

## TAC Report

December 9, 2010

The US v OR Technical Advisory Committee (TAC) met Monday through Wednesday, December 6 – 8, 2010, to complete the 2010 run reconstructions and 2011 forecasts for Upriver Spring Chinook, Upper Columbia Spring Chinook, Snake River Spring/Summer Chinook, Upper Columbia Summer Chinook, and Columbia River Sockeye. The results are provided in Tables 1-3, below. All 2011 forecasts are the expected adult returns to the mouth of the Columbia River. These pre-season forecasts will be updated in-season as actual return data become available.

***Upriver Spring Chinook:*** TAC produces several forecasts for Upriver Spring Chinook:

- Total Upriver Spring Chinook includes all spring Chinook populations upstream of Bonneville Dam. Age 4 and age 5 fish are forecasted separately and then added together.
- Total and wild Upper Columbia spring Chinook includes those populations upstream of Priest Rapids Dam.
- Total and wild Snake River spring/summer Chinook includes those populations upstream of Lower Granite Dam.

TAC looked at multiple models for the Upriver Spring Chinook forecasts, including over 40 models just to predict the age 4 fish abundance. The models included linear and logarithmic sibling regressions, multiple regressions, cohort ratios (ratio of younger/older age classes), and historic relationships among return groups. Variables that were considered in these models include jack counts at Bonneville, Lower Granite and Rock Island dams, an index of jacks returning to areas upstream of Bonneville Dam, different years of historic sibling relationships, and environmental variables including spill at Columbia River dams and the ocean PDO index. Models were selected based on statistical indices of model fits and historic forecasting success from hind-casting analyses. Subsets of models were selected for each forecasted group and the final forecasts were ensemble means of these subsets.

***Upriver Summer Chinook:*** Upriver Summer Chinook were forecasted after considering multiple sibling regression and cohort ratio models.

***Sockeye:*** Sockeye were forecasted using an estimate of the number of brood-year smolt out-migrants and an expected smolt-to-adult survival rate.

**Table 1. Total Upriver Spring Chinook, and the Upper Columbia and Snake components, at the Columbia River Mouth**

<b>Total Upriver Spring Chinook Adults</b>			
Age	2010 Forecast	2010 Actual	2011 Forecast
4	439,000	307,348	158,400
5	31,000	7,855	40,000
6	0	12	0
<b>Total</b>	<b>470,000</b>	<b>315,345</b>	<b>198,400</b>

  

<b>Upper Columbia Spring Chinook Adults</b>			
Group	2010 Forecast	2010 Actual	2011 Forecast
<b>Total</b>	<b>57,300</b>	<b>38,083</b>	<b>22,400</b>
Wild	5,700	3,147	2,000

  

<b>Snake River Spring/Summer Chinook Adults</b>			
Group	2010 Forecast	2010 Actual	2011 Forecast
<b>Total</b>	<b>272,000</b>	<b>169,884</b>	<b>91,100</b>
Wild	73,400	35,613	24,700

**Table 2. Upper Columbia Summer Chinook at the Columbia River Mouth**

<b>Upper Columbia Summer Chinook Adults</b>			
Age	2010 Forecast	2010 Actual	2011 Forecast
4	59,700	57,038	39,100
5	27,300	13,981	50,900
6	1,800	1,327	1,100
<b>Total</b>	<b>88,800</b>	<b>72,346</b>	<b>91,100</b>

**Table 3. Sockeye at the Columbia River Mouth**

<b>Sockeye</b>			
Group	2010 Forecast	2010 Actual	2011 Forecast
Snake River	600	2,596	2,100
Upper Columbia	125,200	385,262	159,800
<b>Total</b>	<b>125,800</b>	<b>387,858</b>	<b>161,900</b>