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TITLE:

An "Assemblage Toxicity Index" to Improve Characterization of Effects of Atrazine on Aquatic Plant Communities

DESCRIPTION:

Oral presentation to the SETAC Aquatic Macrophyte Ecotoxicology Group
November 13, 2012
Long Beach, CA

ABSTRACT (this is a short description of the talk I provided to the workgroup chair):

Aquatic risk assessments are made uncertain by the use of measures of effect for only one level of effect and by the use of only one percentile in sensitivity distributions for the variation of this measure of effect across an assemblage of taxa. This leaves undefined the severity of effects except for one taxon at one concentration at one level of effect. Another major uncertainty is the relationship of effects observed for one exposure time series to effects expected for a different exposure time series. This is particularly true for atrazine, whose field exposures are much more time-variable than exposures in experiments establishing effects of atrazine on aquatic plant species and communities. An "assemblage toxicity index" addresses these issues by describing the effects on each taxon as a function of both time and concentration, and then integrating this toxicity information over the assemblage of taxa to provide an index of impact of any exposure time series on that assemblage. For atrazine, such an index – the "plant assemblage toxicity index" (PATI) was developed based on published toxicity tests for a variety of aquatic plant species. The elements of this index will be described. PATI provides a measure of the expected severity of direct toxicity to this assemblage of species for different exposure time-series, but does not directly relate to community-level assessment endpoints. Such a relationship can be developed by examining PATI values for field data or experimental ecosystems in which different levels of impact have been documented on endpoints of interest. An example of this will be given.