Delta smelt conceptual model comments

Peter Moyle 8/29/13

pbmoyle@ucdavis.edu

Am travelling etc. so have not had time to do this manuscript justice, but my superficial reading indicated it is very well done, as both a thorough review of the literature and as an analysis of what all the new information is telling us. Uncertainties are clearly stated. This should be a very useful document for determining future directions in research for smelt, as well as determining possible management measures.

The following are few specific but very minor comments.

P 20 434 Seems a bit much to call this a “strong” year class given numbers were not all that great. How about an “improved” or “stronger” year class, giving rise to an “increased” (rather than large) of smelt.

P36 791-4. Predators chose largest prey for bioenergetics reasons is a bit simplistic. Would be better to state in terms of optimal foraging: getting the most metabolic bang for the energetic buck. Delta smelt consume lots of ‘suboptimal’ zooplankton because it occurs in dense patches: individuals small in size but worth consuming because per-individual cost is low.

P37 833 The generalization that foraging time increases vulnerability to predation seems very weak for Delta smelt. They are pretty much in the water column all the time whether foraging or not, using their swim-glide behavior. They presumably rely mostly on their transparency in somewhat turbid water to ‘hide.’ Predation does not seem to be high on delta smelt in general; at least there is no direct evidence for it.

P48 1082 “Hypothesized” ecological regime shift? Seems to me it is pretty well demonstrated. If you want to weaken the term, just use “apparent” regime shift.

P49 1105 Can DS “larvae” be greater than 20 mm? Is 20 mm really the magic number for “efficient” salvage? It is the length at which the smelt generally have a greater capacity to swim but the switch to the condition is not abrupt.

P 49 1122-23 Prescreen losses are not due to the increase *risk* of predation but due to increased predation. This construction is used elsewhere too (e.g. 1130)

P53 1211 Why the “except see Stevens (1963)”? DS are not exactly a major prey item in his study. Give the actual % if you are going to use it.

P89 1998 It is my understanding that male coorphiid amphipods emerge from burrows to seek females and thus become more vulnerable to predation.

P92 2066 The hypotheses in this section are not really hypotheses but generalities. Hypothesis1, for example, would be better if it stated that DS numbers are positively related to adult abundance or has no relationship to adult abundance. Then it becomes testable. Of course, Hypothesis 1 as stated now is really two hypotheses.

P97 2161 . In Clear Lake, Mississippi silversides move offshore at night (Wayne Wurtsbaugh papers, see Moyle 2002), which is another potential time for interaction with smelt.