

ORAL PRESENTATION

HARMONIZING AND REVISING DIATOM TAXONOMY IN EXISTING BIOASSESSMENT DATASETS FOR USE AS INDICATORS

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As part of efforts to understand and monitor the condition of the nation's aquatic resources, diatom data have been collected from large-scale assessments, including the National Rivers and Streams Assessment (NRSA) of the U.S. Environmental Protection Agency. These data are valuable resources for assessing biological condition, but they have not been fully used because of inconsistencies in diatom taxonomy and identifications by different analysts. We harmonized, to the extent possible with the level of information and resources available, the taxonomy used by different analysts who have contributed diatom data to existing NRSA assessments in 2008-2009 and 2013-2014. Then, we tested the effectiveness of the harmonization effort and several methods of taxonomic adjustments (i.e., species-level, genus-level, and mixed taxonomy approaches) in decreasing the explanatory power of analysts while increasing that of environmental variables on the revised assemblage datasets. The objectives of this research were to produce diatom datasets that are harmonized and revised using the most current taxonomic information, as well as complete documentation of the revision process and effectiveness. Documentation of the revision process will provide transparency and replicable methods for incorporating new taxonomic data in future assessments. The replicable methods include R tools for harmonizing datasets. Tests of revision effectiveness will aid further investigation of the utility of diatoms as indicators in national, state, tribal and territorial bioassessment programs. Finally, lessons learned from this research will support the improvement of diatom methods for future NRSA and other assessments. Views expressed are the authors' and not views or policies of the U.S.EPA.