

Poster #12

Cd Exposures during Development in Fathead Minnows: Effects on Reproductive Physiology and Reproductive Success

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The primary goal of this project is to determine if exposure to cadmium (Cd) during development affects the reproductive success and reproductive physiology of fish. A second objective is to determine which developmental stages are most sensitive to Cd exposures. To achieve these goals, fathead minnows (*Pimephales promelas*) will be exposed to Cd during embryonic development and female sexual differentiation (10-25 dph). Fish exposed during embryonic development will be exposed by way of maternal transfer; as Cd-exposed females transfer Cd to their embryos in a dose-dependent fashion. Fish exposed during female sexual differentiation will be exposed to water-borne Cd. Following exposures, fish will be raised to maturity (~120 dph) and subjected to a 21-d breeding study. During the breeding study, spawning frequency, fecundity, fertilization success, hatching success and offspring survival will be determined. Following the breeding study, the number of breeding tubercles, intraocular distance, plasma 11-ketotestosterone concentrations and estradiol concentrations of males will be determined. The gonadosomatic index of both male and female fish will be determined. Gonads will be removed from all fish so that histological analysis can be conducted. Preliminary results show that Cd exposure during embryonic development does not alter reproductive success, but does alter the secondary sexual characteristics of males.

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