Presentation preferred.

Non-student presenter

**Effects of insecticide on thermal performance and behavior of juvenile Chinook Salmon.** A, Chandler1, L. Cominassi1, A. Segarra1, M; Habibullah-Al-Mamun2, K. Knaub2, K.E. Huff Hartz2, M.J. Lydy2, 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 2 Center for Fisheries, Aquaculture and Aquatic Sciences and Department of Zoology, Southern Illinois University, 1125 Lincoln Dr., Carbondale, IL 62901

Insecticides are broadly applied in agriculture, public health and households, but runoff or spray drift can significantly impact aquatic species. Anadromous fish such as Chinook Salmon are exposed to a multitude of insecticides as they travel from small tributaries to the ocean. The goal of this study was to assess the sublethal effects of bifenthrin and fipronil, two commonly detected insecticides, on juvenile Chinook Salmon (*Oncorhynchus tshawytscha*) at several sublethal endpoints including behavior and thermal and hypoxia tolerance, all of which are relevant to migration success. Juvenile Chinook were exposed over the course of 10 days to either bifenthrin at 0, 125, 500, 1000 and 2000 ng/L, or fipronil at 0, 1.5 µg/L, 6 µg/L and 24 µg/L. At day 10, both thermal tolerance, measured as critical thermal maxima (CTmax), and hypoxia were evaluated. Behavior was evaluated by using video-tracking software to compare thigmotaxis, total distance moved and social behavior. The highest concentrations of bifenthrin significantly impacted thermal tolerance, and a significant dose response reduction in hypoxia tolerance resulted from exposure to both bifenthrin and fipronil. Behavioral analysis is still in progress. This study is part of a larger project investigating the effect of insecticide boy residues across multiple levels of biological organization, toward creating a response spectrum framework as a tool toward assessing risk of insecticide exposure on the outmigration success of Chinook Salmon.