Poster preferred.

Non-student

**Impacts of storm-driven contaminants on larval Delta Smelt** A, Chandler1, Cassandra Lievin1,2, A. Segarra1, M; Mia Arkles3, K.E. Huff Hartz3, M.J. Lydy3, R.E. Connon1 1Department of Anatomy, Physiology and Cell Biology, School of Veterinary Medicine, University of California Davis, 1089 Veterinary Medicine Dr, Davis, CA 95616, USA 2Unit of Environmental and Evolutionary Biology, University of Namur, Rue de Bruxelles 61, 5000 Namur, Belgium

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Storm events are responsible for the transport of many pesticides into the aquatic environment. In California, late winter storms coincide with Delta Smelt spawn events thus placing their offspring at risk of exposure during sensitive developmental stages. Upon hatching embryos are at further risk, particularly of uptake of lipophilic compounds through their yolk-sac. We exposed yolk-sac Delta Smelt larvae to water samples associated with three rain events in March 2023, collected at four sites within the Delta: Ryer Island, Rio Vista, Ulatis Creek and the Toe Drain. After a 96-h exposure, we conducted behavioral studies using a DanioVision chamber, which were later analyzed using Ethovision tracking software. Targeted chemical analysis determined the presence of bifenthrin at concentrations previously shown to impact larval Delta Smelt behavior, at all sites for all three events. Other pesticides detected in the water included fipronil, fipronil sulfone, fipronil sulfide, and cyhalothrin. Exposure to all ambient samples resulted in significant hyperactivity. Furthermore, we observed changes in thigmotaxis (wall hugging), where the performance of exposed individuals displayed anti-anxiety-like (cross-well) behaviors. We will present this data, along with resulting alterations on larval velocity, freezing, cruising, and bursting, following exposure to Delta water samples. Our findings indicate that early larval exposure to commonly occurring pesticides may have detrimental effects on their behavior and development, potentially increasing their risk of predation.