

## **Stanislaus River Juvenile Outmigration Summary # 6**

**February 17 - February 24, 2003**

*Note: Data is preliminary and subject to revision.*

### **Oakdale:**

Between February 17<sup>th</sup> and February 24<sup>th</sup> 17,537 Chinook were captured increasing the season total to 78,419 Chinook. This week we continued to see fluctuations in Chinook catch throughout the sampling period. Catch fluctuated between 1,112 and 4,911 until the last day of the sampling period when it suddenly dropped to 248 Chinook. The difference in daily catch between two consecutive days ranged between 688 and 3,350 Chinook. However, the largest fluctuation in catch occurred February 20 following a decrease in flow.

Forklength ranged between 29 mm and 79 mm, and the mean for the sampling period was 36.5 mm. Mean weight was 0.4 g. Length and weight were similar to the previous sampling period. No trout were captured during the period.

Flow at Orange Blossom Bridge (OBB) gradually decreased from 538 cfs to 503 cfs during the period due to decreases in release at Goodwin Dam (GDW). Flow at GDW decreased by 20 cfs on February 20, and again on February 21 by 50 cfs. Turbidity at the sampling site ranged between 1.0 NTU and 2.0 NTU. The small peak in turbidity coincided with a rain event. Temperature ranged between 49 and 52 degrees Fahrenheit during the sampling period.

Between February 19<sup>th</sup> and February 22<sup>nd</sup> several trap efficiency releases were conducted to determine if trap efficiency estimates differ when using hatchery or natural Chinook. The experiment was suggested by and coordinated with CDFG and will be repeated later in the season with smolts. Paired releases of hatchery and natural Chinook were conducted using different marks to distinguish between hatchery or natural origin fish. The CDFG marked all hatchery groups at the Merced River Hatchery and transported the groups to our holding site the day before each group was released to ensure they were given ample time to recover from transport and acclimate. Each pair of release groups (hatchery and natural) were mixed together prior to release and released as one large group to ensure both groups encountered the same environmental conditions.

A total of five releases were conducted at Oakdale last week. One release consisting of 491 natural Chinook marked caudal fin orange (CFO) and 1,042 hatchery Chinook marked caudal fin magenta (CFM) was made using the traditional (check livebox ~ 1 hour after release). Flow at release was 538 cfs at OBB and turbidity was 1.5 NTU at Oakdale. Estimated trap efficiency for the natural fish was 7.13% and 6.81% for the hatchery fish, which were both similar to previous releases using the same release method. Mean length at release for the natural group was 35.8 mm and 36.3 mm at recapture. Mean length at release for the hatchery group was 44.2 mm and 44.1 mm at recapture.

Four daily releases were conducted using the new method (check livebox in morning) and consisted of a total of 920 natural Chinook marked caudal fin green (CFG) and 975 hatchery Chinook marked caudal fin blue (CFB). Releases were conducted under flows between 503 cfs and 538 cfs at OBB, and turbidity between 1.0 NTU and 1.5 NTU at Oakdale. Pooled trap efficiency for the natural fish was 4.02% and 4.72% for hatchery fish. Mean length of natural fish was 36.0 mm at release and 36.6 mm at recapture. Mean length of hatchery fish was 46.0 mm at release and 45.3 mm at recapture.

### **Caswell:**

Between February 17<sup>th</sup> and February 24<sup>th</sup> a total of 213 Chinook were captured increasing the season total to 7,946. Daily catch remained fairly stable and ranged between 14 and 45 Chinook. Forklengths ranged between 30 mm and 73 mm and mean length for the sampling period was 40.7 mm, which was 4.8 mm greater than the previous period. Mean weight increased by 0.3 g to 0.7 g. No trout were caught during this sampling period.

Flow at Ripon (RIP) decreased from 589 cfs to 543 cfs following the reduction in flow at GDW. Turbidity ranged between 1.3 NTU and 3.7 NTU, and temperature fluctuated between 50 and 52 degrees Fahrenheit.

Between February 19<sup>th</sup> and February 22<sup>nd</sup> four daily trap efficiency releases were conducted using hatchery and natural Chinook. Similar to Oakdale, hatchery fish were used to replicate the groups of natural Chinook and were marked and transported by the CDFG. Each morning prior to release, the hatchery and natural daily groups were mixed together and later released as one group. The daily release groups were conducted using the new method of release where the marked fish were released in the evening and the livebox was checked the following morning. The groups consisted of 99 natural Chinook marked caudal fin pink (CFP) and 513 hatchery Chinook marked caudal fin green (CFG). The groups were released at flows ranging between 545 cfs and 589 cfs at RIP and turbidity between 1.6 NTU and 2.7 NTU. Pooled efficiency was 11.1% for natural fish and 16.0% for hatchery fish. Mean length of the natural group was 39.8 mm at release and 37.0 mm at recapture. Mean length of the hatchery fish was 45.9 mm at release and 45.6 mm at recapture.

On February 23 one group consisting of 14 natural Chinook marked CFB were released using the traditional method (check trap ~ 1 hour after release). One fish was recaptured and estimated trap efficiency was 7.14% at a flow of 544 cfs. Mean length was 39.9 mm at release and 37.0 mm at recapture.

Over the past few weeks we have evaluated trap efficiency using two methods, one that does not account for livebox efficiency (traditional method) and one that self-adjusts for livebox efficiency (new method). Due to the variability of both trap efficiency and livebox efficiency estimates, we have determined that trap and livebox efficiencies should be tested independently of one another. To do so, trap efficiency tests will be conducted using the traditional method. Once all marked fish are recovered from the livebox on the night of a release, a known number of marked Chinook will be placed in the livebox overnight. The percentage remaining in the morning will represent livebox efficiency.