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CHAPTER 6

Complementary Studies Related to the VAMP

Throughout 2004 several fishery studies were conducted that were considered to be important to the overall understanding of the abundance and survival in the San Joaquin River basin. These are presented below to provide the reader with summary information on each study. More information can be obtained from each study manager or report author.

SURVIVAL ESTIMATED FOR CWT RELEASES MADE IN THE SAN JOAQUIN TRIBUTARIES

Contributed by Pat Brandes, U.S. Fish and Wildlife Service

CWT salmon releases were made in the Merced River between April 19 and May 12 as part of independent (complementary) fishery investigations. Three sets of releases were made in the upper Merced River (MRFF/Schaffer Bridge) and lower Merced River (Hatfield State Park).

Group survival indices for salmon released in the Merced River and recovered at Antioch ranged between 0.0 and 0.004 (Table 5-10). Group survival indices ranged between 0.0 and 0.02 to Chipps Island (Table 5-10). These indices were similar to those in 2002 and 2003, but much lower than in 2001, where indices ranged from 0.03 to 0.20 (SJRJG 2004, 2003, 2002). These indices include both the survival upstream as well as through the Delta. Vernalis flows were lower in 2002, 2003 and 2004 than in 2001 (3200 cfs vs 4450 cfs target flows).

Comparison of survival indices of the upstream tributary groups relative to the downstream tributary groups provides an index of survival through the tributary. Only the survival through the Merced River could be estimated from the second groups release on April 27 and 28th, because it was the only group that had recoveries from both groups at a similar recovery location (Chipps Island). Survival through the Merced River was estimated at 0.47 for this group. Survival through the Merced River ranged between 0.26 and 0.96 in 2003, although there

were instances where no recoveries were made at Chipps Island. It appeared survival through the tributaries was generally high using this method of comparison and higher than for those migrating through the Delta.

KODIAK TRAWL SAMPLING OF SALMON AT MOSSDALE

Contributed by Pat Brandes, U.S. Fish and Wildlife Service

As part of the Interagency Ecological Program (IEP), kodiak trawl sampling is conducted at Mossdale, two to three times a week throughout the year, when water and staffing levels permit. VAMP has been designed for implementation during the time juvenile salmon from the San Joaquin tributaries migrate through the Delta. Most of the salmon that migrate through the Delta during the VAMP period are smolts that are migrating directly through the Delta to the ocean. In some years, smaller sized juvenile salmon (fry) enter the Delta from the tributaries prior to mid-April. There was no evidence that many fry entered the Delta prior to March in 2004 (Figure 6-1). In most of the past years, there has been evidence of some smaller fish (and sometimes larger salmon) caught at Mossdale as they enter the Delta, as early as mid-January and February (Figure 6-2). In most years numbers were low—the year with the largest number entering the Delta was in 1999–2000. As mentioned in earlier chapters, the spring of 2000 was wetter than the springs since then. Higher flows likely bring more fry into the Delta. However, even in the years when fry from the San Joaquin tributaries enter the Delta it is likely they do not migrate all the way to the ocean until they are of smolt size. Survival for fry in the Delta compared to that upstream has not been measured for the San Joaquin tributaries, although in wet years it was found that fry survive at a higher rate when released in the Sacramento River near Red Bluff than in the north Delta (Brandes and McLain, 2001). In drier years survival was similar between the two groups (Brandes and McLain, 2001).

FIGURE 6-1

Daily catch per cubic meter and mean fork lengths of juvenile Chinook salmon in the Mossdale Kodiak trawl between for August through July periods, 1999 through 2004. Blanks indicate no sampling.

