Abstract for SETAC North America 32nd annual meeting, Boston, MA, November XXXX, 2011

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Preference: Poster

1st choice: Aquatic Toxicology and Ecology: You Can Teach an Old Dog New Tricks: Research applications of standard toxicity tests

2nd choice: Aquatic Toxicology and Ecology: Assessing the Effects of Major Ions on Aquatic Life, and the Role of Water Quality in Altering Major Ion Toxicity

3rd choice: Aquatic Toxicology and Ecology: POSTER ONLY - Aquatic Toxicology and Ecology General

Abstract Title: Evaluation of the influence of bromide or iodide on the performance the amphipod *Hyalella azteca* in reconstituted waters

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Abstract: Survival, growth, or reproduction of the amphipod *Hyalella azteca* (HA) is reported to be poor when some reconstituted waters have been used to conduct chronic (>14-d) water-only or sediment toxicity tests; including ASTM reconstituted hard water (with no addition of Bromide). USEPA held a workshop in Chicago in March 2010 with participants experienced in culture or testing of HA in water or in sediment. Participants at the workshop reported good performance of HA cultured or tested in Borgmann (1996) reconstituted water (with the addition of Bromide). In contrast, limited success was reported for laboratories conducting long-term water-only exposures of HA in Smith et al. (1997) reconstituted water (with no addition of Bromide). The suggestion was made at the workshop to evaluate Iodide based on the conclusion that the protective mechanism of Bromide and Iodide may be similar in improving performance of HA in reconstituted waters. The influence of Bromide (Br as NaBr) or Iodide (I as NaI) on the response of the HA under water-only 42-d exposures was evaluated in Borgmann or Smith et al. reconstituted waters along with well water (300 hard) and well water diluted with deionized water to 100 mg/L hardness as $CaCO_3$ (100 hard). Endpoints included 42-d survival, growth, biomass, and reproduction. Bromide was tested at three concentrations (0, 0.08 and 0.8 mg Br/L) in Borgmann, Smith et al., and 100 hard waters (0.8 mg Br/L is the concentration recommended for Borgmann water). Iodide was tested at three concentrations (0, 0.005 and 0.05 µg I/L) in Borgmann and Smith et al. waters. Good performance of HA was observed in the 300 hard and 100 hard waters, and addition of Br did not improve performance of HA in 100 hard water. Addition of Br or I in Borgmann water increased survival, growth, biomass, and number of young, with Br having a stronger influence compared to I. Good performance of HA was observed in Smith et al. water without the addition of Br or I which may have been due to an increase in the amount in YCT fed (up to 3 ml/day). In general the addition of Br (at 0.08 or 0.8 mg Br/L) had a stronger influence on the performance of HA compared to addition of I. Additional testing with Br is planned to determine if environmentally lower and more relevant concentrations of Br might improve performance of HA in chronic water or sediment exposures with various reconstituted waters.

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