Poster Presentation Preferred

**Evaluation of Pesticides in Zooplankton and Water from 2017-2021 in the Yolo Bypass and Sacramento River**

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The Cache Slough/Liberty Island complex and the Yolo Bypass are impacted by agricultural and urban runoff containing mixtures of current-use pesticides which may have direct, harmful effects on fish as well as on plankton production and quality. Yolo Bypass is an important source of phytoplankton and zooplankton that benefit fish in downstream areas, and multiple restoration projects are planned in the Cache Slough/Liberty Island complex and Yolo Bypass because they contain critical habitats for several San Francisco Bay-Delta (California) fish species, including the threatened delta smelt (*Hypomesus transpacificus*). We measured pesticides and pesticide degradates in water and zooplankton to determine the compositions and timing of occurrences of pesticide mixtures. Water and zooplankton samples were collected from sites within the Yolo Bypass and one comparison site on the Sacramento River during the summer and fall seasons of 2017-2021. Samples were analyzed for 165 and 86 pesticides and pesticide degradates in water and zooplankton, respectively. In water samples, a total of 50 pesticides were detected and mixtures consisted of 3-29 pesticides. In zooplankton samples, 31 pesticides were detected and mixtures consisted of 0-19 pesticides. Nine of the pesticides detected in zooplankton were not detected in water samples and included pyrethroid insecticides as well as Dichlorodiphenyltrichloroethane (DDT) and its degradates. Results of this study can be used to understand and mitigate any potential detrimental environmental effects of pesticides and pesticide degradates on sensitive species.