

Delta Smelt Working Group Meeting Notes

February 26, 2007

Participating: Gonzalo Castillo (USFWS), Mike Chotkowski (USBR), Kevin Fleming (CDFG), Lenny Grimaldo (CDWR), Bruce Herbold (EPA), Tracy Hinojosa (CDWR), Victoria Poage (USFWS), Ted Sommer (CDWR), Jim White (CDFG), and Peter Johnsen (USFWS, convener and scribe)

For Discussion:

1. Delta smelt distribution
2. EWA
3. Continued action after February 15
4. Spring action
5. Head-of-Old River barrier

Recommendation for WOMT:

No recommendations at this time.

Meeting Notes:

1. The Delta Smelt Working Group reviewed the delta smelt distribution and maturity data from the second supplemental Spring Kodiak Trawl that was conducted on February 20 and 21. The 'Supplemental Survey' is designed to sample areas of high concentration intensively, to estimate the proportion of ripe, unripe, and spent delta smelt. However, the Department of Fish and Game for this 'Supplemental Survey' also included stations in the South and Central Delta based on a previous request from the Working Group.

Water temperatures had cooled down the last few days and most areas of the Delta are in the 10⁰C to 12⁰C range. Of the 63 delta smelt (24 females: 21 males: 2 undetermined) collected, 25 and 14.3 percent of the females and males, respectively, were mature. No spent females were collected. All fish were collected from the Sacramento River near the confluence with the San Joaquin River, Cache Slough, and the Sacramento River Deep Water Ship Channel; none were collected from the Central or South Delta. Suisun Bay/Montezuma Slough and areas west of Suisun were not sampled. Based on the SKT results to date, the Working Group believes that a high proportion of the delta smelt population will be spawning in the Sacramento River portion of the Delta. However, it should be noted that in this year of very low apparent abundance, the Working Group interprets the distribution results with particular caution. Salvage (36 delta smelt) and incidental observations of delta smelt in the load-out buckets confirms that some delta smelt have moved into the Central and South Delta.

The 'Supplemental Survey' can not be used to interpret Delta-wide distribution of delta smelt or whether delta smelt are still moving upstream since it is not a full survey. However, based on observations from earlier years, delta smelt are likely still moving into the upper Delta from the Suisun Bay/Montezuma Channel. The next full survey is

scheduled to start next week. DFG staff has posted the results of SKT sampling to the web (<http://www.delta.dfg.ca.gov/data/skt/>).

2. Based on what is currently known of adult delta smelt distribution, at the February 9 meeting the Working Group identified a need for Particle Tracking Modeling (PTM) for particles released near Cache Slough at different Old River/Middle River flows to help understand the potential vulnerability of delta smelt larvae that may be produced in that vicinity. DWR staff provided PTM runs for particles injected at the following SKT stations: Station 815 (in the Central Delta), Station 711 (Sacramento River downstream of Cache Slough), and Station 704 (Sacramento River at the confluence) (Table 1). The outputs showed particle fates over the 31-day period for three values of OR/MR flow with both a dry (90%) and a wetter (50%) hydrology (Table 2 and 3).

Table 1. The following scenarios were run:

Scenario	Hydrology %	OMR value cfs	Sac Flow cfs	SJ Flow cfs	Banks PP cfs	Tracy PP cfs
A	50	-8000	33779	3000	7080	4300
B	90	-8000	15010	1667	6680	4300
C	50	-4000	33779	3000	2000	4300
D	90	-4000	15010	1667	1000	4300
E	50	0	33779	3000	300	1000
F	90	0	15010	1667	300	1000

The runs assumed that all barriers are out. Rather than the traditional bar chart output, the Working Group requested a cumulative output of particle fates. Station 815 showed a large difference in total particle entrainment between -8000 cfs (Scenario A and B) and -4,000 cfs (Scenario C and D), and between -4000 cfs and 0 cfs (Scenario E and F) for both the 90 percent exceedence (dry) and 50 percent exceedence (wet) scenarios (Table 3). Stations 711 and 704 showed similar tendencies as station 815 in that the relative difference in entrainment between scenarios did not differ much between dry and wet years. However, stations 711 and 704 contrasted with station 815 by having a relative high difference in particle entrainment between -8000 and -4000 but relative little difference between -4000 cfs and 0 cfs (Table 3). This indicates that there may be a break point between negative 4000cfs and negative 8000 cfs for particles injected at stations 711 and 794. Based on these results, the Working Group requested that DWR staff make additional PTM runs under OR/MR flow conditions of negative 6000 and 2000 cfs.

Table 2. Percent entrainment at CVP and SWP of particles injected at different stations over a 31-day period starting on March 1.

Particle fate Station	Percent particles @ CVP			Percent particles @ SWP		
	815	711	704	815	711	704
Scenario A 50% exceedence, - 8000cfs	25.1	2.7	0.8	55.9	7.2	1.1
Scenario C 50% exceedence, - 4000cfs	19.7	0.4	0.2	10.4	0.3	0.1
Scenario E 50% exceedence, 0cfs	0	0	0	0	0	0
Scenario B 90% exceedence, - 8000cfs	30.8	12	6.4	60.3	20.5	11.1
Scenario D 90% exceedence, - 4000cfs	29.7	3.4	0.6	5.3	0.7	0.1
Scenario F 90% exceedence, 0cfs	0	0	0	0	0	0

Table 3. Combined percent entrainment at CVP and SWP of particles injected at different stations over a 31-day period starting on March 1.

Particle fate Station	Percent particles @ CVP and SWP combined		
	815	711	704
Scenario A 50% exceedence, - 8000cfs	81	9.9	1.9
Scenario C 50% exceedence, - 4000cfs	30.1	0.7	0.3
Scenario E 50% exceedence, 0cfs	0	0	0
Scenario B 90% exceedence, - 8000cfs	91.1	32.5	17.5
Scenario D 90% exceedence, - 4000cfs	35	4.1	0.7
Scenario F 90% exceedence, 0cfs	0	0	0

3. Old River and Middle River combined five-day average flow was below negative 4000 cfs. However, OR/MR flow had decreased the last few days and it was measured to negative 4270 on February 23. The action is generating EWA debt of approximately six thousand acre feet (TAF) per day to DWR. Base demand is not expected to increase, and continuing the action is likely to continue to draw upon EWA purchased assets at about six TAF per day for the near future. Current debt to DWR at the time of the meeting was 64 TAF. Precipitation is not forecasted for the coming week. The Working Group noted that EWA is sufficiently funded to have purchased assets available for the current action and potential spring actions.

4. The Working Group reviewed its earlier recommendation to continue moderating OR/MR flows. Based on what is known of the delta smelt distribution from the SKT and water temperatures in the 10⁰C to 12⁰C range, the Working Group agreed that continuing the action is likely to support the goal of avoiding adult salvage. The Working Group therefore does not change its recommendation of maintaining an OR/MR flow between negative 5000 and negative 3500, at least until survey data from the third SKT can be reviewed and discussed or unless the weather changes.

4. The Delta Smelt Working Group discussed potential spring actions based on the result of the PTM runs described above, what is currently known of delta smelt distribution in the Delta, the presence of mature female delta smelt (stage 4), and expected increase in water temperatures. The Working Group agreed that a spring action would primarily be to protect from entrainment larvae that originate from the Sacramento River portion of the Delta. Thus, the Working Group agreed that a likely spring recommendation to WOMT would include keeping OR/MR flows between negative 4000 and 0 cfs. However, the Working Group recognizes the possibility that more delta smelt could move into the Central and South Delta and spawn there, thus any spring recommendation may be modified based on future SKT and 20-mm surveys. It was also acknowledged that we do not have a full understanding of the relationship between OR/MR flows and entrainment of larvae originating from the Sacramento River since we lack data for OR/MR flows between negative 8000 cfs and negative 4000 cfs.

5. The Working Group discussed its earlier recommendation to forgo installation of the Head-of-Old River barrier. Earlier PTM runs with and without the barrier showed a considerable difference in the proportion of particles entrained at the pumps (see the October 30, 2006, Working Group Meeting Notes). However, in the PTM runs, particles were injected at stations 815, 902, and 910 in the South Delta. The Working Group expects that installation of the Head-of-Old River Barrier will have little effect on particles injected at stations located in the Sacramento River portion of the Delta. The reason for this is that with the installation of the barrier the San Joaquin River flows are still drawn into the Old River and Middle River so that the area of influence will not expand with the barrier installed. Thus, if no or very little spawning occurs in the South Delta, forgoing the installation of the Head-of-Old River barrier is not likely to provide any substantial benefit for delta smelt protection. However, as noted above, there is still a potential for delta smelt to move into the Central and South Delta. The Working Group therefore decided not to make any change to their earlier recommendation to forgo the Head-of-Old River barrier installation until more information on distribution is available. The Working Group will continue to monitor real time data on delta smelt distribution and spawning to evaluate if forgoing installation of the Head-of-Old River barrier will provide any protection of delta smelt.

Next meeting: Monday, March 12 at 3:00 pm via conference call.

Submitted,
PJ