



United States Department of the Interior
Fish and Wildlife Service
Mid-Columbia River Fishery Resource Office
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MEMORANDUM

August 18, 2011

To: MCRFRO staff and guests

From: Matt Hall

RE: Snorkel survey results for adult spring Chinook salmon and bull trout in Icicle Creek

Mid-Columbia River Fishery Resource Office conducted a snorkel survey in Icicle Creek on August 10, 2011. Primary objectives were to enumerate adult spring Chinook salmon and bull trout. The surveyed area began at the USGS gauge on Icicle Creek and continued downstream (~rm 5.6) to the Icicle/Wenatchee River confluence. For all surveys the weather was sunny and water visibility was estimated at 2-3m and was “fair” for all sections of the river with the exception of turbulence/bubbles that obscured viewing in some small areas (ie. hatchery ladder, headgate, boulder pockets). The flow at the DOE gauge at the Icicle Bridge was 530cfs. This was considerably higher than the average of 200-300cfs for this time of year, and may have affected the viewing ability in some reaches. All bull trout lengths indicated were visually estimated to the nearest odd centimeter. For consistency all lengths are expressed in millimeters.

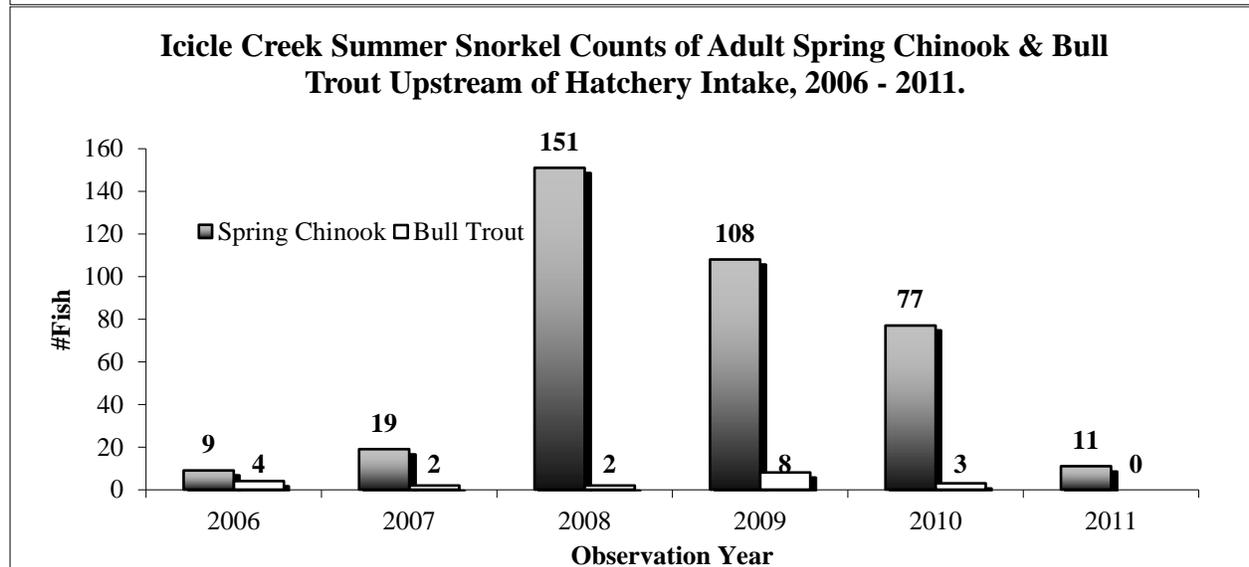
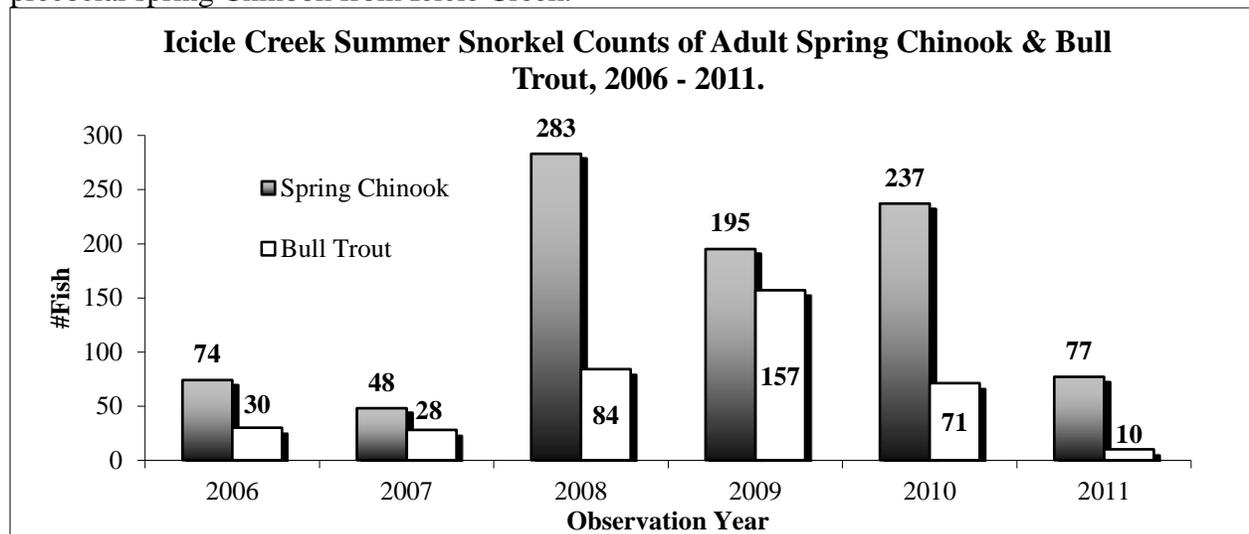
All surveys were conducted in a downstream manner with snorkelers evenly spaced across the stream. The survey was broken into seven reaches. The number of adult Chinook salmon and bull trout observed (both live and carcass) and the number of snorkelers utilized per reach are indicated below. The surveyors enumerated a total of 77 adult spring Chinook salmon and 10 bull trout in Icicle Creek. Of these, 11 adult spring Chinook and 0 bull trout were observed above Leavenworth NFH intake. No spring Chinook or bull trout were observed above the Boulder Falls.

<u>Reach</u>	<u>Adult Chinook</u>	<u>Bull Trout</u>	<u>Bull Trout Size Range</u>	<u># Viewers</u>
USGS gauge – IPID	0	0		3
Boulder Falls – LNFH Intake	11	0		4
LNFH Intake –S2	6	0		4
S2-S5 (Historic Channel)	30	6	(170mm –310mm)	3
LNFH Spillway Pool	6	1	(450mm)	3
S5 – Stump Hole	19	3	(210mm – 410mm)	3
Stump Hole – Icicle Mouth	5	0		3
Totals:	77	10	(170mm – 450mm)	

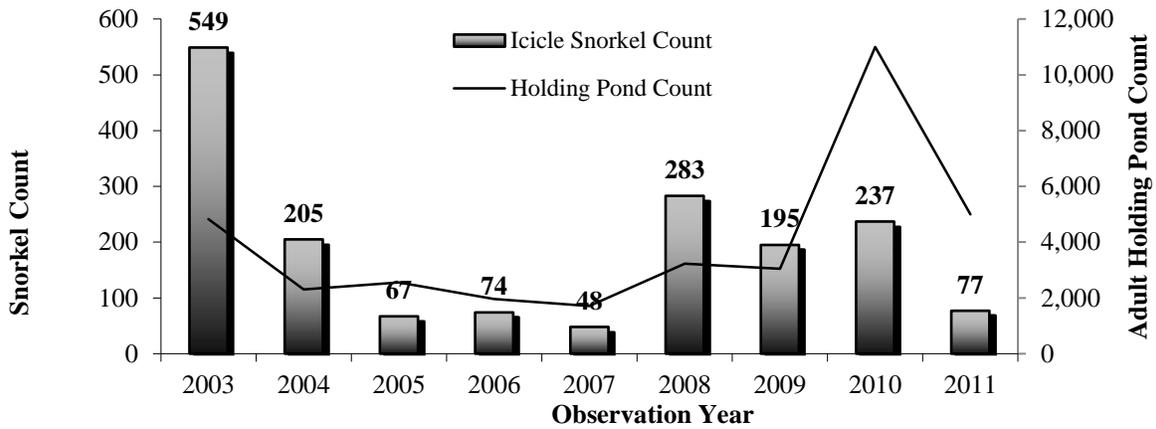
Of the 10 bull trout observed, 100% were 450mm or less indicating they were juvenile/sub-adult fluvial bull trout (M. Nelson pers. comm.). This is similar to previous years, when >80% of observed bull trout were classified as juvenile/sub-adult fluvial fish.

Although enumeration of Chinook salmon and bull trout was the primary objective, some additional observations were noted. Rainbow trout were abundant in most upstream reaches (S5-USGS Gauge). Mountain whitefish and suckers were only encountered below the LNFH intake. Only 1 brook trout was observed. No sockeye and few summer Chinook were observed.

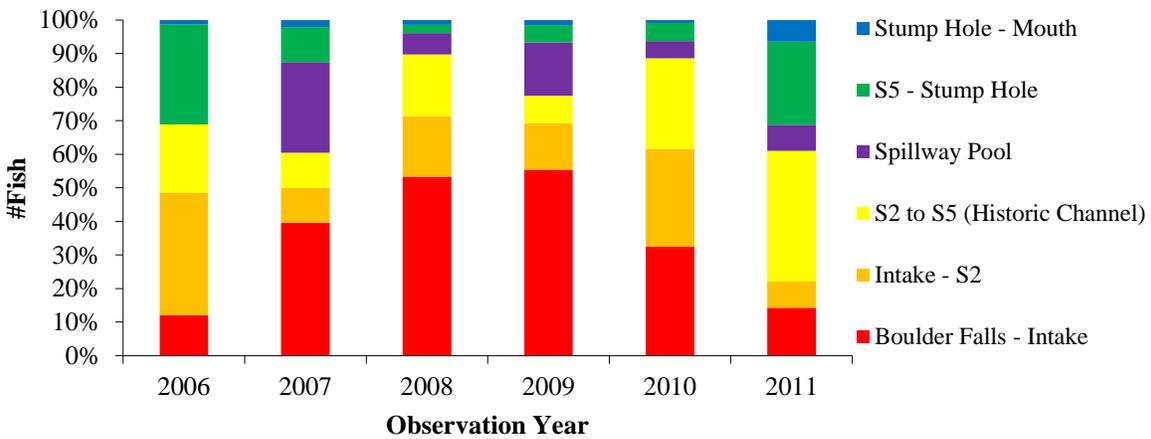
The cool, wet spring in the Pacific Northwest generally resulted in increased flow and decreased temperature throughout the Wenatchee Basin. It can be hypothesized that cool mainstem Wenatchee River temperatures provide good conditions for bull trout, sockeye, and summer Chinook, resulting in their absence in the “thermal refuge” of Icicle Creek. Additionally, the continuous operation of the LNFH adult ladder seems to have removed the majority of adult and precocial spring Chinook from Icicle Creek.



Icicle Creek Summer Snorkel Counts of Adult Spring Chinook vs. Leavenworth NFH Adult Holding Pond Counts, 2003 - 2011.



The Percent of Icicle Creek Summer Snorkel Counts of Adult Spring Chinook By Survey Reach, 2006 - 2011.



2011 Icicle Creek Summer Snorkel Counts of Adult Spring Chinook by Survey Reach vs. 2006 - 2010 Average.

