populations have been slow to rebuild.

Artificial production of summer chinook at McCall State Fish Hatchery is aiding recovery of the SFSR system. This facility has capacity to rear 1,000,000 smolts from eggs taken at a satellite trap located on the upper SFSR. As eggs and fry in excess of needs for smolt production become available, natural rearing areas throughout the SFSR will be stocked. Achieving full production from the SFSR depends on restoration of habitat and natural production as well as hatchery programs.

The SFSR also supported a steelhead run estimated at 3,000 spawners. The present population is only a few hundred spawners, but steelhead are recovering due to improving habitat conditions, restrictive fishing regulations, and improved migrational passage conditions. At the present time, surveys of the distribution, abundance, and potential of natural steelhead production in the SFSR are being conducted. The South Fork steelhead stock is made up of mostly large late arriving fish and may be a "B" run rather than the "A" run which is predominant in the Salmon River. Preservation of this unique stock is a high priority.

The overriding habitat factor in the SFSR is extremely unstable soils which have contributed to siltation. Any land-disturbing activity such as logging, road building, or mining has the potential for serious impacts. The Boise and Payette National Forests, working with the Department and other interested parties on the South Fork Salmon River Monitoring Team have carefully planned and developed management techniques to aid the restoration of South Fork fisheries habitat. However, recovery from past degradation has been slow and may be negated by new logging, mining, or construction activities. Small hydro-power facilities are also of concern with regard to habitat quality.

There are several identified barriers to migrating anadromous salmonids in the SFSR drainage. A natural rock cascade on Johnson Creek acts as a nearly total barrier to about 20 miles of excellent spawning and rearing habitat. Log and debris barriers occur on Dollar Creek and several other small tributaries which have potential for steelhead production. Poorly designed culvert installations have blocked Cabin and Goat Creeks to access by anadromous fish.

MANAGEMENT ACTIONS

Year	Action	Implementing Agency
1984-90	Remove natural migration barriers and replace poorly-designed culverts.	IDFG,USFS BPA
--	Maintain a high level of coordination, monitoring, and cooperation through the South Fork Monitoring team or a similar group to seek solution to the siltation problem and restore habitat.	All
1984-86	Determine extent and distribution of natural steelhead production and develop a steelhead management plan for the South Fork	IDFG
--	Continue to develop a hatchery-supported summer chinook program based on the indigenous run of fish.	IDFG
1985	Evaluate potential for reintroduction of sockeye salmon to Warm Lake.	IDFG
1984-88	Evaluate means for stabilizing erosion problems at the Oxbow.	IDFG,USFS
1988	If feasible, reintroduce sockeye salmon to Warm Lake.	IDFG

Sub-basin 4 - Salmon River and Tributaries, South Fork to Middle Fork RM 133-191

This reach of the Salmon River is within the River of No Return Wilderness and the National Wild and Scenic River system. The Salmon River is located in a deep canyon and, like the lower sections is characterized by deep pools separated by rapids. There is a limited amount of mainstem spawning potential. The tributary streams in this reach are important producers of steelhead and chinook. Bargamin, Sabe, Chamberlain and Horse Creeks contain good to excellent steelhead habitat. Chamberlain Creek is the major chinook salmon producer, with over 300 redds counted annually during the 1960's.

Because this sub-basin is almost entirely within wilderness classification, access is limited and no artificial production program is anticipated. Natural production of chinook salmon and steelhead at the levels indicated could be supported by the available habitat.

Wilderness classification protects most of this sub-basin from degradation. However, logging activities threaten to increase siltation in the drainages north of the Salmon River.

MANAGEMENT ACTIONS

Year	Action	Implementing Agency
--	Recommend that logging activities in the Salmon River Canyon breaks be rigidly controlled to avoid habitat destruction.	IDFG
--	Monitor population trends in important spawning and rearing streams to determine if anadromous populations are recovering.	IDFG
1985	Correct erosion problems resulting from irrigation diversions on Stonebraker Ranch, Chamberlain Creek.	IDFG
1987	Clear debris barriers on Horse Creek and survey other tributaries for barriers.	USFS

Sub-basin 5 - Middle Fork Salmon River

The Middle Fork is the largest tributary of the Salmon river and is the most important producer of anadromous fish. The majority of the Middle Fork sub-basin is within the River of No Return Wilderness. However, prime headwater spawning streams including Bear Valley, Marsh, Camas, Big and Loon Creeks are outside the wilderness and have been degraded by mining and other land use activities. This sub-basin drains 2,830 square miles and includes 685 miles of streams accessible to anadromous fish. The topography of the Middle Fork drainage is extremely rugged and remote. Road access is limited to a single point on the main river and secondary roads on the upper reaches of a few tributaries. Except for alpine lakes and a few small streams, only the native, indigenous fish species and stocks occur in the Middle Fork.

The rugged topography and wilderness designation have preserved the majority of the Middle Fork habitat in pristine condition. The major exceptions are mines and access roads in several headwater areas which were omitted from wilderness classification.

The Middle Fork supported a major chinook fishery with annual harvests exceeding 2,200 fish in the late 1960's. Steelhead harvests are limited by water and access conditions but averaged 430 fish annually during this same period. No open season on either species has been allowed since 1978. Both chinook and steelhead stocks indigenous to the Middle Fork are unique. The chinook population includes a high proportion of large, 5 year-old fish. No hatchery produced chinook have ever been stocked into the Middle Fork, leaving the indigenous gene pool intact. Middle Fork steelhead are predominantly large fish which spend 2 or 3 years in the ocean. Unlike the smaller one-ocean fish which make up most of the Salmon River run. Run timing of the Middle Fork stock is unknown, but they seem to arrive early like other Salmon River stocks. Both the chinook and steelhead of the Middle Fork are uniquely adapted to the habitat conditions and long migration distances. Preservation of the indigenous gene pools is a high priority.

MANAGEMENT ACTIONS

Year	Action	Implementing Agency
--	Manage the Middle Fork sub-basin for strictly natural production of wild indigenous stocks of salmon and steelhead.	IDFG
--	Encourage enforcement of all existing laws to protect the Middle Fork drainage. Seek legal action and full compensation for losses to anadromous fish due to mine problems.	IDFG,IDL, USFS,IDHW
--	Emphasize quality aspects of fisheries in the Middle Fork drainage rather than harvest.	IDFG
--	Maintain all fisheries habitat in the Middle Fork sub-basin in best possible condition.	USFS,IDFG, FHBC
1984-90	Restore degraded habitat in Bear Valley, Elk, Marsh, Camas, and Monumental Creeks where mining, grazing, and timber harvests have damaged critical spawning areas.	USFS,IDFG FHBC
1987	Remove log and debris barriers in tributary streams using primitive techniques.	USFS,IDFG

Wilderness classification protects most of this sub-basin from degradation. However, logging activities threaten to increase siltation in the drainages north of the Salmon River.

MANAGEMENT ACTIONS

Year	Action	Implementing Agency
—	Recommend that logging activities in the Salmon River Canyon breaks be rigidly controlled to avoid habitat destruction.	IDFG
--	Monitor population trends in important spawning and rearing streams to determine if anadromous populations are recovering.	IDFG
1985	Correct erosion problems resulting from irrigation diversions on Stonebraker Ranch, Chamberlain Creek.	IDFG
1987	Clear debris barriers on Horse Creek and survey other tributaries for barriers.	USFS

Sub-basin 5 - Middle Fork Salmon River

The Middle Fork is the largest tributary of the Salmon river and is the most important producer of anadromous fish. The majority of the Middle Fork sub-basin is within the River of No Return Wilderness. However, prime headwater spawning streams including Bear Valley, Marsh, Camas, Big and Loon Creeks are outside the wilderness and have been degraded by mining and other land use activities. This sub-basin drains 2,830 square miles and includes 685 miles of streams accessible to anadromous fish. The topography of the Middle Fork drainage is extremely rugged and remote. Road access is limited to a single point on the main river and secondary roads on the upper reaches of a few tributaries. Except for alpine lakes and a few small streams, only the native, indigenous fish species and stocks occur in the Middle Fork.

The rugged topography and wilderness designation have preserved the majority of the Middle Fork habitat in pristine condition. The major exceptions are mines and access roads in several headwater areas which were omitted from wilderness classification.

Sub-basin 6 - Salmon River and Tributaries, Middle Fork to Lemhi River

Upstream from the confluence of the Middle Fork, the Salmon River is lower gradient and the river flows through open canyons and broad valleys. Upstream from North Fork, the river flows in braided channels through an alluvial plain. There is a substantial amount of gravel available in the mainstem through this reach. However, water temperatures and quality are adversely affected by land use practices and irrigation withdrawals. The two major tributaries in this reach have been severely impacted by mans' activities.

The Panther Creek drainage contains nearly 100 miles of streams and reportedly supported chinook runs of 2,000 spawners in addition to substantial runs of steelhead prior to being damaged by mining pollution. Only limited anadromous fish use now occurs in Panther Creek.

The North Fork Salmon River drainage contains about 60 miles of stream which has been severely degraded by dredge and placer mining, logging, road building, and agricultural activities. Surveys in the 1950's indicated no value to anadromous fish due to habitat destruction. However, 165 chinook redds were counted in 1969. At the present time poor habitat quality and poorly constructed road crossings limit the productivity of the North Fork.

Other smaller tributaries such as Indian, Colson, Spring, Squaw, and Pine Creeks support small amounts of spawning and rearing. Siltation from roading and logging and improperly placed culverts limit anadromous fish use of these streams.

MANAGEMENT ACTIONS

Year	Action	Implementing Agency
1984-86	Study feasibility of resolving the heavy-metal pollution problem in Panther Creek to allow restoration of anadromous fish.	BPA,IDFG
1986-88	Implement a mining pollution reclamation plan in Panther Creek if feasible methods are available.	USFS,IDFG, IDL
1986-88	Correct migration barriers in tributaries and stabilize disturbed habitat.	USFS,IDFG
1988-90	Initiate chinook and steelhead reintroduction program in Panther Creek if heavy metal pollution problem can be solved.	IDFG

Sub-basin 7 - Lemhi River

The Lemhi River is one of the most productive streams in the Salmon River drainage. The Lemhi is a meandering, low gradient, spring-fed stream in a broad alluvial valley. Unfortunately, the Lemhi has been impacted by channel alteration and extensive irrigation diversion dating back to the 1850's. At the present time the flow of the Lemhi River is totally appropriated for irrigation and diversions dewater some reaches of the stream in dry years. Even in good flow years, diversions can create migration barriers and can strand juvenile salmonids. Operation of screens on diversions, providing adequate instream flows and providing adequate spawning escapements could restore production in the Lemhi River.

MANAGEMENT ACTIONS

Year	Action	Implementing Agency
--	Maintain and upgrade present diversion screens and bypass systems to protect smolts.	IDFG
1984	Seek a solution to the low flow, migration barrier problem inherent in irrigation diversions through supplementing stream flow, rebuilding diversions, or both.	IDFG,BPA
--	Develop naturally spawning chinook and steelhead runs adequate to fully seed the available spawning and rearing habitat.	IDFG
1988	Activate the fish hatchery on Hayden Creek to rear chinook smolts and fingerlings under the Department's supplemental artificial production program.	IDFG

Sub-basin 8 - Salmon River and Tributaries, Lemhi River to and Including Pahsimeroi River

The 44 mile section of the Salmon River, between the Lemhi and the Pahsimeroi Rivers, presently serves primarily as a migration corridor. There are some large areas of suitable spawning gravel available and a small amount of mainstem salmon and steelhead spawning occurs. Generally water quality and riparian habitat have been degraded by agricultural practices. Only two tributaries in this reach, Iron Creek and

Hat Creek, support significant production of anadromous fish. Because of substantial returns to Pahsimeroi Hatchery, this river reach supports very heavy fishing pressure.

As hatchery programs in upriver areas and returns of chinook and steelhead increase, the spawning areas in this reach should receive greater utilization.

Pahsimeroi River is a spring fed meandering stream in a broad alluvial valley. There are numerous irrigation diversions which dewater some of the upper reaches. However, exchange and recharge between groundwater and stream flows causes a stable flow. The instream and riparian habitat in the lower 12-15 miles of the Pahsimeroi River is in good condition and the stream is one of the most important producers of anadromous fish in the Salmon River drainage.

Because of excellent water quality, the Pahsimeroi is the site of major artificial production programs for both steelhead and chinook salmon. Idaho Power Company funds programs which mitigate for anadromous fish losses in Hells Canyon accounting for releases of 1,000,000 steelhead and 1,000,000 chinook annually.

MANAGEMENT ACTIONS

Year	Action	Implementing Agency
--	Continue the artificial production program for "A" run steelhead, releasing 1,000,000 smolts annually.	IDFG,IPC
--	Allow a portion of the steelhead run to spawn naturally and seed natural rearing areas with excess steelhead fry as available.	IDFG,IPC
--	Continue artificial production programs for chinook releasing 1,000,000 smolts annually.	IDFG,IPC
1987	Convert chinook program at Pahsimeroi from spring chinook to summer chinook.	IDFG,IPC
--	Allow a portion of the chinook population to spawn naturally.	IDFG
1985-86	Acquire access to fishing areas along the Salmon and Pahsimeroi Rivers.	IDFG

--	Maintain and upgrade diversion screen and bypass systems.	IDFG

Sub-basin 9 - Salmon River and Tributaries, Pahsimeroi River to and Including the East Fork Salmon River

The 41 mile reach of the Salmon River between the Pahsimeroi and the East Fork is of moderate gradient, located in a broad alluvial valley and is characterized by cobble and boulder runs with occasional deep pools. The riparian and instream habitat has been impacted by livestock grazing and irrigation diversions. The two major tributaries in this reach, Morgan Creek and Challis Creek, have been essentially eliminated from anadromous fish production due to diversion and channel alteration, but both have potential for rehabilitation.

The main river through this reach contains substantial amounts of spawning and rearing habitat and provides some natural production. The primary value of this reach, however, is as a migration route and as an overwintering area for both pre-smolts and adults. Use of this reach for spawning and rearing should increase as runs are restored.

The East Fork Salmon River drainage contains over 100 miles of stream accessible to anadromous fish. Excellent spawning and rearing habitat exists throughout the drainage. Degradation due to livestock grazing, irrigation diversion, and channel alteration reduces the productivity of the lower reaches. Chinook redd counts averaged 650 annually in the 1960's and substantial steelhead spawning has been reported.

In addition to a large amount of natural production, the East Fork receives substantial releases of hatchery reared smolts. An adult trap and spawn taking facility is located at River Mile 18 on the East Fork. This trap is a satellite facility to supply chinook eggs to Sawtooth Hatchery and steelhead eggs to Hagerman National Fish Hatchery for Lower Snake River Compensation Plan programs. Smolts reared at the above-mentioned facilities are released above the trap site and in tributary streams. Excess fry and fingerlings are stocked in the extensive natural rearing areas available in this sub-basin.

MANAGEMENT ACTIONS

Year	Action	Implementing Agency
--	Maintain and/or upgrade diversion screen and bypass systems.	IDFG

--	Continue artificial production program for B-strain steelhead, releasing up to 1,000,000 smolt, annually.	IDFG
1988	Provide adequate spawning escapements to seed natural rearing areas.	IDFG
1988	Initiate a habitat enhancement project to improve riparian and instream conditions in the East Fork and tributaries.	BLM,IDFG, FHBC,BPA
1986-90	Collect enough steelhead and chinook spawn at the East Fork trap to support the East Fork portion of the Sawtooth, Magic Valley, and Hagerman National rearing programs.	IDFG

Sub-basin 10 - Salmon River and Tributaries, East Fork to and including Yankee Fork

The 24 mile reach of the Main Salmon River between the East Fork and Yankee Fork flows mostly in a deep canyon with narrow alluvial bars. The river is closely paralleled by a major highway which encroaches on the channel at narrow points in the canyon. The canyon walls create a very stable stream channel with deep pools interspersed with rocky runs and gravel riffles. This reach contains some of the largest concentrations of mainstem spawning chinook in the Salmon River. Broad riffles near the mouth of Warm Springs Creek support a substantial portion of the summer chinook spawning in the Salmon River.

The major tributaries in this reach, Slate Creek, Squaw Creek, and Warm Springs Creek are higher gradient. These streams have been adversely impacted by mining, road building, and livestock grazing, but continue to provide fair habitat for natural production of salmon and steelhead.

The Yankee Fork drainage contains about 50 miles of streams which are accessible to anadromous fish. In spite of mining operations, which have damaged and channelized much of the stream, Yankee Fork and its major tributary, West Fork supported over 350 chinook redds in the 1960's. Recent mining operations in Yankee Fork have channelized additional stream mileage and added tremendous silt loads and toxic pollutents. Ongoing mining operations pose a continued threat to water quality and aquatic life.

Yankee Fork and its tributaries have a large potential for restoration and production of anadromous fish, but protection provided by the present water quality and mining laws is inadequate.

MANAGEMENT ACTIONS

Year	Action	Implementing Agency
1984-90	Stock underseeded natural rearing habitat in tributary streams with fry and fingerlings of upper Salmon River stocks of anadromous fish.	IDFG
1986	Release steelhead and chinook smolts into Yankee Fork to establish fisheries.	IDFG
--	Seek solutions to the serious mining pollution and habitat destruction problem in the Yankee Fork basin.	IDFG,IDHW, USFS,IDL
1986	Seek solution to the dewatering/passage barrier problem at irrigation diversions on Squaw Creek.	IDFG
--	Maintain and/or upgrade irrigation screen and bypass systems.	IDFG
1987	Inventory habitat and determine feasibility of mining reclamation or habitat enhancement in Yankee Fork.	IDFG,USFS, FHBC

Sub-basin 11 - Salmon River and Tributaries, Yankee Fork to Headwaters

The 18 miles of the Salmon River between the mouth of Yankee Fork and the Sawtooth Hatchery weir is primarily a series of runs and riffles with few deep holes. Upstream from Sawtooths hatchery, the Salmon River is a meandering meadow stream. A substantial amount of mainstem spawning gravel and juvenile rearing areas are located in the upper Salmon River. This reach is located in the Sawtooth NRA and habitat is in good to excellent condition except for grazing damage on some private lands.

The major tributaries in this reach are Alturas Lake Creek, Pole Creek, Basin Creek, Valley Creek, and Redfish Lake Creek. All of these streams provide good spawning and rearing habitat, but Valley Creek and Basin Creek are impacted by livestock use.

Redfish Lake has the only remnant run of sockeye salmon still existing in Idaho. Efforts to reintroduce sockeye to Stanley Lake and Alturas Lake have been initiated. These lakes and their tributaries are in nearly pristine condition and should be capable of sustaining runs of sockeye again.

Above the Sawtooth weir, the upper Salmon River and tributaries contain a large amount of spawning and rearing habitat. The Sawtooth Hatchery weir is located 897 stream miles from the ocean at an elevation of approximately 6,500 ft/mls. Streams above the weir are primarily meandering, meadow streams in a sub-alpine valley. Although this area is entirely within the Sawtooth NRA, many of the streams are located on private land and have been severely impacted by grazing and irrigation diversion. Two diversions, one on Alturas Lake Creek and the other on the upper Salmon River near Alturas Lake Creek, dewater the streams and create migration barriers in many years.

This section has the potential for a large quantity of natural production in addition to being the site of a major hatchery program.

MANAGEMENT ACTIONS

Year	Action	Implementing Agency
1984-90	Build a hatchery chinook program utilizing the indigenous upper Salmon River stock of spring chinook.	IDFG
1984-90	Build a hatchery steelhead program utilizing Salmon River steelhead stocks.	IDFG
1986-90	Outplant steelhead and chinook fry, and fingerlings into suitable habitat to establish natural spawning runs.	IDFG
--	Integrate hatchery production with wild natural production to insure full utilization of natural spawning and rearing habitat and maintain genetic integrity of indigenous stocks.	IDFG
1984-86	Correct man-made migration barriers at irrigation diversions.	IDFG,USFS
--	Maintain and upgrade screen and bypass systems at irrigation diversions.	IDFG
1984-87	Reintroduce sockeye salmon runs into Alturas and Stanley Lakes.	IDFG
--	Preserve indigenous gene pool of sockeye salmon at Redfish Lake.	IDFG
--	Restore and protect riparian and instream habitat in the upper Salmon River and tributaries.	IDFG,USFS

1987	Establish instream flows in Alturas Lake Creek and upper Salmon River sufficient to allow unimpeded migrations of anadromous fish.	IWRB, IDFG, USFS

A P P E N D I C E S

Appendix A.

AGENCY ACRONYMS

BPA	Bonneville Power Administration
BLM	United States Bureau of Land Management
CE	United States Army Corp of Engineers
CRITFC	Columbia River Intertribal Fish Commission
FERC	Federal Energy Regulatory Commission
FHBC	Fort Hall Business Council
IDFG	Idaho Department of Fish and Game
IDHW	Idaho Department of Health and Welfare
IDL	Idaho Department of Lands
IDPR	Idaho Department of Parks and Recreation
IDWR	Idaho Department of Water Resources
NMFS	National Marine Fishery Service
NPPC	Northwest Power Planning Council
NPTC	Nez Perce Tribal Executive Council
USFS	United States Forest Service
USFWS	United States Fish & Wildlife Service
WBC	Water Budget Center

Appendix B. Proposed production and distribution summary, Idaho anadromous fish hatcheries, smolt production.

Hatchery	Species	Water planted	Number	Total production
McCall	Summer Ck.	South Fork Salmon	1,000,000	1,000,000
Pahsimeroi	Summer Ck.	Pahsimeroi River	1,000,000	1,000,000
		(Total Summer Chinook -		2,000,000)
Rapid River	Spring Ck.	Rapid River	2,500,000	3,000,000
		Hells Canyon	500,000	
Sawtooth	Spring Ck.	Upper Salmon River	1,300,000	
		East Fork Salmon River	700,000	
		Valley Creek	100,000	
		Yankee Fork	200,000	2,300,000
Dworshak	Spring Ck.	North Fork Clearwater	500,000	
		Lolo Creek	200,000	1,000,000
		Newsome Creek	200,000	
		American River	100,000	
Clearwater	Spring Ck.	Lochsa River and tribs.	1,500,000	
		Crooked River	500,000	2,200,000
		Red River	200,000	
Kooskia	Spring Ck.	Clear Creek	400,000	400,000
		(Total Spring Ck.		8,900,000)
Dworshak	Steelhead "B"	North Fork Clearwater	1,500,000	
	Steelhead "B"	South Fork Clearwater and tribs.	1,00,000	2,500,000
Clearwater	Steelhead "B"	Crooked River	500,000	
	Steelhead "B"	Lochsa River	1,000,000	
	Steelhead "B"	Captain John Creek	300,000	
	Steelhead "B"	Slate Creek	500,000	
	Steelhead "B"	Whitebird Creek	200,000	2,500,000
Niagara	Steelhead "A"	Pahsimeroi	1,000,000	
	Steelhead "A"	Hells Canyon	1,000,000	2,000,000
Hagerman	Steelhead "B"	East Fork Salmon	1,000,000	1,700,000
	Steelhead "A"	Upper Salmon	700,000	(1.0 B's, 0.7 A's)
Magic Valley	Steelhead "A"	Little Salmon River	800,000	1,500,000
	Steelhead "A"	Lower Salmon tribs.	400,000	
	Steelhead "A"	Panther Creek	300,000	

(Total Steelhead 10.2 million - 6.0 B's, 4.2 A's)

Appendix C. Proposed distribution summary, Idaho anadromous fish hatcheries eyed eggs, fry, and fingerlings.*

Hatchery	Species	Water planted	Number x 1000 /size	Time
McCall	SuCk	Upper South Fork Salmon	200 fingerling	June
	SuCk	Johnson Creek	200 fingerling	June
	SuCk	East Fork South Fork	100 fingerling	June
Pahsimeroi	SuCk	Salmon River, Robinson Bar	300 fingerling	July
	SuCk	Panther Creek	200 fingerling	July
		(Total summer chinook 1.0 million)		
Rapid River	SpCk	Little Salmon and tribs.	200 fingerling	June
	SpCk	Clearwater Basin	800 fingerling	June
	SpCk	Clearwater Basin	1,000 eyed eggs	Sept
Sawtooth	SpCk	Salmon R.-Stanley Basin trib.	600 fingerling	July
	SpCk	Yankee Fork	200 fingerling	July
	SpCk	East Fork	200 fingerling	July
	SpCk	Slate Creek	100 fingerling	July
Dworshak	SpCk	Lolo Creek	200 fingerling	June
	SpCk	South Fork and Tributaries	300 fingerling	June
Clearwater	SpCk	Lochsa and Tributaries	500 fingerling	June
	SpCk	South Fork Tributaries	500 fingerling	June
		(Total SpCk 4.6 million)		
Dworshak	ShB	South Fork Tributaries	2,000 eggs/fry	May-June
Clearwater	ShB	Clearwater Tributaries	1,000 fry	June
Niagara	ShA	Hells Canyon	500 fingerling	Sept-Oct
Oxbow	ShA	Little Salmon and	500 fry	Sept-Oct
Pahsimeroi	ShA	Lemhi River	500 fry	June
	ShA	Pahsimeroi River	500 fry	June
	ShA	Panther Creek	200 fry	June
	ShA	Yankee Fork	500 fry	June
	ShA	Other Salmon River tribs.	1,000 fry	June
		(Total steelhead 6.7 million)		

* Present hatchery programs are designed to produce smolts; however, excess fry and fingerlings are produced incidentally when excess eggs are available or when survival rates are higher than anticipated. The fry and fingerling plants listed are contingent upon availability of excess eggs, fry, and fingerlings until supplies of eggs and funding for regular supplemental plants are developed.

Appendix D. Glossary

Anadromous fish	- Fish which spend a portion of their life in the ocean, and ascend freshwater rivers and streams for spawning purposes.
Artificial production	- Producing fish by collecting eggs and milt from adult fish, and fertilizing, incubating, and hatching eggs, and rearing the resultant fry in an aritificial environment such as a fish hatchery, hatching channel, or rearing pond.
B-run steelhead	- Summer steelhead which, on their spawning migration into the Columbia River, pass Bonneville Dam after August 25. B-run steelhead in Idaho originate primarily from the Clearwater River, and are predominantly two-ocean adults.
Compensation programs	- Artificial production programs which produce anadromous fish to replace fish or habitat lost to a specific development.
Directed fishery	- A fishery intended to harvest a specific stock of fish. (Synonyms: target fishery; selective fishery.)
Escapement	- Number of returning adult fish surviving past a point in their migration, e.g., "spawning escapement" denoting the number of fish arriving at the spawning grounds.
Eyed eggs	- Incubating fish eggs at the stage where the eyes of the developing embryo become visible through the transparent shell membrane.
Fall chinook	- Chinook salmon which enter freshwater on their spawning migration during August, September, and October.
Fingerling	- A juvenile fish. Arbitrarily, a fish between 3 and 6 inches total length.
Fishery	- Any combination of fishermen, fishing gear, fishing method, location, and fish wherein fish are harvested.

Appendix D. (Continued)

Fry	- A juvenile fish recently hatched. Arbitrarily, fish under three inches long.
Harvestable surplus	- That portion of a fish population in excess of the required spawning escapement, natural and manmade mortality factors, which is available to be harvested by fishermen.
Hatchery Fish	- Fish produced in hatcheries or other artificial facilities such as hatching and rearing channels or hatching boxes.
Known-stock fishery	- A fishery where a single, identifiable stock of fish is selectively harvested.
Mixed-stock fishery	- Fishery in which more than one stock of fish, for example, hatchery fish and wild fish, are harvested without selectivity.
Natural Fish	- Progeny of hatchery fish which have reproduced in natural environments.
Natural Production	- Fish produced by spawning and rearing in natural habitat with no artificial supplementation, regardless of the parentage of the spawners.
One-ocean, two-ocean, ect.	- Reference to the number of years an anadromous salmonid spends rearing in saltwater before returning to freshwater to reproduce.
Out-plant	- The practice of releasing hatchery-produced fish in natural habitat remote from the hatchery to establish naturally spawning returns, and/or to disperse returning adults for a fishery.
Parr	- A juvenile anadromous fish during the freshwater rearing phase of its life cycle.
Residual smolt	- A juvenile anadromous salmonid which remains a resident in fresh water instead of migrating to the ocean.

Appendix D. (Continued)

Run	- A group of migrating anadromous fish; may be specific, as "the Yankee Fork summer chinook run" or collective, as "Columbia River salmon run".
Salmonid	- A fish of the trout family, including trout, char, salmon, grayling, and whitefish.
Smolt	- A juvenile anadromous fish during the state of migration and acclimation from freshwater to saltwater - characterized by silvery color and deciduous scales. Also a verb meaning to undergo the physiological change and initiate the seaward migration.
Spawn	- Used as a verb, the act of breading in fish; also as a noun meaning the reproductive products of aquatic animals.
Spring chinook	- Chinook salmon (Onchorynchus tshawytscha) which enter freshwater on their spawning migration prior to June 1.
Steelhead	- The anadromous form of rainbow trout (Salmo gairdneri).
Stock	- A genetically distinct group of fish maintained as a self-sustaining, interbreeding population with definable characteristics, through either artificial or natural production.
Summer chinook	- Chinook salmon which enter freshwater on their spawning migration during the months of June and July.
Summer steelhead	- Steelhead which enter freshwater on their spawning migration during the summer and early fall months (June-October).
Wild Fish	- A stock of fish, maintaining a population through natural production with no hatchery supplementation, often the indigenous stock.