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**FLaSHy fish food: Just add water!**

**Abstract:** Zooplankton in the upper San Francisco Estuary (SFE) are an important food for larval and juvenile fishes of many species and adults of planktivores, such as delta smelt and threadfin shad. The California Department of Fish and Game's Zooplankton Study has been sampling zooplankton in the upper SFE since 1972 as a means of monitoring abundance and distribution of fish food resources. Recently the Summer Trawl (STN) and Fall Midwater Trawl (FMWT), which survey pelagic fish in the SFE, started zooplankton sampling concurrent with their pelagic fish sampling to better assess fish food resources in summer and fall. Low salinity habitat (1-6 ppt) is important for delta smelt, and the location of that habitat in fall is thought to effect delta smelt abundance and condition. The Fall Low Salinity Habitat study or FLaSH, seeks to analyze biotic and abiotic habitat factors and determine if the location of fall low salinity habitat affects fish abundance and condition. Zooplankton abundance, distribution, and biomass from 2011, a wet year with relatively high flows in fall, were compared to 2006, another wet year, and the drier years 2005 and 2010. During 2011, low salinity habitat was located in Suisun Bay through October before moving upstream into the confluence of the Sacramento and San Joaquin rivers in November and December. Average August through December zooplankton biomass was higher in 2011 than in 2005, 2006, or 2010. However, when examined on a monthly basis, October and November 2011 biomass was much higher than the other years, whereas August and September 2011 zooplankton biomass was very similar to 2010 and December 2011 biomass was similar to 2005.

**Statement of Relevance:** The FLaSH study was initiated to determine if the location of the low salinity habitat in fall affects fish abundance and condition, which may influence future California state water operations.