

Snake River Spring Chinook Salmon Fishery Report, 2007

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The Snake River recreational chinook fishery opened May 9th and ran through June 30th, 2007. The Snake River was open from the Texas Rapids boat launch upstream to the Corps of Engineers boat launch (approximately one mile) upstream of Little Goose Dam on the south bank of the river; referred to as the Little Goose (LGO) fishery in this report. The fishery was open seven days per week, with daily fishing hours set from one hour before sunrise to one hour after sunset. The daily limit consisted of one hatchery (adipose fin-clipped) chinook salmon (adult or jack) per day, with a minimum size of 12 inches. Anglers were required to use barbless hooks, with hooks of no more than 5/8-inch from point to shank.

The pre-season forecast for upriver spring chinook was estimated (entering the mouth of the Columbia River) at 78,500 spring/summer Chinook. The Pre-season plans for the Snake River recreational chinook fishery was to harvest up to 292 hatchery adult spring chinook, with an allowable Endangered Species Act (ESA) impact of 15 wild fish mortalities (0.2% ESA impact on wild chinook estimated at Columbia River mouth). Assuming a 10% mortality rate on released fish, this allowed for 151 wild adult encounters. ESA impacts for this fishery are included as part of the non-Indian rate of 2.0% allowable impact which also includes recreational and commercial fisheries downstream.

The Washington Department of Fish and Wildlife monitored the fishery using a roving creel survey which included: boat ramp and shore interviews to collect catch rate, completed trip and biological information; and effort counts of shore anglers, boat anglers, and the number of boats (counts were done four times a day). Creel surveys consisted of "early creel" or "late creel" in an attempt to shorten day length for creel clerks, but still effectively monitor the fishery. Early creel had count times at 7:00am, 10:00am, 1:00pm, and 4:00pm, and late creel had count times at 10:30am, 1:30pm, 4:30pm, and 7:30pm. After each count interviews of anglers were conducted until it was time for the next count. Monitoring was conducted at least one weekday and one weekend day per 7 day period, with each two week period containing one early and one late creel for weekday and weekend categories. Creel surveys were conducted on 15 days (8 weekdays and 7 weekend days) of the season. The 53 day fishery had 37 weekdays and 16 weekend days available. We included Monday May 28th (Memorial Day) as a weekend day since it was a holiday. We sampled 21.6% of weekdays and 43.8% of weekend days. Survey data were summarized bi-weekly to average early and late creel for both weekdays and weekends. These two week averages were used to estimate number of fish harvested, released, and total encounters (harvested and fish released), and to assure compliance with the ESA impact level that had been set for the fishery.

Creel Interviews

Interviews at LGO were conducted with 724 anglers with a total of 3,327 hours of fishing effort, but only 524 (72.4%) of these anglers were targeting chinook (2,425 angler hours). Other anglers interviewed were targeting catfish (11.6%), sturgeon (8.8%), smallmouth bass (3.7%), northern pikeminnow (2.2%), and rainbow/steelhead smolts (1.2%). Data collected during the creel surveys were entered into a spreadsheet that was used to calculate angler hours, total fish kept, catch rate (hours/fish kept and hours/fish encountered), total fish released, release rate (hours/fish released), and fish size (min, max, and mean) (Appendix A, Table 1).

Table 1. Data summaries from chinook anglers interviewed during the Snake River spring chinook fishery, 2007.

			Catch Rate		Chinook Released	Release Rate	Harvested Fish Size Fork Length (cm)		
	Angler Hours	Chinook Harvested	Hrs/Chinook Harvested	Hrs/Chinook Caught		Hrs/Chinook Released	Min	Max	Mean
Weekday Wall	685.4	45	15.2	7.6	45	15.2	49.5	98.0	67.4
Weekday Shore	290.2	5	58.0	24.2	7	41.5	48.5	78.5	61.6
Weekday Boat	73.5	0	0.0	0.0	0	0.0	0.0	0.0	0.0
Weekend Wall	1,001.7	55	18.2	11.1	35	28.6	46.0	94.5	63.7
Weekend Shore	358.8	9	39.9	22.4	7	51.3	52.0	80.0	65.7
Weekend Boat	15.5	0	0.0	0.0	0	0.0	0.0	0.0	0.0
Total	2,425.1	114	21.3	11.7	94	25.8	46.0	98.0	63.7

Creel interview data documented that 114 spring chinook were kept and 94 spring chinook were released at LGO. Fishery regulations identified that jacks were <24 inches or 61 cm total length and we estimated that jacks were <57cm fork length (creel measurement). Of the 114 hatchery chinook kept, 111 were sampled (one of which had no length given but was identified as a hatchery jack) consisting of 64 (57.7%) adults and 47 (42.3%) jacks. Of the unsampled fish one was not observed at all and two had already been filleted when the angler was checked.

Interviews documented that 95 chinook were released (one of which was caught by a sturgeon fisherman so doesn't appear when only looking at chinook anglers in Table 1); comprised of 15 (15.8%) wild adults, 24 (25.3%) wild jacks, 53 (55.8%) hatchery jacks, and 3 (3.2%) unknown jacks.

Fishery regulations allowed for harvest of hatchery adipose (Ad) clipped chinook. We confirmed that 63 adults and 47 jacks had "Ad" clips. Of the other 4 fish one fish was not observed, one adult only had a length recorded, and two fish had been filleted prior to being checked so marks were unable to be observed (Table 2). We also recovered 14 coded wire tags and one pit tag (Table 3).

Table 2. Mark types observed on harvested fish during the Snake River spring chinook creel surveys, 2007.

Marks	Adults	Jacks	Unknown	Total
Ad	63	47	0	110
Unknown	1	0	3	4
Totals	63	47	3	114

Table 3. Tags recovered during spring chinook creel surveys on the Snake River, 2007.

Tag Type ^a	Tag Code	Date	Length	Other Marks	Release Location	Stock/Hatchery
CWT	107173	5/11	74.5	Ad	Walton Creek (Lochsa River)	Powell
CWT	107376	5/11	72.5	Ad	Rapid River Hatchery	Rapid River
CWT	094218	5/16	55.0	Ad	Catherine Creek (Grande Ronde)	Catherine Creek
CWT	093427	5/20	N/A ^b	Ad	Catherine Creek (Grande Ronde)	Catherine Creek
CWT	051784	5/24	49.5	Ad	Clear Creek (Clearwater River)	Kooskia
CWT	106876	5/27	49.5	Ad	Rapid River Hatchery	Rapid River
CWT	108175	5/27	65.0	Ad	Knox Bridge, SF Salmon River	South Fork Salmon
CWT	100573	5/27	80.0	Ad	Pahsimeroi Hatchery	PAH CH-2
CWT	108675	5/31	58.5	Ad	Walton Creek (Lochsa River)	Powell
CWT	094209	5/31	52.0	Ad	Lostine River	Lostine River Endemic
CWT	107376	6/2	80.2	Ad	Rapid River Hatchery	Rapid River
PIT	985120026828538	6/2	82.0	Ad		
CWT	108875	6/6	60.5	Ad	Dworshak National Fish Hatchery	Dworshak
CWT	050798	6/6	48.5	Ad	Knox Bridge, SF Salmon River	South Fork Salmon
CWT	106276	6/30	74.5	Ad	Knox Bridge, SF Salmon River	South Fork Salmon

^a CWT=coded wire tag, PIT=passive interrogation tag
^b No length recorded, but fish was noted as a hatchery jack.

Expanded Fishery Results

Total calculated angler effort for spring chinook anglers for the season was 11,535 hours. Effort was calculated separately for wall, shore, and boat anglers, by strata (weekend or weekday), using the following formula:

$$Effort = \# \text{ of hours/day} \times \# \text{ of days available} \times \text{mean} \# \text{ of chinook anglers (from the counts).}$$

We used 15 hours/day as the available fishing time for shore and boat fishermen, but only 11 hours/day for wall fishermen. Angler access to the wall at Little Goose Dam is limited to 11 hours (between 6:00am and 5:00pm) by the U.S. Army Corp of Engineers. Data were stratified first by weekend or weekday and then by wall, shore, or boat. We then calculated effort in each of these categories and summed them to estimate total effort (Tables 4, Appendix B). Completed angler days (for chinook fishermen) were calculated by averaging the number of hours in a complete trip from creel surveys. The completed angler day at LGO averaged 4.59 hrs/day on weekdays and 4.36 hrs/day on weekends. Dividing effort by the hours in an angler day provides the number of angler days for the season (Tables 4).

Table 4. Calculated expanded effort^a for spring chinook anglers in the Snake River spring chinook fishery, 2006.

	Number of Fishing Days	Average Number of Anglers/Day	Angler Effort (hrs)	Angler Days
Weekday Wall	37	8.93	3489.67	760.28
Weekday Shore	37	3.55	1889.73	411.71
Weekday Boat	37	2.46	1277.85	278.40
Weekend Wall	16	15.43	2809.35	644.35
Weekend Shore	16	6.29	1700.46	390.01
Weekend Boat	16	1.53	367.5	84.29
Total				

^a We used 15 hours as the available fishing day length for shore and boat anglers and 11 hours as the available fishing day length for wall fishermen because access was limited at Little Goose Dam from 6:00 a.m. to 5:00 p.m. by U.S. Army Corp of Engineers rules. Our angler counts ranged from 7:00 a.m. to 8:00 p.m.

Angler interview information (Appendix A, Table 1) and count data from Little Goose were expanded to estimate total chinook harvested, the number of chinook released and angler effort for the fishery. By multiplying harvest and release rates by angler effort we estimated that 276 adult spring chinook were kept and 67 wild adult spring chinook were released (Appendix B, Table 5). While the overall totals in Table 5 are correct, due to a rounding error accumulating numbers of fish may not equal the total. Multiplying the original estimates by the proportions of sampled adults, jacks and unknown fish enabled us to estimate the number of adults, jacks, and unknown spring chinook harvested, as well as the number of wild adults, wild jacks, hatchery jacks, and hatchery adults released (Table 5). By applying a 10% mortality rate to the number of wild adults released we estimate that our ESA impact level was a total of 7 adult spring chinook, below the allowable preseason impact of 15 wild adults. The harvest of 289 adult spring chinook (this includes adults and unknowns, but not jacks) just under the expected preseason harvest of 292 adult spring chinook.

Table 5. Estimated number of spring chinook harvested and released during the Snake River fishery, 2007.

	Estimated Number of Fish Harvested				Estimated Number of Fish Released				
	Adults	Jacks	Unknown	Total*	Wild Adults	Wild Jacks	Hatchery Jacks	Hatchery Adults	Total*
Weekday Wall	134	98	6	238	34	54	119	7	214
Weekday Shore	23	17	1	40	10	16	36	2	64
Weekday Boat	0	0	0	0	0	0	0	0	0
Weekend Wall	93	68	4	166	17	28	61	3	109
Weekend Shore	26	19	1	47	6	10	22	1	39
Weekend Boat	0	0	0	0	0	0	0	0	0
Totals	276	202	13	491	67	108	238	14	426

* The total was taken from Appendix A, and due to rounding errors may not equal the sum of the fish in that row.

**Appendix A. Angler effort and harvest/release of
spring chinook during the Snake River fishery, 2007**

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			Angler Counts				Daily Averages of Angler Counts						Average Harvest Rates (hrs/chinook kept)			Average Release Rates (hrs/chinook released)			Angler Effort (hours)			Harvest of Chinook			Release of Chinook			Expanded Totals							
Month	Day	WD/WE	Times	Wall	Shore	Boat	Boat Anglers	Average Wall	Average Wall Chinook	Average Shore	Average Shore Chinook	Average Boat	Average Boat Anglers	Average Boat Anglers Chinook	Wall	Shore	Boat	Wall	Shore	Boat	Wall	Shore	Boat	Wall	Shore	Boat	Wall	Shore	Boat	Angler Effort (hrs)	Chinook Harvest	Chinook Release			
6	10	WD	7:00	19	7	1	2	14.25	12.67	7.00	1.50	0.25	0.50	0.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
			10:00	18	5	0	0																												
			13:00	14	7	0	0																												
			16:00	6	9	0	0																												
6	16	WD	No Creel Conducted																																
Two week total 6/4-6/17				57	28	1	2	14.25	12.67	7.00	1.50	0.25	0.50	0.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	24	WD	10:30	21	16	2	6	12.67	8.56	9.75	1.77	1.50	3.75	0.00	0.0	0.0	0.0	67.4	0.0	0.0	94.2	26.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
			13:30	15	13	3	7																												
			16:30	2	7	1	2																												
			19:30	0	3	0	0																												
6	30	WD	7:00	9	11	0	0	10.00	8.00	13.00	0.00	1.75	3.25	0.00	32.9	0.0	0.0	98.7	0.0	0.0	88.0	0.0	0.0	2.7	0.0	0.0	0.9	0.0	0.0	88.0	3	1			
			10:00	11	17	3	4																												
			13:00	13	10	4	9																												
			16:00	7	14	0	0																												
Two week total 6/18-6/30				78	91	13	28	11.14	8.05	11.38	1.14	1.63	3.50	0.00	77.8	0.0	0.0	77.8	0.0	0.0	265.5	51.2	0.0	3.4	0.0	0.0	3.4	0.0	0.0	316.7	3	3			
Season Totals				709	700	93	185														6299.0	3590	1645	404	87	0	323	103	0	11535	491	426			