ESTIMATED RETURNS AND HARVEST OF COLUMBIA RIVER FALL CHINOOK 2000 TO 2007

BY
JOHN McKERN
FISH PASSAGE SOLUTIONS

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This analysis of ocean and river harvest of Columbia River fall Chinook was requested by the Columbia and Snake River Irrigators. The analysis was confined to the period since 2000 with reference to earlier conditions.

Snake River fall Chinook harvest was considered in many reports because of their Endangered Species Act status, while Tule fall Chinook harvest was generally keyed off efforts to protect upriver bright (URB) Chinook. Consultation Number: F/NWR/2005/00388 set a target of 32.5% harvest to protect Snake River URBs. Table 28 of that document reports Snake River URB harvest rates that averaged 66% from 1980 – 95 (range 43 – 81%) were reduced to an average of 45% from 1996 – 03 (range 39 – 51%). Similar numbers for Tules were harvested with an average harvest of 64% from 1980 – 95 (range 34 – 85%) that was reduced to an average of 30% from 1996 – 03 (range 26 – 49%). Numbers in this report are composites representing combined URB fall Chinook from the Snake and mid-Columbia Rivers as well as Tule fall Chinook from the lower Columbia.

Since the mid-1800s, Columbia River salmon have been exploited for commercial and sport fisheries in addition to Indian ceremonial and subsistence fisheries that have gone on for thousands of years. Fall Chinook were considered inferior in quality, so their commercial exploitation came after the spring and summer Chinook runs began to decline in the 1880s. However, fall Chinook are now the most plentiful and contribute the highest harvest numbers in most years. While non-Indian exploitation significantly reduced the Columbia River salmon runs from the 1860s to the 1950s, enforcement of treaty rights and Endangered Species Act measures in recent years have resulted in the Indian commercial catch of fall Chinook being the larger share.

As late as the 1980s, ocean harvest of fall Chinook sometimes exceeded 50% of the Columbia River run (See Appendix Figure 1). Combined with in-river harvest of over 30%, total harvest often exceeded 70% until 1991. Combined ocean and river harvest has been reduced in recent years with a target of 42%, but the Hatchery Scientific Review Group this year recommended that harvest be further reduced to 36%. (Northwest Fishletter #235, August 16, 2007). Along with this reduction, they recommended increasing in-river harvest from 12 to 20%. The HSRG felt this change would decrease the take of naturally produced fish from 12 % to 4% because the in river fishery could be more closely managed.

Current salmon management is carried out under the Pacific Coast Management Plan adopted March 1999 by the Pacific Fishery Management Council. This plan was formulated in collaboration with the Pacific Salmon Commission, a body formed by the governments of Canada and the United States to implement the Pacific Salmon Treaty signed in 1985. Also, NOAA Fisheries regulates US ocean harvest (Magnuson-Stevens Fishery Conservation and Management Act of 1976), and enforces Endangered Species Act regulations pertaining to salmon. Interception of Pacific salmon bound for rivers of one

country by fisheries of the other has been the subject of discussion between the Governments of Canada and the United States of America for over century. The Pacific Salmon Treaty sets long-term goals for the benefit of the salmon and the two countries. The plan has been amended from its original form in response to Endangered Species Act listings of US origin salmon, and Species of Special Concern listing of British Columbia stocks of salmon.

Many different regions and groups fish for Columbia River spring, summer, and fall Chinook. They are harvested from Alaska (4.8%), the coast of British Columbia (18.1%), the Washington (8.8%) and Oregon (5.1%) coasts, and to a small extent (0.4%) the California coast (Independent Economic Advisory Board, 2005). Commercial fisheries in the ocean include First Nation (in BC) and treaty Indian tribes (US) and non-Indian ocean troll fisheries, Puget Sound troll, seine, and gillnet fisheries, and Washington, Oregon, and California troll fisheries. Freshwater fisheries include lower Columbia non-Indian gillnet, and mid-Columbia treaty Indian gillnet fisheries, tribal Ceremonial and Subsistence (gillnet, dip net, and hook-and line) that also take allotted shares.

Commercial fisheries took the largest share of Columbia River salmon (59% in 2000) while recreational fisheries took 36%. Most non-Indian commercial catch occurred in the ocean and marine areas like the Puget Sound and Strait of Juan de Fuca, and coastal bays of British Columbia and Washington. Most Indian commercial catch (23 of the 59% total) occurred in Zone 6 from Bonneville Dam to the Umatilla Bridge. Fall Chinook made up 39% of the Columbia River salmon caught.

Recreational fisheries take Columbia River fall Chinook from southeastern Alaska, along the BC coast (where Canadians have recognized the economic value of providing a few fish to high paying guests and have shifted the fishery from commercial more to guided sport fishing trips), the Strait of Juan de Fuca, the Washington coast, and to a limited extent, the Oregon coast. The near ocean fishery at the mouth of the Columbia and the Buoy 10 fishery are hot spots in August and September. Recreational fisheries extend up the river with many localized favorites like Drano Lake at the mouth of the White Salmon River, and the Hanford Reach between Richland, WA and Priest Rapids Dam.

In the Columbia River, fisheries management is carried out under the Columbia River Compact. The Columbia River Compact is charged by congressional and statutory authority to adopt seasons and rules for Columbia River commercial fisheries. In recent years, the Compact has consisted of the directors of the Oregon and Washington Departments of Fish and Wildlife (ODFW/WDFW) or their delegates, and the Columbia River treaty tribes who have authority to regulate treaty Indian fisheries. Seasons and catch quotas are also governed by Endangered Species Act considerations imposed by NOAA Fisheries. Management is strongly influenced by the Court under the US v Oregon case which apportions salmon catch among the tribes and states.

Since the Endangered Species Act listing of several Columbia River and coastal salmon and steelhead runs in Oregon and Washington, and with the species of special concern listings in Canada, regulation of harvest has become immensely more complicated. The

ability to project fish runs and to determine whether the runs are meeting projections has made season setting almost a day to day process. With the computers and the internet, regulating agencies can open or close seasons on a few days notice. Quotas set before the season can be reached and exceeded all too quickly with modern fishing methods, so harvest managers maintain a constant vigil and close seasons when quotas are approached. In some cases, they react too soon, and seasons are reopened. In other cases, larger than expected runs result in reopening or extending seasons or smaller than expected runs result in early closures.

For example, this year, ODFW/WDFW predicted that the fall chinook return would total 350,000 fish, which is lower than the 10-year average that included a record return of 893,100 in 2003 as well as large runs in 2002 and 2004. The Columbia River Compact established three commercial fishing periods for four Columbia River treaty tribes. The first began at 6 a.m. Wednesday August .22 and ended at 6 p.m. August 24. Fisheries were also planned from 6 a.m. August 28 through 6 p.m. August. 31, and from 6 a.m. September 4 through 6 p.m. September 8. The tribes estimated they would catch nearly 27,000 URB Chinook during the three periods as well as 3,400 steelhead. The Compact also approved an 11-hour fishery for non-tribal gill-netters in the two fishing zones immediately below Bonneville Dam on. August 23. In three early August outings, the non-tribal commercial fleet netted 2,285 Chinook. A catch of about 2,000 Chinook was anticipated during the late August fishery.

Recreational fisheries in the ocean ended August 25 due to the quota on coho having been reached. However, it reopened again briefly allowing one marked Chinook in the daily catch then closed again when the coho quota was approached. A strong in-river fishery was predicted though the return was below the 10-year average. By early September, the estimated run was downsized based on lower than expected counts at Bonneville Dam.

Estimated runs and harvest rates from 2000 through 2006 are shown in Table 1. Total returns were estimated from ODFW/WDFW returns to the Columbia River adjusted for ocean catch. In river catch numbers were gathered from ODFW/WDFW reports and personal communications. Ocean harvest was estimated from the predicted return to the river, inriver harvest, and the HSRG's estimate of combined inriver and ocean harvest. Ocean harvest took a large share of the Columbia River fall Chinook (14.5 to 30.5%). In the river non Indian commercial fisheries took 1.7 to 5.8% of the total run and 2.4 to 7.1% of the return to the Columbia River. Non Indian sport fishermen took 1.2 to 5.6% of the total run and 4.0 to 12.2% of the return to the Columbia River. Indian fishermen took 10.5 to 17.7% of the total run and 14.3 to 20.7% of the return to the Columbia River. Reported Indian ceremonial and subsistence catch was a fraction of one percent of the total and the Columbia River return in all years.

During the period analyzed, total estimated harvest ranged from 38 to 48% of the total (Tules and upriver bright) Columbia River fall Chinook, well above the 31.29% target set by NOAA Fisheries (Joint Columbia River Management Staff, ODFW/WDFW).

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2007 Joint Staff Report: Stock Status and Fisheries for Fall Chinook Salmon, Coho Salmon, Chum Salmon, Summer Steelhead, and White Sturgeon, Joint Columbia River Management Staff, ODFW/WDFW.

Figure 5. Ocean and in-river exploitation rates for Snake River fall Chinook.

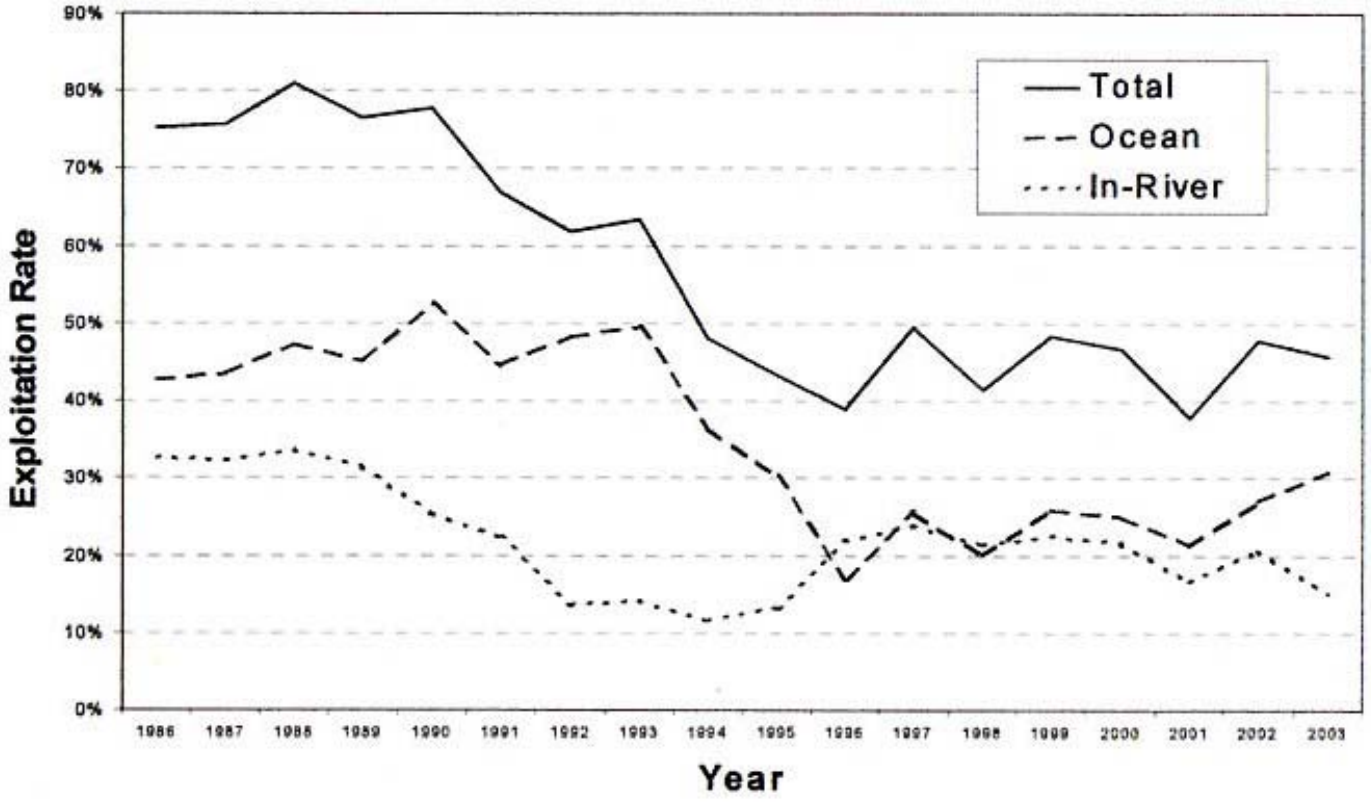

Figure 1: Ocean and river exploitation rates for Snake River fall Chinook (reproduced from: Consultation Number: F/NWR/2005/00388).

Table 1. Estimated numbers and percentages of Columbia River fall Chinook returning and harvested each year from 2000 . to 2007. (Note: * indicates pre-season estimates by WDFW/ODFW).

YEAR	2000	2001	2002	2003	2004	2005	2006	2007
ESTIMATED TOTAL RETURN	362216	655403	1061216	1216757	1011392	656608	530296	
ESTIMATED OCEAN HARVEST	107216	106503	327916	323657	212392	95208	99696	
% OCEAN HARVEST	29.6%	16.3%	30.9%	26.6%	21.0%	14.5%	18.8%	
ESTIMATED COLUMBIA RIVER RETURN	255000	548900	733300	893100	799000	561400	430600	350000*
NON-INDIAN COL R COMMERCIAL CATCH	6000	14200	23100	58428	41057	27536	30568	4285*
% NON-INDIAN COL R COMM CATCH - TOTAL RUN	1.7%	2.2%	2.2%	4.8%	4.1%	4.2%	5.8%	
% NON-INDIAN COMM CATCH - COL R RETURN	2.4%	2.6%	3.2%	6.5%	5.1%	4.9%	7.1%	
NON-INDIAN COL R SPORT CATCH	4300	15800	27100	50240	43300	36541	14400	
% NON-INDIAN SPORT CATCH - TOTAL RUN	1.7%	2.4%	2.6%	4.1%	4.3%	5.6%	2.7%	
% NON-INDIAN SPORTCATCH - COL R RETURN	4.0%	5.5%	6.8%	12.2%	10.6%	11.4%	10.4%	
BONNEVILLE DAM COUNTS	251338	498127	513907	658466	621972	438371	279529	
ESTIMATED INDIAN COMMERCIAL CATCH	52369	112086	131049	127295	128044	115661	77691	27000*
ESTIMATED INDIAN C$S CATCH	236	365	427	683	416	570	391	
% INDIAN CATCH - TOTAL RUN	14.5%	17.2%	12.4%	10.5%	12.7%	17.7%	14.7%	
% INDIAN CATCH - COL R RETURN	20.6%	20.5%	17.9%	14.3%	16.1%	20.7%	18.1%	
UNHARVESTED ESCAPEMENT + UNACCOUNTED LOSS	192095	406449	551624	656454	586183	381092	307550	
TOTAL PERCENT HARVESTED	47.0%	38.0%	48.0%	46.0%	42.0%	42.0%	42.0%	