

Summary of 2003 Feather River Salmon Spawning Escapement Surveys

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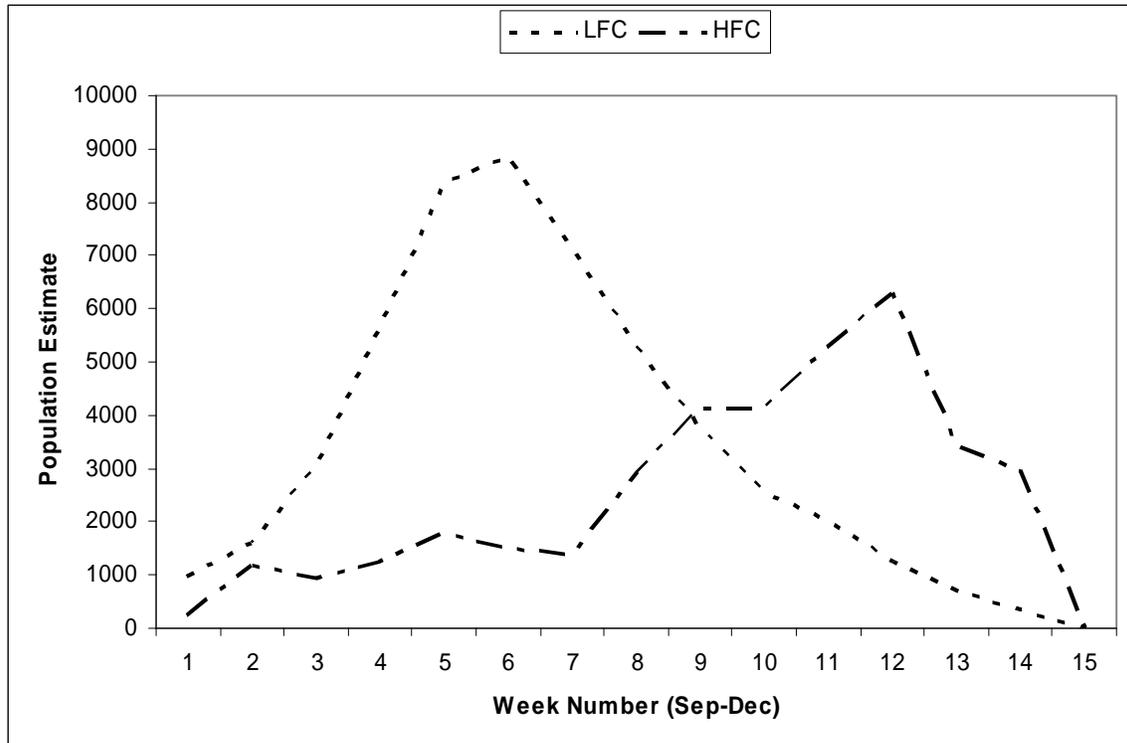
The 2003 salmon spawning escapement survey began September 2 and continued through December 17. Raw data, data summaries (including Schaefer tables) are provided in Appendix B (Microsoft Excel Workbook).

Population Estimate:

Salmon carcass mark recapture resulted in a population estimate for the Low Flow Channel (LFC) of 51,527 salmon, 48,951 adults and 2,576 grilse. The LFC includes the Feather River from the Fish Barrier Dam to the Thermalito Outlet. The population estimate for the High Flow Channel (HFC) of the Feather River was 37,395 salmon, 35,525 adults and 1,870 grilse. The HFC surveyed extended from the Thermalito Outlet downstream to the Gridley Bridge. The heavier spawning activity in the LFC is consistent with previous years (63% of spawning in the LFC is the long term average). The total in-river spawning for the Feather River (LFC + HFC) was 88,922, 84,476 adults and 4,446 grilse. These estimates may include spring and fall-run salmon since their spawning does not appear to be spatially or temporally segregated on the Feather River.

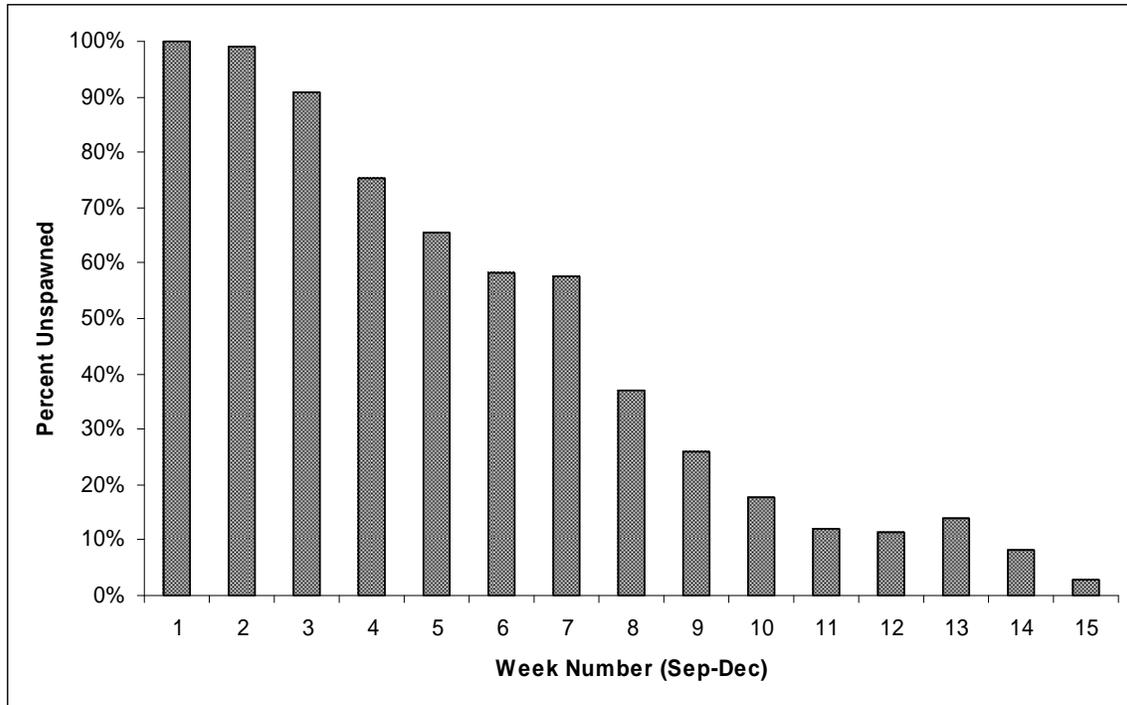
Coded Wire Tags (CWT) were used to assess age composition of the spawning population. Age 4 and age 3 salmon dominated the spawning population, 41.7% and 50.6% respectively. Age 2 fish were also fairly common (7.4%) while age 1 and age 5 fish were rare. Note that the data listed below only includes those fish recovered at the Feather River Hatchery, LFC, and HFC, which were of Feather River Hatchery origin.

Age	CWTs Recovered	%
5	3	0.1
4	2200	41.7
3	2669	50.6
2	391	7.4
1	11	0.2



Pre-spawning Mortality:

4,027 female salmon were examined to determine if they had successfully deposited their eggs. On average, 40.5% had died before depositing most of their eggs. Pre-spawning mortality was generally higher early in the survey (September-October), and in the LFC. Since we began monitoring pre-spawn mortality in 2000, we have observed similarly high levels. The cause for pre-spawning mortality is unclear, but it probably results from stress associated with upstream migration, water temperatures, angling pressure, and intense competition for limited spawning habitat.

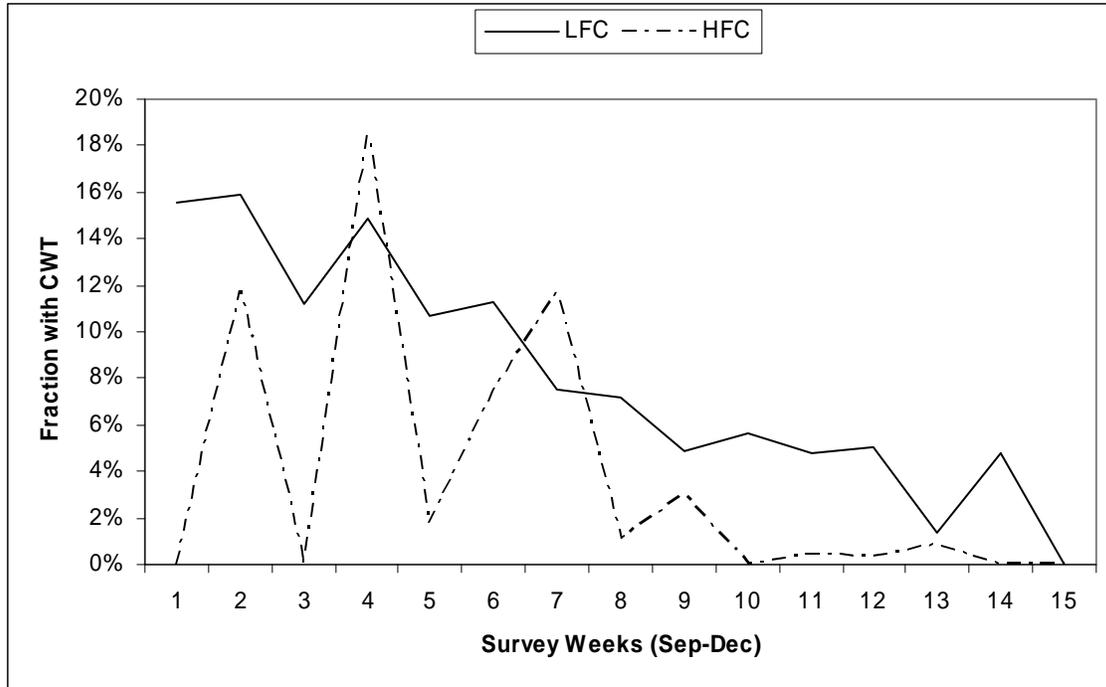


River Section	Spawned	Unspawned	Total	% Unspawned
LFC (Sect. 1-23)	1629	1402	3031	46.26
HFC (Sect. 24-46)	751	245	996	24.60

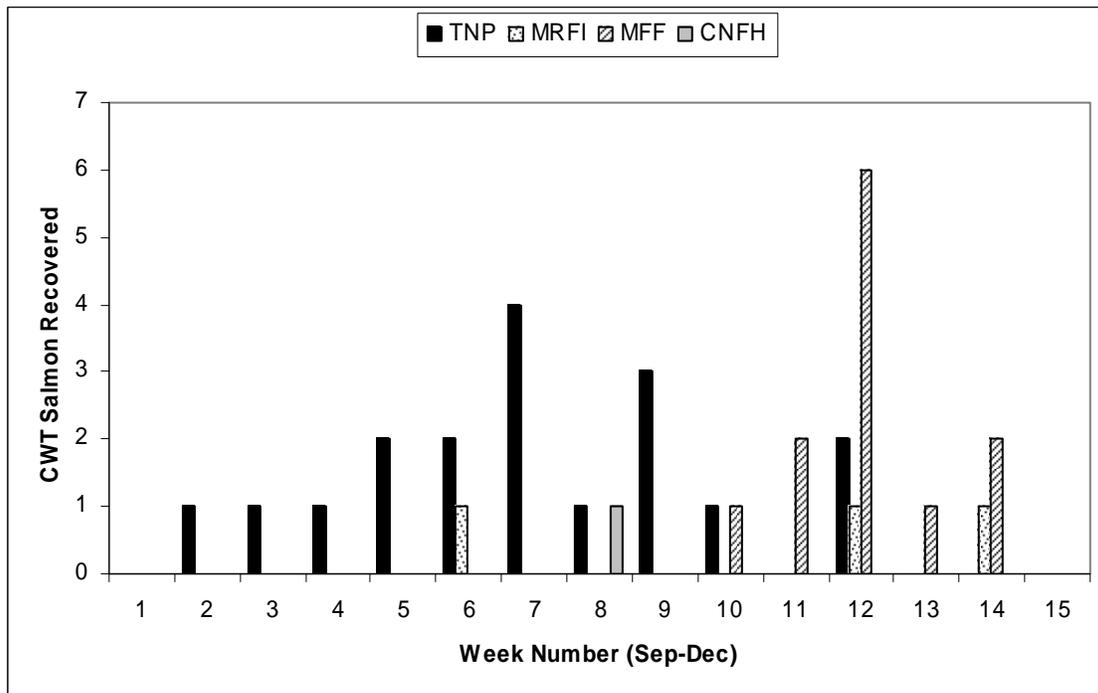
Coded Wire Tag (CWT) Sampling:

6,047 salmon were checked for the presence of an adipose fin clip (the external mark which indicates a CWT is present). 414 heads with CWTs were collected, resulting in an average occurrence rate of 6.8%. CWTs were more common early in the survey than later. CWTed salmon also appeared to occur at a higher rate in the LFC than in the HFC.

River Section	Clipped	Non-clipped	CWT Rate
LFC (Sect. 1-23)	382	4116	8.5
HFC (Sect. 24-46)	32	1517	2.1
Overall	414	5633	6.8



Of those tagged Chinook that returned to the Feather River in 2003, a majority (95%) were of Feather River Hatchery Origin; 6% of those FRH origin fish were fish released from mobile net pens at Tiburon, California (the Tiburon Net Pens). The remaining tagged Chinook consisted of strays from the Mokelumne River Fish Instillation (MRFI), Merced Fish Facility (MFF), and the Coleman National Fish Hatchery (CNFH).



Spring and Fall Chinook CWT Composition:

Salmon tagged as spring and fall Chinook demonstrated considerable overlap in their temporal distribution. Occurrence of spring Chinook CWTs did peak approximately two weeks before the peak of fall Chinook CWTs, as shown in the graph below of Feather River Hatchery origin CWT returns.

