



## Somass River Escapement Bulletin Observations to September 16, 2013

### **OBSERVATIONS:**

Through September 16, a total of 31,877 adult coho, 2114 coho jacks, 9877 adult Chinook, 346 Chinook jacks, 88,918 adult sockeye, and 93,492 sockeye jacks are estimated to have passed through the Stamp falls fishway. A total of 7769 adult coho, 6 adult Chinook, 121,458 adult sockeye, and 331,969 sockeye jacks are estimated to have passed through the Sproat falls fishway.

Since September 9, daily escapement counts through the Stamp Falls fishway ranged between 465 and 823 adult Chinook, and 792 and 2055 adult coho. Adult sockeye daily escapement since September 9 ranged between 0 and 18 at the Stamp falls fishway and between 2 and 48 at the Sproat fishway.

River temperatures have decreased in the past few days and over the past week have ranged between 18.4 and 21.7°C at the Stamp Falls fishway, and between 20.6 and 22.9°C at the Sproat fishway (Figures 4 and 5). The discharge rate is moderate.

**Note:** Salmon escapement estimates in this bulletin are preliminary, based on an initial digital video review.

### **2013 PRE-SEASON EXPECTATIONS:**

**Sockeye:** The 2013 management forecast for Somass sockeye was 350,000, which corresponds to the low level management zone defined through Area 23 Wild Salmon Policy implementation (range 350,000 to 500,000). Expected stock composition is about 45% Great Central and 55% Sproat sockeye. Expected age composition is about 75%, 10%, 10%, and 5% for age 4<sub>2</sub>, 5<sub>2</sub>, 5<sub>3</sub>, and 6<sub>3</sub> adults, respectively. Based on current catch, escapement, and abundance estimates in the Alberni Inlet and Somass River, the forecast was downgraded on July 11 to 300,000 adult sockeye. The escapement target for this run size is 231,250.

**Chinook:** Approximately 16,000 Somass Chinook are forecast to return to Barkley Sound and Alberni Inlet in 2013. The predicted adult age composition is 43%, 22% and 34% of 3, 4 and 5-year olds, respectively. At a forecast terminal return of less than 20,000 adults, no directed Chinook fisheries are anticipated in the terminal Alberni Inlet area.

**Chum:** Approximately 563,000 chum are forecast to return to South West Vancouver Island in 2013 (54,000 to Area 23). This forecast is well below the long term average for the CU but higher than the recent 5-year average. Only limited directed fisheries are anticipated.

**Coho:** For 2013, the total expected return to the Somass system is about 20,000 to 40,000 coho. The forecast survival rate for the 2010 brood year (2012 sea entry) year is above the long-term average for West coast Vancouver Island coho.

### **PROGRAM OVERVIEW:**

Fish counting operations on the Somass system are run by the Hupacasath First Nation in collaboration with DFO.

This year an upgraded digital video counting system was installed at the Sproat and Stamp fishways to replace obsolete resistivity counter technology used in past years. The systems were installed at the Sproat fishway in early May and at the Stamp Falls fishway in late May.

Fish passing through both fishways are recorded 24 hours a day because the tunnels are lit up at night. Trained and experienced observers review a subsample of the video from both sites in order to generate estimates of escapement to each system. Observers identify fish to species,

estimate the portion of jacks by relative size, and estimate the portion of marked (e.g., adipose fin clipped) fish. A portion of the sockeye escapement is biologically sampled at the fishways to determine age at return, sex ratio and fecundity.

The sub-sampling routine consists of the observers reviewing 20 minutes of each hour of video footage and these counts are extrapolated to estimate hourly counts. During times of extremely high fish passage the observers may only review 10 or 15 minutes of each hour in order to meet deadlines for the development of daily escapement estimates required for the Area 23 Harvest Committee meetings. An analysis using a subsample of data from 2012 estimated that the absolute percent error of hourly counts caused by extrapolation from 20 minute counts had a median value of 13%.

This program will continue to run throughout the fall at the Stamp Falls fishway in order to capture Chinook and coho upstream migration.

For Henderson sockeye, escapement is estimated through a DIDSON sounder that was installed at Henderson Creek, the outlet of Henderson lake, in mid-June and through a series of swim surveys of the main spawning habitat (e.g., Clemens Creek and nearby beach habitat) in September and October.

The following figures express 2013 Chinook and coho escapement observations (solid lines) relative to average escapement timing for the period 2001 to 2012 (dashed lines). Variability in historic escapement timing is indicated by one standard deviation (vertical bars). Note that escapement timing for 2013 includes both day-time and night-time counts, while historic escapement timing excludes night-time counts. Although informative, in some years observed escapement timing relative to average escapement timing may be a poor indication of final run abundance. In contrast to 'run timing' (the return of Chinook/coho to Alberni Inlet), escapement timing tends to be more variable, and is influenced by the impact of fisheries and environmental conditions, such as river temperature or flow.

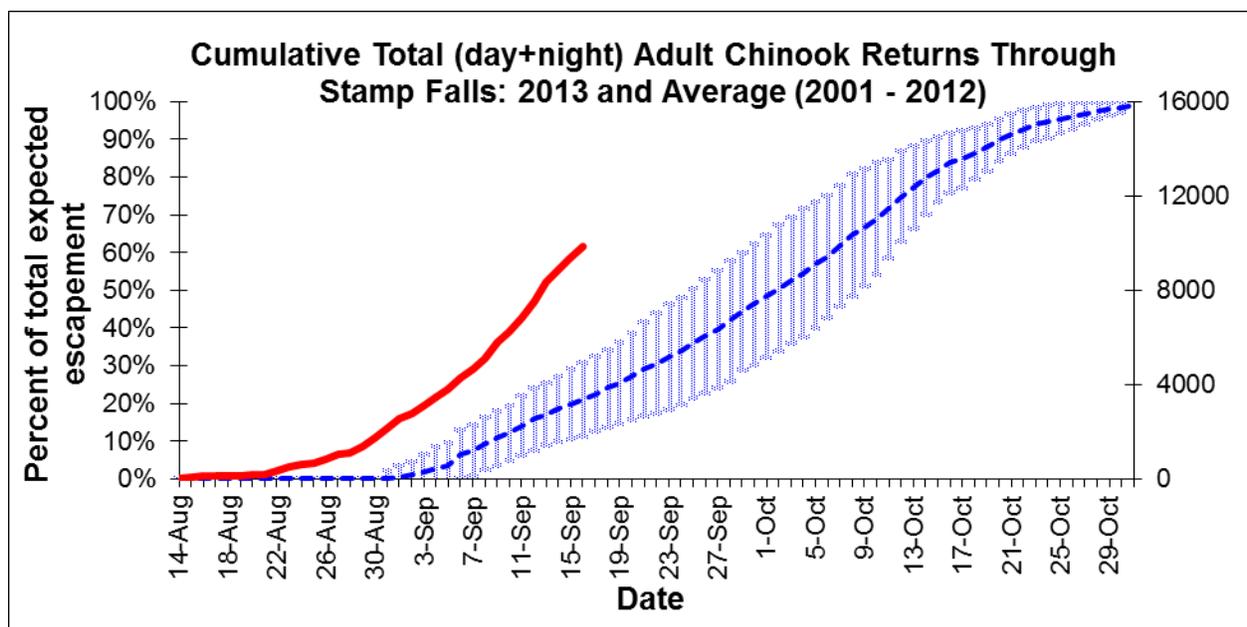


Figure 1. Stamp River adult Chinook escapement as a percentage of total expected escapement (16,000), and average escapement timing.

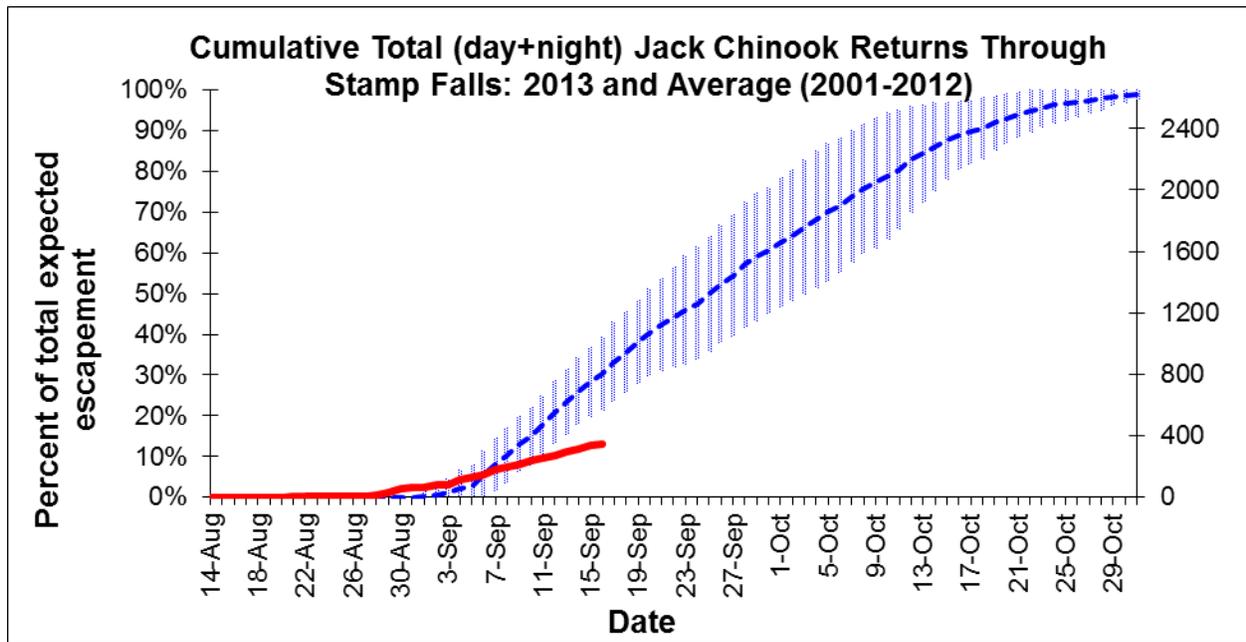


Figure 2. Stamp River jack Chinook escapement as a percentage of total expected escapement, and average escapement timing. Total expected escapement (2,630) is the average escapement from 2001 to 2012.

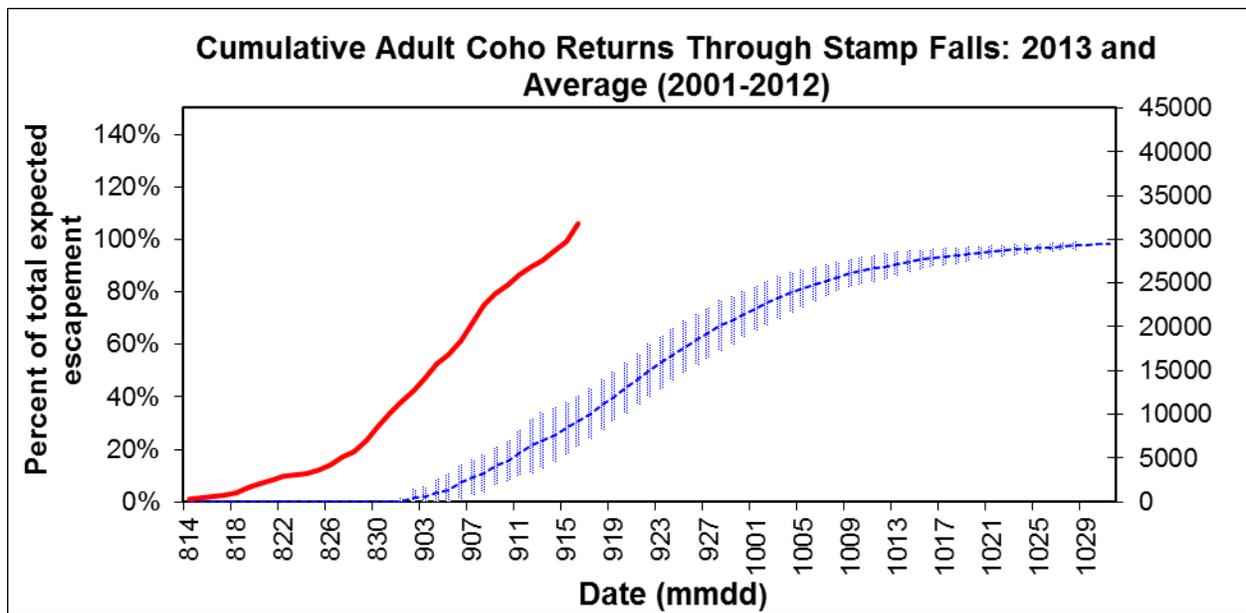
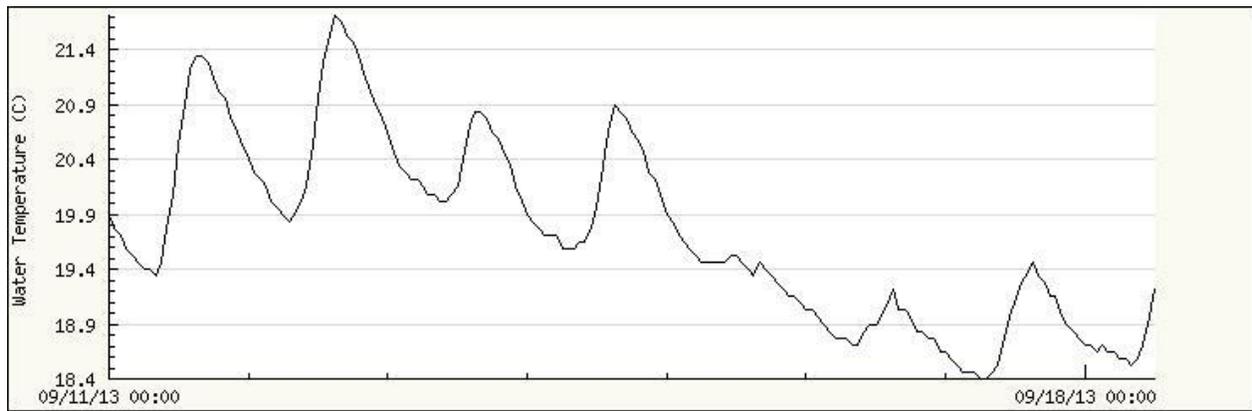


Figure 3. Stamp River adult coho escapement as a percentage of total expected escapement, and average escapement timing. Total expected escapement (30,000) is based on an anticipated terminal return of 20,000-40,000.



**Figure 4. Water temperature at the Stamp Falls fishway from September 11 – September 18, 2013 measured by an HOBO environmental monitoring system.**



**Figure 5. Water temperature at the Sproat fishway from September 12 – September 18, 2013 measured by an HOBO environmental monitoring system.**

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