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Track: Aquatic Toxicology and Ecology

Session: Refining methods for conducting laboratory whole-sediment toxicity tests

Abstract Title:

Inter-lab testing of *Hyaella azteca* water and sediment methods: 4 Results from 10- to 42-d tests conducted with sediment substrates.

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Abstract:

Over the past four years, USEPA Duluth, USGS Columbia, the Illinois Natural History Survey, and Environment Canada have been conducting studies to refine the USEPA and ASTM International methods for conducting 10- to 42-d water or sediment toxicity exposures with the amphipod *Hyaella azteca*. Notable among these changes is the development of alternate feeding regimes to provide more robust growth and reproduction, as well as specifications on the composition of overlying water. To evaluate the effectiveness of these methods across laboratories, an inter-laboratory study involving 25 laboratories was organized with goals to: (1) Determine whether the proposed new diets and water requirements will result in strong growth/reproduction of *H. azteca* in exposures across a range of laboratories, (2) Determine whether use of the new diets/water will support increases in minimum control performance criteria for weight and reproduction, (3) Determine if there are other diets or waters that are better than those being proposed. The number of treatments tested in each lab was variable, but all labs were asked to prioritize two treatments: (1) a diet of diatoms (*Thalassiosira*) + and flaked fish food (Tetramin™) with rations of both increased weekly;; and (2) a diet of the same rations of Tetramin™ combined with a fixed ration of yeast/cereal grass leaves/trout chow (YCT). Both diets were to be tested over a sand substrate and using a water containing ≥ 15 mg Cl/L and ≥ 0.02 mg Br/L. Beyond these two basic treatments, participating labs were also encouraged to test alternate substrates, diets, or waters of interest to the participating laboratory.: All treatments involved testing 16 replicates beakers, with 4 replicates dedicated to survival and growth measurement at Day 10, 4 replicates dedicated to survival and growth measurement at Day 28, and the remaining 8 replicates for measurement of survival, growth, and reproduction through Day 42. This presentation will summarize performance of *H. azteca* in sediment studies conducted by up to about 8 of the participating laboratories that tested either West Bearskin control sediment or tested other in-house control sediments.