



**SUMMER CHINOOK SALMON SPORT FISHERIES
ON THE
SOUTH FORK SALMON RIVER, IDAHO
2000, 2001, and 2002**

By

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ABSTRACT

Sport fisheries for summer chinook salmon *Oncorhynchus tshawytscha* were held on the South Fork Salmon River (SFSR) in 2000, 2001, and 2002. Anglers harvested 867 surplus hatchery summer chinook salmon in 2000, 6,082 in 2001, and 6,843 in 2002. During 2000, the six-day fishery attracted 1,812 anglers who fished a total of 9,289 hours. In 2001, the fishery lasted 23 days, and 9,971 anglers fished a total of 53,377 hours. The 2002 fishery lasted 30 days and 13,649 anglers fished for 75,707 hours. Sport fishery boundaries were downstream from the adult salmon trap to Goat Creek. These fisheries gave Idaho sport anglers the second, third and fourth opportunities since 1964 to fish for summer chinook salmon in the South Fork Salmon River.

INTRODUCTION

History of Summer Chinook in the South Fork Salmon River

Historically, the South Fork Salmon River (SFSR) produced 60 to 70 percent of Idaho's summer chinook salmon *Oncorhynchus tshawytscha* and approximately one-third of the state's sport harvest of chinook salmon (Hassemer 1998; IDFG 2001). Annual harvest in the 1960s ranged from 1,700 to 3,900 fish. The sport fishery for chinook was closed in 1965, following heavy siltation of spawning and rearing habitat in 1964 and 1965. Since completion of four federal hydroelectric dams on the lower Snake River, chinook salmon runs have generally been below replacement levels (Servheen and Huntington 2001). The first sport fishery since 1965 occurred in 1997 (Apperson and Wilson 1998).

Hatchery production of summer chinook from the SFSR began in 1980 as part of Lower Snake River Compensation Program (LSRCP) to mitigate for fish losses occurring by operation of the lower Snake River dams. The annual LSRCP mitigation goal for the McCall Hatchery program on the SFSR is to return 8,000 adults to the Snake River upstream from Lower Granite Dam (Hassemer 1998). McCall Hatchery was designed to rear one million smolts. Eggs are collected from adults trapped at a weir located about 70 miles upstream from the mouth of the SFSR.

In 1992, all natural-origin spring/summer chinook upstream of Lower Granite Dam (except those in the Clearwater River) were listed as threatened pursuant to the Endangered Species Act (ESA) by the National Marine Fisheries Service (NMFS). The listing included all naturally produced spring, summer and fall chinook salmon in the Snake River Basin as well as hatchery progeny that had at least one natural origin parent.

Beginning with brood year (BY) 1991, all hatchery-produced chinook salmon in Idaho were marked. Hatchery production intended for harvest (called "reserve" fish) was marked with an adipose fin clip to allow identification for harvest. Fish produced to evaluate the feasibility of increasing natural production by outplanting fish that have one natural origin parent, and one hatchery-origin parent were called "supplementation" fish. Supplementation fish were marked with either a ventral fin clip, elastomer mark, or coded wire tag only (Lutch et al. 2002).

METHODS

Development of Sport Fishing Seasons and Regulations

Preseason forecasts for the number of summer chinook expected to return to the SFSR weir were based on cohort analyses, and upriver run projections. Fisheries were conducted as specified in Permit #1233, issued by NMFS to Idaho Department of Fish and Game (Department) for the incidental take of ESA listed species, and regulations were set each year by the Idaho Fish and Game Commission.

Fishing was allowed from 100 yards below the weir, downstream to the mouth of Goat Creek, a distance of approximately six miles; this area is mostly within the Boise National Forest. The opening date for fishing varied based on predicted run timing to ensure that angling would be

allowed to occur as soon as the run arrived in the fishing area. In 2000 and 2001, daily fishing hours were from 6:00 a.m. through 9:00 p.m. In 2002, fishing hours were changed to one-half hour before sunrise to one hour past sunset to be consistent with other salmon fisheries in the state. Harvest was limited to two adipose fin-clipped (reserve), summer chinook per day. In 2000 and 2001, anglers were allowed four salmon in possession, and in 2002 the possession limit was raised to six salmon. The statewide season limit was 20 fish in 2000, and 40 fish in 2001 and 2002. Fishing gear was restricted to hook-and-line with barbless hooks. Bait, (which is otherwise prohibited in the SFSR) was allowed for salmon fishing only.

Coordination with Agencies and Tribes

Prior to each season, meetings were held with personnel from the Department's Enforcement and Fisheries bureaus, Boise and Payette National Forests, Nez Perce and Shoshone-Bannock tribes, and Valley County Sheriff to discuss logistics of conducting and monitoring the fishery, appropriate parking areas, and locations for portable outhouses. The Department arranged, and paid for, outhouses to be delivered and maintained throughout the fishery area and season. A map was developed by both agencies showing the fishery area, access, parking, and camping (Figure 1).

Incidental Take of Listed Chinook

From 2000 through 2002, the National Marine Fisheries Service imposed restrictions on the number of both natural and hatchery origin ESA-listed chinook salmon that may be incidentally caught and released during the fisheries targeting unlisted reserve fish. By contrast, in 1997 incidental take restrictions were placed only on the number of natural-origin fish that could be caught and released. Angler interviews at the check station provided an estimate of the number of chinook caught-and-released with an intact adipose fin. During fin clipping operations, the adipose fin may not be completely removed. Estimates of the proportion of the fish released each year with a partial or unclipped adipose fin are made. We adjusted the number of fish with an intact adipose fin released by anglers by using an estimate of the proportion of unmarked reserve fish expected to be present in the fishery area. In 2002, the Commission adopted a new definition of a hatchery chinook that may be retained. The new definition specified that "only hatchery chinook salmon with a clipped adipose fin (as evidenced by a healed scar) may be kept". When making estimates of the incidental take of listed chinook in 2002, we assumed that 20% of the misclipped chinook salmon could be identified by anglers as unlisted hatchery-origin fish. We assumed that 10 percent of the ESA listed chinook incidentally caught and released subsequently died.

Monitoring

In an effort to interview all anglers and physically observe all summer chinook caught, a check station was placed on the South Fork Salmon River road, upstream from the fishing area (Figure 1). Each day was split into two shifts with two to five clerks working per shift. Stations were operated daily from approximately one-half hour after the fishery started until one hour after fishing closed, or until all anglers had passed through the station. Funds for monitoring were provided by LSRCP and from Department salmon and steelhead tag sales revenue.

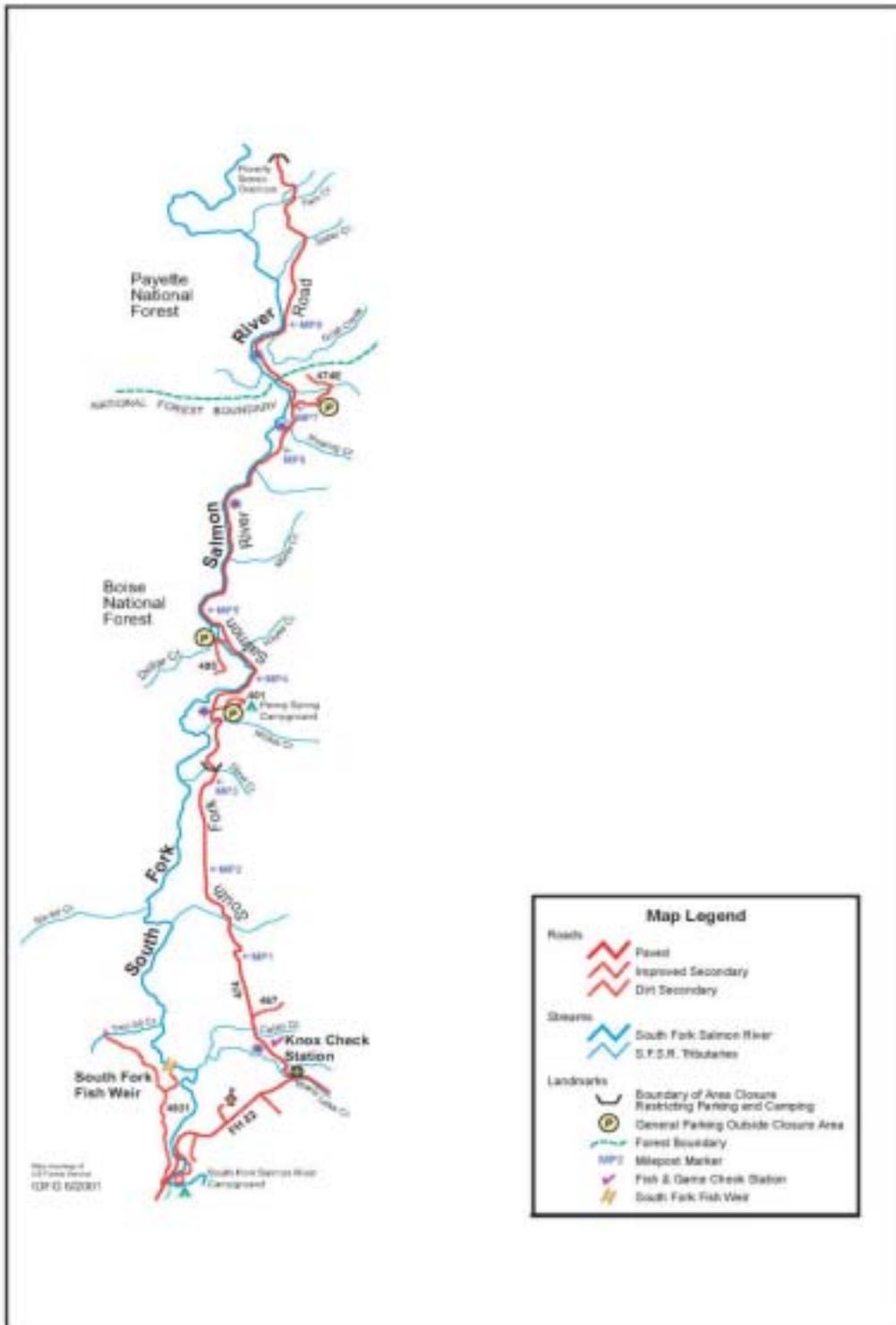


Figure 1. Map of sport fishery area on South Fork Salmon River, Idaho.

All anglers were required to stop at the check station to report fishing activities, regardless of fish harvested. The check station was located so that the majority of anglers passed by it on their way to and from fishing. Because there were two other ways to access the fishing area, signs were posted in these areas to remind anglers that all summer chinook salmon harvested from the South Fork must be checked by the IDFG on the same day caught. Information collected from angler interviews at the check station included:

- Number of hours fished each day by each angler
- Number of summer chinook caught and released with and without an adipose fin
- Number of summer chinook harvested
- Number of other fish species caught incidental to fishing for summer chinook

Harvested salmon were measured for fork length; sex was recorded and the fish were examined for external marks, tags, radio transmitters, passive integrated transponder (PIT) tags, and coded wire tags (CWT). Snouts were removed from fish with a CWT when permitted by the angler. Radio transmitters and other external tags were removed and returned to the respective agency.

In 2000 a modified Big Game Mortality Report form was completed for each harvested fish. One copy of the report was given to the angler as proof of checking in the fish; one copy stayed with the check station; and one copy was given to enforcement personnel. In 2001 a similar report form, though specific to the fishery, was used during the first half of the fishery. Beginning June 28 through the remainder of the 2001 fishery and throughout the 2002 fishery, all checked fish were tagged in the operculum with a blank Floy anchor tag to verify the fish had been inspected at the check station. This change expedited processing of fish and anglers at the check station.

Regional conservation officers managed enforcement efforts and were assisted by staff from other regions. Conservation officers were present every day during the fisheries.

Adult Chinook Trapping and Outplanting (Recycling)

Hatchery staff periodically transported reserve fish from the trap back downstream to be “recycled” through the fishery. Fish to be recycled were marked with a hole punch in the operculum and transported to either Dollar Creek or Goat Creek (Figure 1) (McPherson et al. In progress a, b; 2002). This transport of salmon downstream accomplished two objectives: it relieved overcrowding and thus stress on fish in the adult trap, and it provided for a higher concentration of harvestable fish available to anglers in the fishery.

RESULTS

Sport Harvest and Incidental Take of Chinook Salmon

Daily check station data for the past three years’ fisheries are provided in Tables 1, 2 and 3 and are shown graphically in Figures 2, 3 and 4. Incidental lethal take included both estimated

Table 1. Daily summary of 2000 summer chinook salmon sport fishery, South Fork Salmon River, Idaho.

Date	Number of anglers	Total hours fished	Reserve (adipose clipped) summer chinook harvested			Summer chinook released				Catch rate (hours/fish)	Lethal take ^a
			Adults	Jacks	Total	Reserve (adipose clipped)		Unmarked			
						Adults	Jacks	Adults	Jacks		
6/30	295	1,379.8	114	32	146	23	45	26	16	5.4	2.60
7/1	363	1,746.5	128	19	147	16	23	26	22	7.5	2.60
7/2	322	1,492.0	128	43	171	22	21	12	15	6.2	1.20
7/3	316	1,763.5	136	41	177	38	43	19	15	6.0	1.90
7/4	305	1,798.0	94	48	142	26	16	29	18	7.8	2.90
7/5	211	1,109.0	54	30	84	6	10	18	5	9.0	1.80
Totals	1,812	9,288.8	654	213	867	131	158	130	91		13.00

^a Incidental lethal take was calculated by multiplying number of released unmarked, protected adult chinook by 0.1 catch and release mortality rate.

Table 2. Daily summary of 2001 summer chinook salmon sport fishery, South Fork Salmon River, Idaho.

Date	Number of anglers	Total hours fished	Reserve (adipose clipped) summer chinook harvested			Summer chinook released				Catch rate (hours/fish)	Lethal take ^a
			Adults	Jacks	Total	Reserve (adipose clipped)		Unmarked			
						Adults	Jacks	Adults	Jacks		
6/10	345	1,196	20	0	20	1	0	2	0	52.0	0.16
6/11	136	569	35	0	35	3	0	6	0	12.9	0.49
6/12	117	474	38	0	38	5	0	4	0	10.1	0.33
6/13	130	535	28	0	28	0	0	0	0	19.1	0.00
6/14	202	897	61	1	62	28	0	4	0	9.5	0.41
6/15	236	1,208	77	0	77	6	0	3	0	14.0	0.25
6/16	434	1,919	85	1	86	14	0	12	0	17.1	0.98
6/17	334	1,431	162	1	163	121	1	17	0	4.7	1.39
6/18	220	1,085	187	2	189	81	0	56	0	3.3	4.59
6/19	322	1,587	250	1	251	107	1	81	0	3.6	7.05
6/20	344	1,988	232	2	234	114	1	65	1	4.8	5.43
6/21	404	1,901	277	2	279	151	0	129	0	3.4	10.58
6/22	469	2,672	282	2	284	180	7	107	0	4.6	8.77
6/23	763	4,381	455	3	458	270	1	196	0	4.7	16.07
6/24	722	3,675	453	3	456	241	3	147	3	4.3	14.52 ^b
6/25	384	2,025	358	6	364	277	4	176	0	2.5	14.43
6/26	483	2,629	385	4	389	110	1	122	0	4.2	11.00 ^b
6/27	531	2,779	376	6	382	275	0	264	2	3.0	21.85
6/28	582	3,657	403	4	407	246	4	301	0	3.8	24.68
6/29	621	3,842	423	10	433	371	3	327	2	3.4	27.01
6/30	890	5,621	574	12	586	574	8	599	0	3.2	50.12 ^b
7/1	841	4,757	534	14	548	410	8	503	2	3.2	41.53
7/2	461	2,554	308	5	313	245	8	419	0	2.6	34.36
Totals	9,971	53,377	6,003	79	6,082	3,830	50	3,540	10		296.00

^a Lethal take was calculated by adjusting for a 0.18 rate of unmarked reserve adults, then multiplying by 0.1 catch and release mortality rate.

^b Take includes 4 total chinook that were directly harvested: 2 on 6/24, and 1 each on 6/26 and 6/30.

Table 3. Daily summary of 2002 summer chinook salmon sport fishery, South Fork Salmon River, Idaho.

Date	Number of anglers	Total hours fished	Reserve (adipose clipped) summer chinook harvested			Summer chinook released				Catch rate (hours/fish)	Lethal 'take' of protected chinook (harvest + estimated catch and release mortality) ^a
			Adults	Jacks	Total	Reserve (adipose clipped)		Unmarked			
						Adults	Jacks	Adults	Jacks		
6/19	108	356	0	0	0	0	0	1	0	355.5	0.07
6/20	32	49	0	0	0	0	0	0	0		0.00
6/21	42	107	0	0	0	0	0	0	0		0.00
6/22	65	134	0	0	0	0	0	0	0		0.00
6/23	64	137	1	0	1	0	0	0	0	136.5	0.00
6/24	27	51	0	0	0	0	0	0	0		0.00
6/25	35	114	1	0	1	0	0	0	0	114.0	0.00
6/26	42	145	4	0	4	0	0	2	0	24.2	0.14
6/27	79	317	11	0	11	0	0	5	0	19.8	0.36
6/28	164	647	47	0	47	1	0	14	0	10.4	1.01
6/29	307	1,453	67	1	68	15	0	29	0	13.0	2.09
6/30	330	1,484	129	1	130	20	0	27	0	8.4	1.94
7/1	265	1,296	140	1	141	25	2	38	0	6.3	2.74
7/2	365	1,940	199	1	200	38	5	47	0	6.7	3.38
7/3	474	2,286	270	2	272	101	3	90	0	4.9	6.48
7/4	760	4,091	374	8	382	130	3	172	0	6.0	12.38
7/5	830	4,790	540	5	545	220	13	207	1	4.9	14.90
7/6	1,054	6,395	484	11	495	229	6	342	0	6.0	24.62
7/7	882	4,476	383	6	389	221	11	240	4	5.2	17.28
7/8	520	2,941	289	10	299	146	12	183	4	4.6	13.18
7/9	719	4,158	446	12	458	211	14	302	3	4.2	21.74
7/10	843	4,757	482	10	492	154	19	268	2	5.1	20.30
7/11	773	4,275	382	7	389	99	20	256	1	5.6	18.43
7/12	756	4,309	469	15	484	238	12	298	3	4.2	21.46
7/13	1,095	7,590	533	28	561	323	17	464	9	5.5	33.41
7/14	899	4,988	445	18	463	172	15	399	5	4.7	28.73
7/15	516	2,791	235	7	242	63	11	253	9	4.8	18.22
7/16	555	3,371	238	25	263	78	6	236	0	5.8	17.99
7/17	454	2,569	211	18	229	88	9	251	4	4.4	19.07
7/18	594	3,697	247	30	277	142	17	371	0	4.6	26.71
Totals	13,649	75,707	6,627	216	6,843	2,714	195	4,495	45		326.64

^a Incidental lethal take was calculated by adjusting for a 0.28 rate of unmarked reserve adults, then multiplying by 0.1 catch and release mortality rate.

^b Take includes 3 protected adult chinook that were directly harvested, one on each day noted.

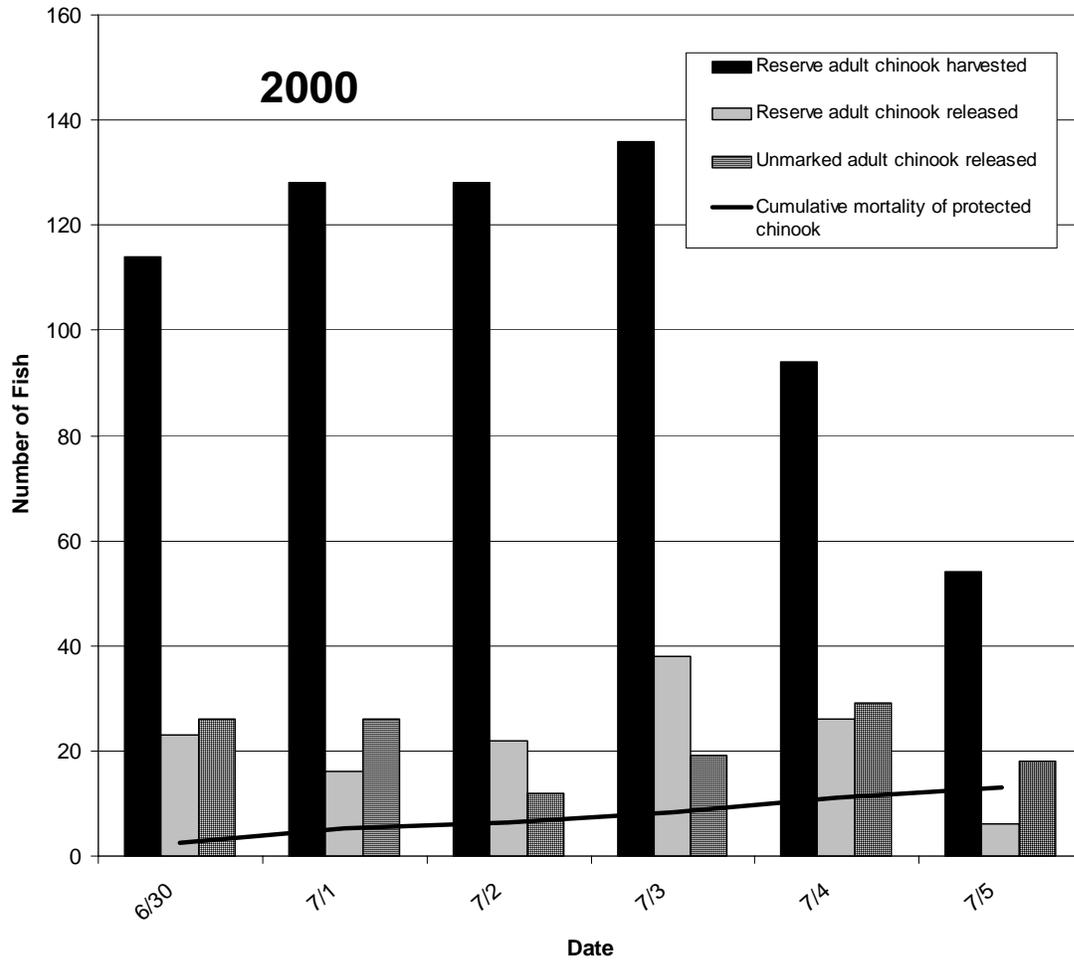


Figure 2. Daily summary of 2000 summer chinook salmon sport fishery, South Fork Salmon River, Idaho.

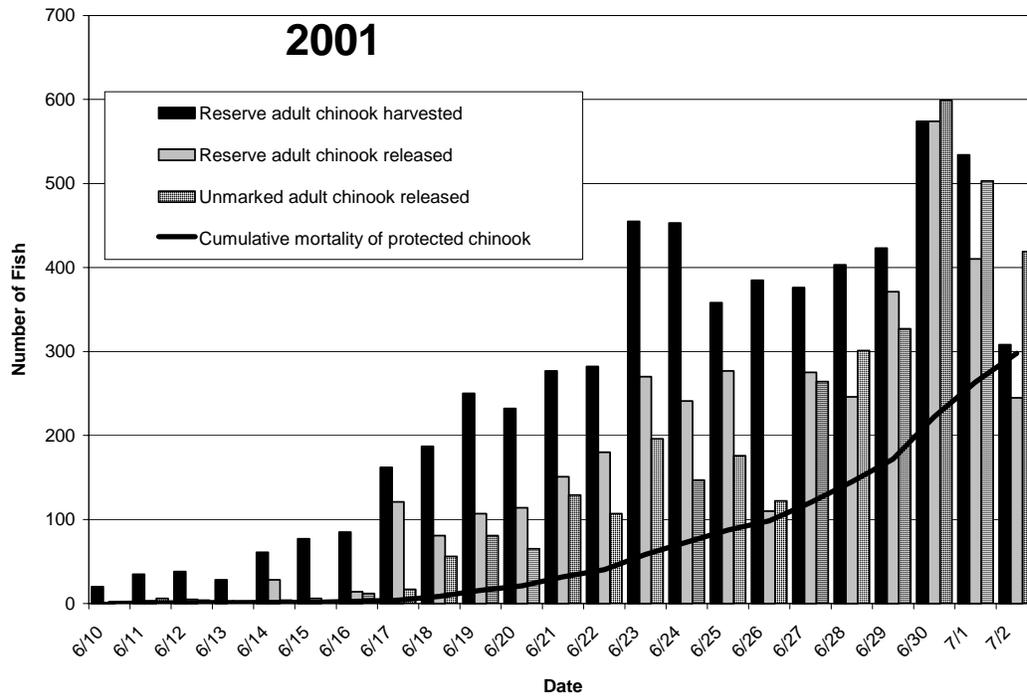


Figure 3. Daily summary of 2001 summer chinook salmon sport fishery, South Fork Salmon River, Idaho.

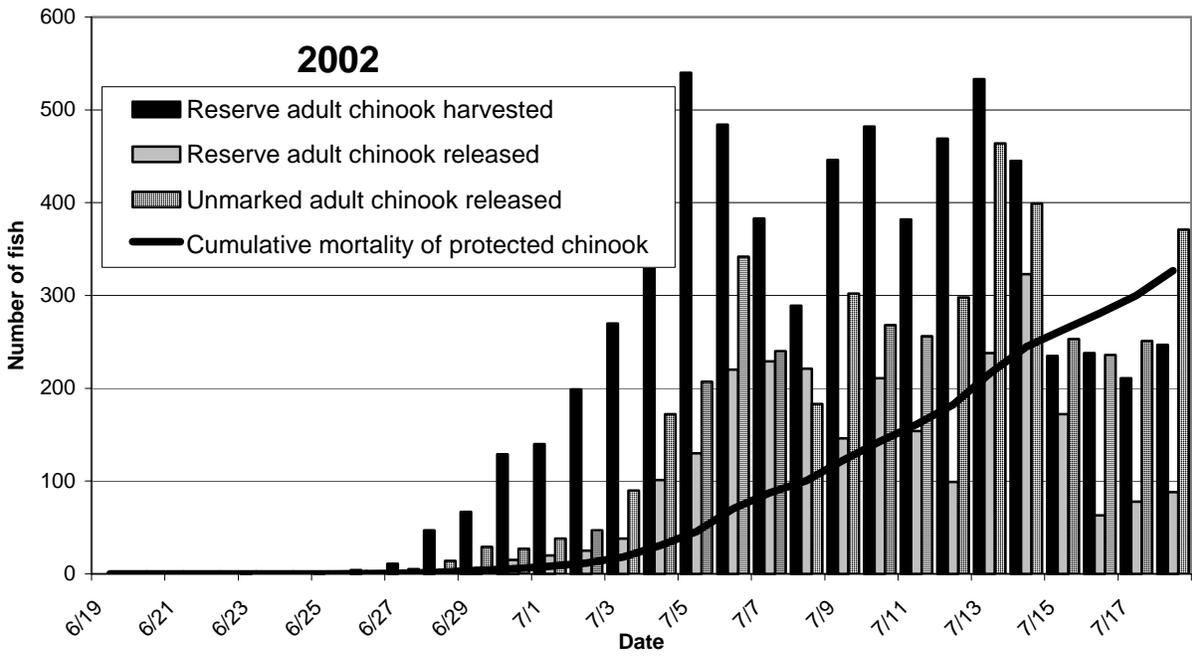


Figure 4. Daily summary of 2002 summer chinook salmon sport fishery, South Fork Salmon River, Idaho.

mortality from catching and releasing ESA-listed salmon and illegally harvested fish with fully intact adipose fins. In 2000, no ESA-listed fish were detected in the harvest. In 2001, four ESA listed salmon were detected in the harvest. In 2002, three adult ESA-listed salmon (two natural and one supplementation hatchery fish) and one supplementation hatchery jack were illegally harvested.

The McCall Hatchery staff uses fork length to estimate the age of fish. Fish less than 67 cm are presumed to be 3 years old, fish between 67 cm and 89 cm are presumed to be 4 years old, and fish longer than 89 cm are presumed to be 5 years old. We used these same criteria to estimate the age composition of the harvest. Table 4 shows the proportion of each years harvest by age. Table 5 summarizes the number of fish caught that had coded wire tags by age. Table 6 summarizes PIT tag detections by age for each fishery.

The proportion of recycled salmon subsequently harvested in the sport fishery varied from 25% to 38% (Table 7), and few (1% to 3%) of the recycled fish were recaptured at the trap.

Enforcement

Table 8 summarizes enforcement activity during the 2001 and 2002 fisheries (Larry Jindrich, personal communication). Appendix A further describes enforcement activities during the 2001 fishery.

DISCUSSION

In 1997 we attempted to maximize angler opportunity by conducting the fishery on Thursdays through Saturdays each week over a three-week period (Apperson and Wilson 1998). In this year, anglers harvested only 2% of the fish that were recycled through the fishery from the adult trap. In 2000 – 2003, fishing was allowed every day of the week and the harvest of the recycled fish increased to 25- 38 percent, and only 1 – 3 percent of the recycled fish were recaptured at the trap. Recapture of recycled salmon at the adult trap increased after each sport fishery ended. Overall season recapture of recycled fish ranged from 7% to 37% for all years.

Anglers seem to have become accustomed to the mandatory daily check station approach for reporting their harvest. However, catch-rate estimates obtained at the check station may be biased high because anglers who did not catch or keep a fish and who camped within the fishery area may not have passed through the check station each day.

While Commission rules required all harvested salmon be presented for inspection at the check station by 11:00 p.m. each day, it is possible that some anglers did not comply with this rule. There is access to the fishing area in two locations where anglers could leave the area without passing through the check station. We do not have an estimate of any unchecked salmon that may leave the area by these routes. One location is on the west side of the river immediately downstream from the adult salmon trap, this road provides access to approximately one-fourth mile of fishing. Second, fishermen could travel the road north (downstream) and exit the area. However, this route for leaving the fishing area is much longer to return to the state highway and does not appear to be used by many people. We operated a second check station along this route in 1997 and only 5% of harvested fish were checked at this location.

Table 4. Age and gender distribution of summer chinook salmon harvested in sport fisheries, South Fork Salmon River, Idaho. Length criteria are consistent with those used by McCall Hatchery.

Year	Proportions of fish harvested by age and gender								
	<67 cm FL (age 3)			67 to 89 cm FL (age 4)			>89 cm FL (age 5)		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
2000	0.00%	24.57%	24.60%	36.56%	38.18%	74.80%	0.23%	0.46%	0.69%
2001	0.15%	1.17%	1.32%	48.47%	47.87%	96.34%	1.12%	1.22%	2.34%
2002	0.18%	2.98%	3.16%	47.59%	38.42%	86.01%	6.11%	4.71%	10.82%

Table 5. Coded wire tag (CWT) detections and collections from summer chinook salmon harvested during sport fisheries, South Fork Salmon River, Idaho. Length criteria are consistent with those used by McCall Hatchery.

Year	Proportion of CWT detected by age					Number of samples collected
	<67 cm FL (age 3)	67 to 89 cm FL (age 4)	>89 cm FL (age 5)	Total CWT detected		
2000	0.2967	0.7033	0	182		176
2001	0.0100	0.9799	0.01	999		696
2002	0.0436	0.8855	0.0709	987		573

Table 6. PIT tag detections from summer chinook salmon harvested during sport fisheries, South Fork Salmon River, Idaho. Length criteria are consistent with those used by McCall Hatchery.

Year	Number of PIT tags detected by age			
	<67 cm FL (age 3)	67 to 89 cm FL (age 4)	>89 cm FL (age 5)	Total PIT tags detected
2000	3	9	0	12
2001	0	39	1	40
2002	3	45	2	50

Table 7. Summary of reserve summer chinook that were trapped and recycled through the South Fork Salmon River fisheries. Numbers reflect trapping during the sport fisheries only.

Year	Number of fish trapped	Percent of fish trapped by rearing type			Reserve fish recycled through fishery area		
		Reserve	Supplementation	Wild/natural	Number recycled	Percent harvested in sport fishery	Percent returned to rack
2000	921	91%	2%	7%	542	38%	3%
2001	5,076	79%	6%	15%	1,624	35%	3%
2002	8,603	72%	13%	15%	2,943	25%	1%

Table 8. Summary of enforcement by Idaho Department of Fish and Game conservation officers during the 2001 and 2002 summer chinook salmon sport fisheries, South Fork Salmon River, Idaho.

Action	2001	2002 ^a
Total enforcement hours	449 (363 uniform, 86 plainclothes)	614 (514 uniform, 100 plain clothes)
Ave. enforcement hrs/day	20 (23 day season)	22 (28 day season)
Number of license checks	1,054 (970 uniform, 84 plainclothes)	907 (854 uniform, 33 plain clothes)
Total violations	232 (177 uniform, 55 plain clothes)	172 (138 uniform, 34 plain clothes)
Citations issued	80 (59 uniform, 21 plainclothes)	64 (46 uniform, 18 plain clothes)
Warnings issued	107 (86 uniform, 21 plainclothes)	78 (66 uniform, 12 plain clothes)
Incidents	45 (32 uniform, 13 plainclothes)	30 (26 uniform, 4 plain clothes)
Violation rate	1.9 hours/violation	3.6 hours/violation
	0.52 violations/hour	0.28 violations/hour
	4.5 license checks/violation (22%)	5.3 license checks/violation (19%)
Most common violations:	No data	Fish closed season/area – 33 Barbed hook – 26 Unlawful possession – 18 Improper tagging – 25

^a 7 out of 10 officers reporting – data adjusted accordingly.

Figure 5 summarizes the SFSR sport fishery catch and effort since 1997. The SFSR has quickly become a very popular fishery, providing approximately 11% to 37% of the recent (since 1997) statewide sport salmon harvest on only 3% to 11% of Idaho's stream miles that are open to chinook salmon fishing.

The USFS is under strict scrutiny by US Fish and Wildlife Service (USFWS) and NMFS to maintain and improve instream and riparian habitat throughout the South Fork Salmon River drainage. Heavy angler use throughout the six-mile fishery area has impacted habitat. The Boise National Forest and the Department are cooperating to improve trail systems, expand parking access, and manage camping to accommodate future salmon fisheries on this section of river.

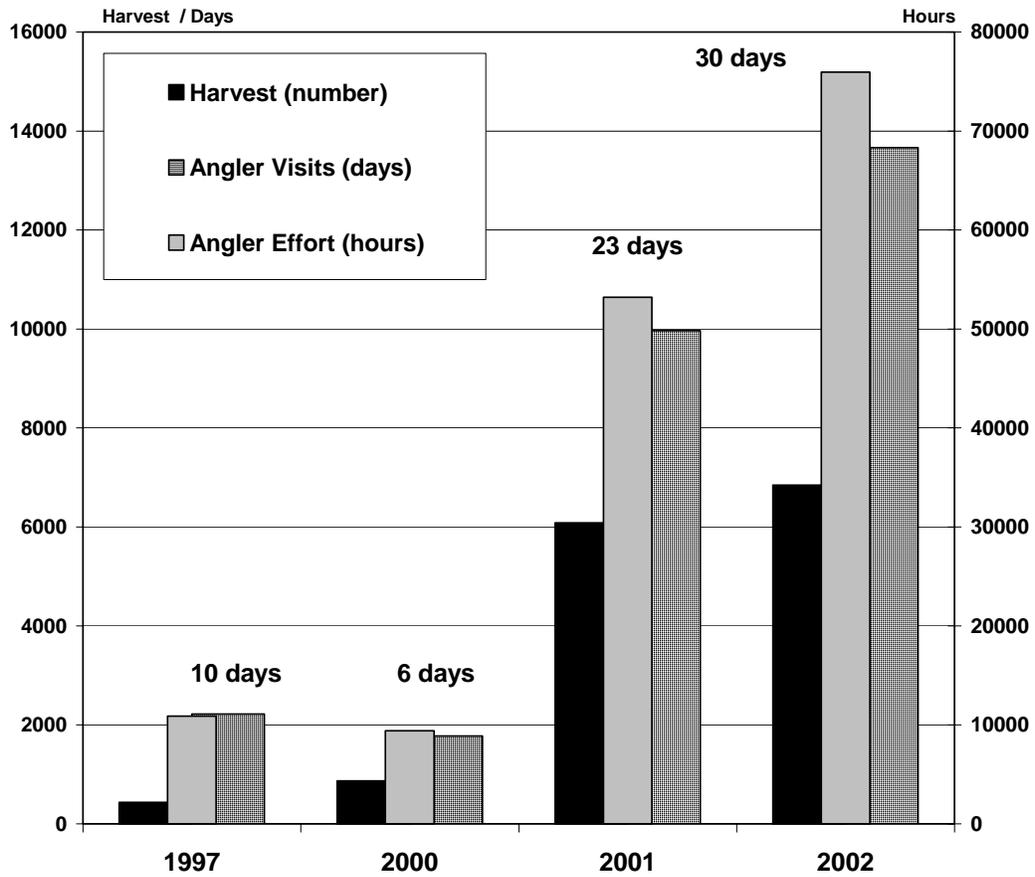


Figure 5. Summary chart of the four recent sport fisheries for summer chinook salmon on the South Fork Salmon River, Idaho.

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APPENDIX

Appendix A. Enforcement Action Plan – 2001 summary.

To: Larry Jindrich- DCO McCall
From: George R. Fischer- SCO Cascade
Subject: Chinook Salmon Angler Compliance on the South Fork Salmon River
Date: 06 February 2002

ABSTRACT:

The purpose of this action plan was to look at salmon angler compliance and compare violation detection rates between uniformed and plain-clothes patrols. Conservation officers collected violation data from enforcement contacts throughout the 2001 summer chinook salmon fishery on the South Fork of the Salmon River. 1,054 anglers were contacted during the season which ran June 10 to July 3. Officers detected a 22% total violation rate. Uniformed officers detected a violation every 2.1 hours of patrol; plain-clothes officers detected a violation every 1.6 hours of patrol.

DATA:

- Twelve IDFG Conservation Officers participated in enforcement patrols on the South Fork of the Salmon River (SFSR) between June 10 and July 3, 2001.
- Officers expended a total of 449 hours of patrol on the SFSR (363 uniform, 86 plain clothes).
- Officers contacted 1,054 anglers (970 uniform, 84 plain clothes).
- Officers detected a total of 232 violations.
- Officers documented 45 violations on incident reports (32 uniformed, 13 plain clothes).
- Officers issued written warnings to 107 anglers (86 uniformed, 21 plain clothes).
- Officers issued 80 citations to anglers (59 uniformed, 21 plain clothes).
- Officers seized 16 unlawful hatchery origin chinook (13 uniformed, 3 plain clothes).
- Officers seized 4 wild origin chinook (2 uniformed, 2 plain clothes).
- Officers detected a violation for every 1.9 hours of patrol (2.1 hours uniformed, 1.6 hours plain clothes).

DISCUSSION:

Officers were asked to complete data sheets after each day of patrol. Data sheets consisted of columns for: date, type of patrol, hours expended, number of contacts, and number of violations detected (warnings, citations, and incidents). The object of this study was to look at violation rates in general and detection rates by plain-clothes versus uniformed patrols.

Twelve officers expended 449 hours of patrol on the SFSR. 232 total violations were detected. One violation was detected every 4.5 angler contacts. 76% of violations were detected with uniformed patrols; 24% were detected with plain-clothes patrols. 81% of patrol time expended was uniformed patrol; 19% plain clothes patrols. The violation detection rate was found to be higher in plain clothes patrols versus uniformed patrols. Manpower restrictions were the main limiting factor in implementing plain-clothes patrols. The sheer numbers of anglers required a constant uniformed presence. The uniformed officer on duty was constantly running from call to call to: answer questions, assist the check station, assist Valley County deputies/USFS with traffic problems/angler disputes/thefts and handle fishing violations.

A violation was detected every 2.1 hours of uniformed patrol and every 1.6 hours of plain clothes patrol. I believe both patrol types are necessary to gain optimal compliance from the fishing public. The public demands uniformed presence and it is a very effective general deterrent for

Appendix A. Continued.

opportunistic type violators. Uniformed patrols are not as effective when dealing with repeat or experienced violators. Plain-clothes patrols were extremely valuable in gaining compliance and detecting violations in areas with known or suspected serious violators. After a plain-clothes operation was completed, it appeared compliance improved when anglers thought the person fishing next to them could be a plain-clothes officer. We found that a combination of the two patrol types was a success in gaining compliance in problem areas. In these situations plain-clothes officers would fish a problem area as close to a suspected violator as possible. Plain-clothes officers would check in periodically by radio with uniformed officers and advise them of violations detected. Prior to a violator leaving the area, a uniformed officer was called in to make the violation contact. With this method the violator and other anglers in the area would not know who the officer was.

Many salmon anglers return to the same waters and same holes daily. Thus, our primary plain-clothes anglers were not from the Cascade/McCall area. The number of seized wild chinook by plain-clothes officers supports the theory that they are more effective on serious violators. Two wild chinook violations were detected in 86 hours of plain-clothes patrol while uniformed patrol detected two wild chinook in 363 hours of patrol.

Considering the number of anglers and violations detected, the SFSR enforcement program went very well. The twelve officers working this project "grid-locked" the Valley County Court system with cases. The success of the overall program would not have been possible without the assistance of officers from outside the McCall sub region. The time demands on one district are too great to manage a salmon fishery and attempt to perform other department functions/duties. Even with the high violation detection rates we experienced, we were unable to investigate, or put a plain-clothed officer, on many reportedly blatant violators due to manpower shortages/restrictions.

RECOMMENDATIONS:

The data show plain clothes patrols have a higher violation detection rate than uniform patrols. I recommend a combination of uniformed and plain-clothes patrols be continued to obtain optimal angler compliance. An enforcement program lacking either patrol method will not be sufficient to deter violations on a large scale. Our goal in enforcement is "large scale" compliance. This can only be obtained by having contact with all types of anglers in varied circumstances.

The time demands of working a salmon season are overwhelming. Manpower limitations and time restrictions are the main problems. Over-time compensation and extended compensatory hour restrictions would alleviate many problems.

Initial run estimates for the SFSR indicated there might be a summer chinook fishery in 2002. If this is the case I would like to repeat the 2001 study for comparison. I would also add violation type to the data sheets so we will be able to concentrate future enforcement efforts on problem areas of compliance.

Submitted by:

Kim Apperson
Regional Anadromous Fishery Biologist

Approved by:

Al Van Vooren
Regional Supervisor