

**1. Which species, populations, and life stages are most sensitive to diversion effects under no action and alternatives 1, 2, and 3? When and where are they most affected?**

**No Action:** Larvae and young juveniles are the most sensitive life stages. These life stages are present in the spring and early summer. The major effects occur in the central and south Delta where altered hydrodynamics and entrainment are important. As delta smelt become adults, they migrate downstream to brackish water areas in the fall and winter and are considered less vulnerable to diversion effects. Pre-spawning adults migrating back into freshwater to spawn in the late winter and early spring become vulnerable to entrainment effects once again.

**Alternative 1:** The same as No Action.

**Alternative 2:** Larvae and young juveniles are still the most sensitive stages and are still vulnerable at the same times. The major changes in hydrodynamics anticipated with Alternative 2 are believed to be a negative factor for all life stages of delta smelt, but especially these sensitive stages. These negative effects are expected to be most severe in the eastern Delta.

**Alternative 3:** Alternative 3 was given high benefit because of its positive effects on returning Delta hydrodynamics to a more "natural" condition, meaning the rivers and most channels maintain positive outflows at most times and places. Positive benefits for delta smelt may be high compared to other species because it is the only species to complete its entire life cycle in the estuary.

**5. What is the risk and chances of success of species recovery for each alternative?**

For the delta smelt team recovery is defined in "The Recovery Plan for the Sacramento/San Joaquin Delta Native Fishes" (Appendix 1). Alternative 1 is not a major change and probably has little influence on probability of recovery. Alternative 2 seems likely to negatively affect probability of recovery. Alternative 3 seems likely to improve the probability of recovery. All of these assessments are subject to the uncertainties already identified above.

**7. What degree of benefit and impact will the common programs provide?**

We estimated that improvement would occur with the common programs. Much of the benefit predicted is due to the creation of additional shallow water habitat of several different types. The effect on delta smelt is uncertain. Much of this uncertainty stems from the scarcity of evidence of the effects of increasing such habitat. Delta smelt use such habitat for spawning but it seems to be of no special importance as rearing habitat. There is no evidence that spawning habitat is a limiting factor for the delta smelt population. While the habitat will also be favorable for predators, the increased spawning habitat and possible increases in Delta primary productivity and food supply were believed to be possible benefits and were assigned benefits even though this is an area of

high uncertainty. Screening Delta diversions and improved Delta water quality are also expected to be beneficial.