Delta Smelt Working Group Meeting Notes

June 4, 2007

Participating: Gonzalo Castillo (USFWS), Mike Chotkowski (USBR), Lenny Grimaldo (CDWR), Bruce Herbold (USEPA), Tracy Hinojosa (CDWR), Ann Lubas-Williams (USBR), Ryan Olah (USFWS), Ted Sommer (CDWR), Jim White (CDFG) and Victoria Poage (USFWS, convener and scribe)

For Discussion:
1. Review of water temperature criteria for May 15 recommendation
2. Review of recommendation for modification of DCC gate operations

Recommendation for WOMT: After reviewing changed Delta conditions, e.g., further decreases in export pumping by the SWP, which in turn further diminish the potential benefit of changes in DCC gate operations for delta smelt, the Working Group advises the WOMT that any further reoperation of the DCC gates will not likely have a beneficial effect on the risk of entrainment of delta smelt.

Background:
In late May the Delta Smelt Working Group recommended that the DCC gates be open to reduce the entrainment risk for delta smelt based on a comparison of particle fates for nine injection points in the central and western Delta in two 31-day simulations. One simulation was with the DCC gates closed initially and then open for 25 days (starting on Day 6) and the other with the DCC gates closed initially and then open only on weekends (three days out of seven, i.e. mid-Friday to mid-Monday) beginning on Day 6 and closed otherwise. The latter scenario approximated actual DCC operations in recent years when D-1641 provides for the gates to be closed until May 20 and for 14 days between May 21 and June 15. Other operations assumptions were the same for the entire simulation in each of the two scenarios including: combined SWP/CVP export pumping at 1200 cfs, San Joaquin River at Vernalis flow at 1449 cfs, and Sacramento River flow at 12,400 cfs. The Head of Old River barrier was in place initially but removed on Day 7, agricultural barriers were operating tidally throughout the simulation period. Particles were injected at nine locations on Day 1.

Injection points corresponded to 9 of the “20 mm survey” locations but because few delta smelt were caught in recent surveys and the picture of distribution is not reliable, no attempt was made to weight the initial particle distribution to represent the distribution of delta smelt. Equal numbers of particles were injected at each location. Particle fates included past Chipps Island, within Delta channels, or entrainment into either Delta Ag diversions, other diversions, the SWP diversion or the CVP diversion.

With the DCC gates always open beginning on Day 6 the percent past Chipps Island was higher than with the DCC gates open on weekends only for all sites except the one just upstream from Chipps Island (513). This indicated that the hydrodynamic effect of DCC always open favored the westerly movement of particles and was interpreted as the

primary indication of a potential benefit for delta smelt. Conversely the percentage remaining in the Delta channels was lower with the gates always open for all but two of nine sites(near Chipps and Old River south of Franks Tract) The model output did not differentiate among Delta channels containing particles at the end of the simulation.

No particles from the 3 locations on the lower Sacramento River and one on the San Joaquin River near Sherman Island were entrained in either scenario. Less than two percent of particles were entrained from two of the other five locations while for the three locations in the south-central Delta percent entrainment ranged from about 5-20 percent in each simulation. Differences in percent entrainment between the two gate operations for these latter locations included some positive and some negative differences. None of the differences were large and for the most part changes in SWP/CVP entrainment were accompanied by opposite changes in percent entrainment in Delta ag diversions.

Overall the PTM results indicated there could be a small beneficial effect on delta smelt from having the DCC gates always open during the period from late May until mid-June compared to the default operation of closed but open on weekends, based on the increased percentage of particle moving downstream past Chipps Island. There was no consistent difference in total percent entrainment in the 31-day simulations due to DCC gate operations but some offsetting shifting of entrainment among SWP, CVP and ag diversion was noted.

Compared to the small effect of DCC gate operations described above, substantially higher percentage entrainment in the SWP and CVP (40-65 percent) was found in other PTM runs for particles originating at central Delta sites. Those simulations used similar (but not identical) assumptions for the DCC gates, the HOR barrier and river flows but the main difference was in the SWP/CVP export pumping rate (5000 cfs compared to 1200 cfs in the simulations used above to assess DCC gate effects). Effects on particle fate due to DCC gate operations were minor compared to the effects of export pumping rate.

Currently, operations conditions in the Delta differ from the model assumptions used to assess DCC gate effects, with the changes intended to improve flow in Old and Middle Rivers. San Joaquin River flow at Vernalis in the post-VAMP period has been higher than the assumed 1500 cfs. The tide gates on the ag barriers have been tied in the open position rather than operating tidally. Export pumping has been limited to about 800 cfs in recent days, compared to the 1200 cfs modeled. All of these deviations from the model assumptions would tend to be beneficial for delta smelt and make the minor effects of different DCC gate operations relatively smaller than they appeared in the PTM simulations used to formulate the Working Group recommendation.

Notes:

1. The Delta Smelt Working Group previously recommended that, to minimize the risk of entrainment for juvenile delta smelt, the Projects modify operations to achieve a non-negative net daily flow on Old and Middle Rivers, and maintain this condition until the southern Delta reached 25^0C, the lab-lethal limit. The temperature criterion will be met

when the average of three stations (Holland Tract, Prisoner's Point and Victoria Island) reaches 25^0C during the six hours between noon and six p.m. The Working Group reviewed the criterion to ensure that it is the best endpoint for the current action, focusing on the following questions:
a. Does the Working Group think the particulars of this criterion useful based upon recent historical patterns?
b. Does the criterion need to be reached over consecutive days? (There have been occasions when the criterion was reached for one day but subsequently fell below 25^0C)
c. There has been at least one year when the criterion was not reached even in July; in such a case, what would be the cue to resume export pumping?

To answer these questions, the Working Group reviewed Delta water temperature graphs prepared by Lenny Grimaldo for the years 1999 – 2006 showing that:

- The temperature criterion has never been reached in May
- The temperature criterion was reached during 3 of the 8 years in June
- The temperature criterion was reached in 7 of 8 July months
- During 2004, the criterion was not reached by the end of July
- Victoria Island is typically warmer than Holland Tract and Prisoner's Point

After some discussion, the Working Group decided that it would be highly desirable to investigate the potential to integrate a constellation of factors, which could include temperature but also include the calendar day, fish distributions in surveys, and salvage at the state and federal export facilities. A sub-group was selected to develop an integrated criterion and bring it back to the full Working Group at a follow-up conference call on Friday.

2. The perception among the Working Group was that the WOMT considered their recommendation for modification of the operation of the DCC gates seriously in weighing the potential reduction of entrainment risk against such factors as water quality, which requires interaction with the State Board, and the potential to harm salmonids emigrating from the Sacramento tributaries, which requires interaction with NMFS. The Working Group is required only to consider the potential impacts of Project operations on delta smelt; therefore the Working Group forwarded the DCC gate recommendation even though the potential benefit was very small, perhaps within the margin of error of the PTM model. Reviewing the recommendation in light of current Project operations, however, the Working Group advises the WOMT that any further reoperation of the DCC gates will not likely have a beneficial effect on the risk of entrainment of delta smelt.

Next Scheduled Meeting: Friday, June 8 at 1:00 pm.

Submitted,

VLP