

Delta Smelt Working Group (DSWG) Meeting Notes

May 14, 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. Update on delta smelt and Delta conditions
2. Larvae protection recommendation

Recommendation for WOMT:

The Working Group had the following recommendation for WOMT:

Manage Delta hydrology so that further entrainment of delta smelt is avoided. To achieve this, the Projects should modify flows to achieve a non-negative daily net flow (meaning daily net flow should not be southward) in Old and Middle River. This should be implemented as soon as possible and continue until southern Delta water temperatures reach 25⁰C, the lethal temperature threshold observed in the laboratory.

Meeting Notes:

1. The DSWG reviewed the results from the last 20-mm survey, the fifth survey of the year, which was conducted from May 7 through May 12. The survey collected 8 larvae resulting in a total of 25 larvae so far this year (Table 1). This is the lowest number of larvae ever collected (Table 1, Figure 1), representing about 7.7 percent of the 326 taken to this point in 2006, and only 7.1% of the 2000-2006 average of 353. The DSWG has reviewed the progression of catches that typically occur during the course of the 20 mm Survey to evaluate the chance that there will be an upswing in the number of larvae collected later this year that will bring 2007 catches more in line with previous years. The group considers such an increase in catch to be possible but unlikely.

Delta smelt larvae were collected in Cache Slough, the lower Sacramento River, lower San Joaquin River, and in Franks Tract (Figure 2). This is a change compared to the four previous surveys which mostly collected larvae in the Sacramento River and caught none in the central or south Delta (Figure 2). The presence of larvae in the central Delta increases the chance that they will be entrained at the SWP and CVP water export facilities. In fact, the first salvage of delta smelt larvae were observed at the CVP water export facility on May 11. It was also noted that the larvae collected in the central Delta ranged in length from 5 to 8 mm; a size too small to be efficiently sampled by the sampling gear. The density of larvae in the central delta is therefore likely higher than what is estimated by the survey. In contrast, larvae in the Sacramento River portion of the Delta were between 10 and 20 mm long. DFG staff has posted the results of the 20-mm survey to the web (<http://www.delta.dfg.ca.gov/data/20mm/>). The sixth 20-mm survey will start on May 21.

Water temperatures in the Delta are approaching 21⁰C. The lethal temperature threshold for delta smelt as observed in laboratory studies is 25⁰C. The Head-of-Old River barrier is in with three culverts open. VAMP has started and will be finished on May 22 followed by a planned ramp-up in water exports from a current combined 1,500 cfs to 5,500 cfs by May 28. OR/MR five-day average flow was about negative 1,200 cfs.

Table 1. Cumulative catch by 20-mm survey from 1995 to 2007.

Survey	Year												
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
1	12	82	6	6	86	33	9	0	31	7	3	0	7
2	40	246	31	19	239	139	26	32	59	25	13	0	10
3	135	1146	154	128	472	208	40	144	86	45	16	50	14
4	186	1874	369	188	846	357	128	187	117	234	84	72	17
5	232	2504	1229	346	1262	616	301	332	188	444	261	326	25
6	343	2889	1582	454	1733	906	501	382	320	563	477	690	
7	472	3192	1764	536	2066	2120	925	470	528	608	569	930	
8	598	3413	1807	587	2231	2469	1020	621	621	651	720	1084	

2. The combination of low numbers of adult delta smelt seen in the Spring Kodiak Trawl (SKT) and the record low number of larvae sampled in the 20-mm survey to date suggest that there is a high likelihood of a very low recruitment of adults. Further, water temperatures in the Delta have risen above the range wherein the majority of delta smelt spawning occurs, meaning that very little additional spawning is likely to take place this year. A failure to recruit adults will continue the decreasing trend seen in the Fall Midwater Trawl index since 2000. This situation creates a very high degree of concern within Delta Smelt Working Group.

Almost no adult delta smelt were collected in the central and southern Delta in the SKT surveys from January – May. The delta smelt larvae now being found in the central Delta have a high risk of entrainment and given the low abundance, minimizing entrainment is important. The DSWG discussed the possible origin of these larvae seen in the central Delta; i.e. if they were produced by fish that spawned in the central Delta or transported there after hatching in the northern Delta where most of the mature adults had been detected. It is not possible to come to a conclusion based on the information available now. However, regardless of their origin, avoiding entrainment of these larvae would be especially important if they represent as large a percentage of the annual production as the data from the last 20 mm survey suggest. For an annual species such as delta smelt, failure to recruit a new year-class is an urgent indicator that the species has become critically imperiled and an emergency response is warranted.

Based on these considerations the DSWG has concluded that it is of utter most importance to avoid any further entrainment of larvae at the CVP and SWP. The DSWG believes that this can be achieved if net flows in the Old River and Middle River are neutral or positive (northward net flow). The DSWG therefore recommends that the CVP and SWP use any management tool available to modify flows to achieve a non-negative daily net flow (meaning daily net flow should not be southward) in Old and Middle River. This should be implemented as soon as possible and continue until southern Delta water temperatures reach 25⁰C.

The group is not providing any prescriptive recommendation regarding the Head of Old River Barrier; however, it is possible that the HORB's influence on OMR flow may be significant. Removing the barrier may therefore be a possible management tool to help achieve the Working Group's recommendation.

The DSWG also discussed the different uncertainties related to understanding the current delta smelt distribution and abundance, the factors affecting distribution and abundance, the ability to achieve the recommendation, and the ability to measure any benefits from the recommendation on recruitment and population trends. First, the DSWG recognizes that water project operations are not the only forces driving down delta smelt numbers. Although we are confident that implementing the recommendation will reduce entrainment, it is uncertain whether it will substantially increase the percentage of this year's recruit class that survives to reproduce next winter. Secondly, the group also recognizes that it may not be possible, given flows and constraints on Project pumping, to achieve a zero net flow in Old and Middle River. Third, given that delta smelt densities appear to be near the lower limit at which the 20-mm Survey may reliably detect them, our ability to accurately assess distribution of delta smelt larvae and to evaluate the efficacy of the recommended action is likely to be very low.

Next meeting: Monday, May 21 at 3:00 pm via conference call.

Submitted,
PJ

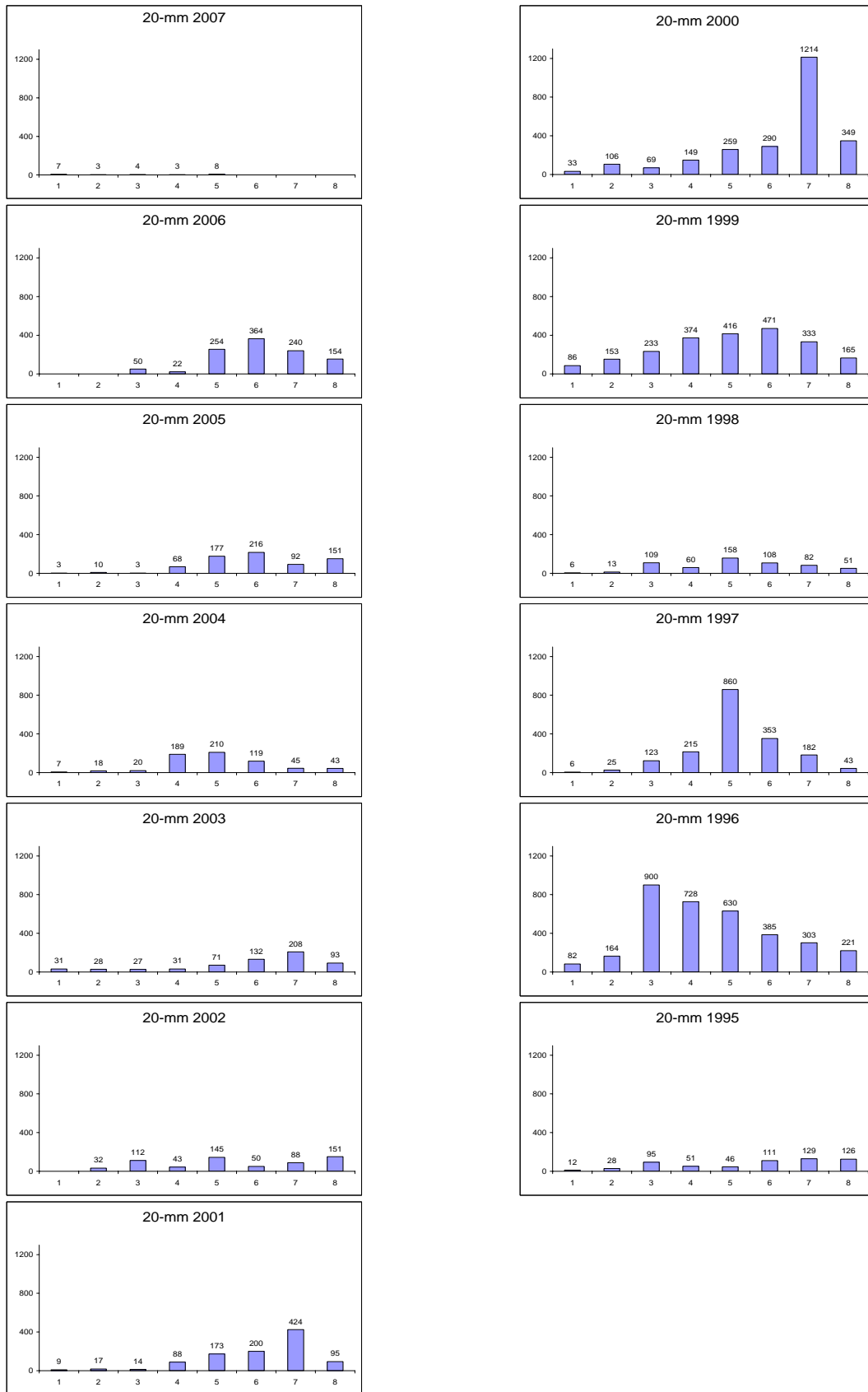


Figure 1. Number of larvae sampled by survey and year. The vertical axis is number collected in the CDFG 20-mm Survey. The horizontal axis is survey number.

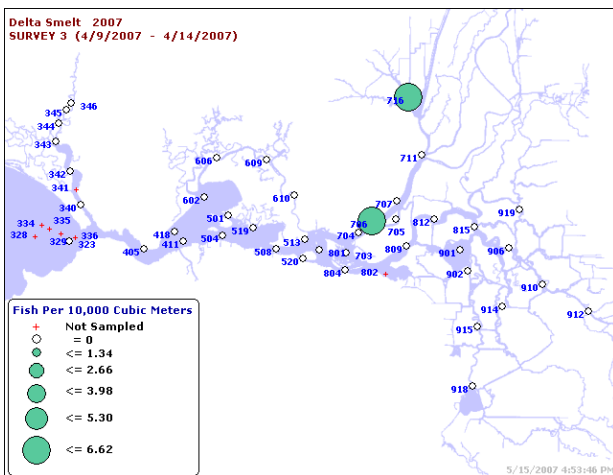
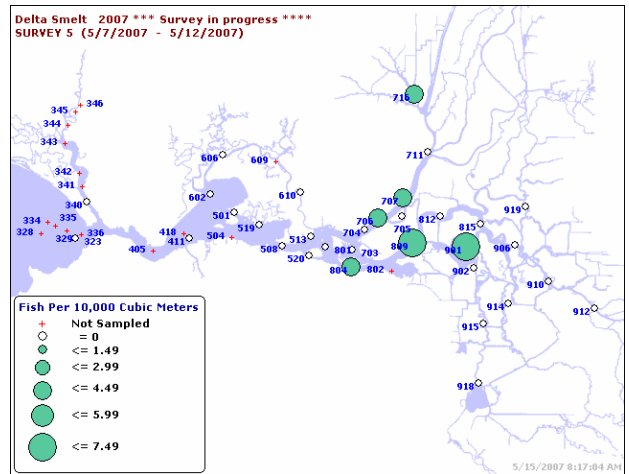
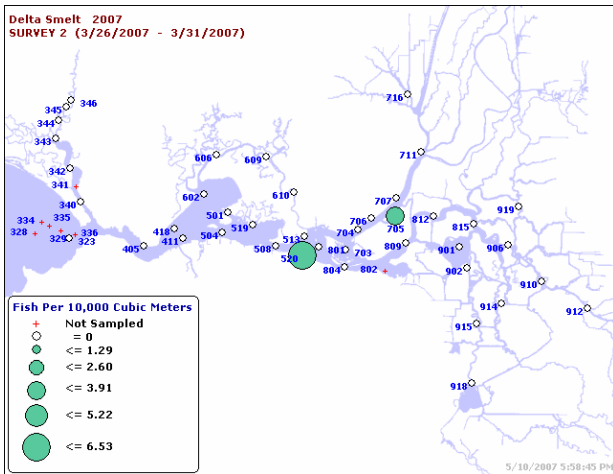
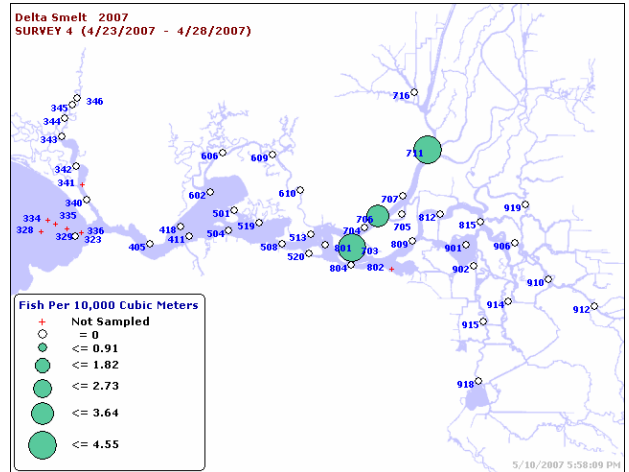
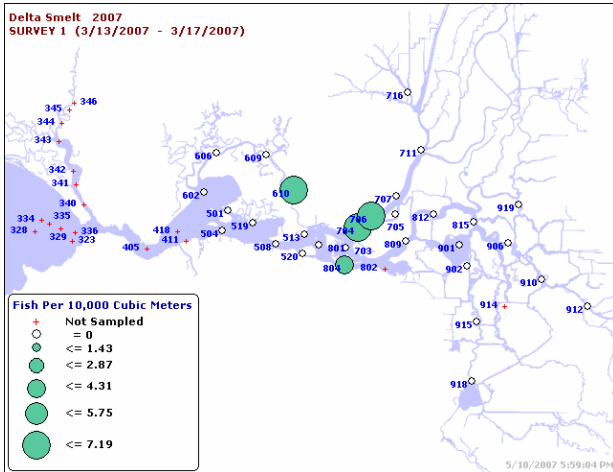


Figure 2. Summary of 20-mm Trawl survey for juvenile delta smelt, 2007. Early distributions of juveniles were similar to adult distribution as indicated by SKT results, but the latest survey results are less favorable.