

Abstracts

Tuesday, April 29

Session E1: Building Capacity with the National Aquatic Resource Surveys (NARS)

3:30 – 5:00 pm | Room 263

The aquamet Package for R: A Tool for Use with the National Rivers and Streams Assessment

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Abstract

The use of R software in environmental data analysis has become increasingly common because it is very powerful, versatile and available free of charge, with hundreds of contributed add-on packages available that perform almost every conceivable type of analysis or task. The Environmental Protection Agency has developed a new package for R, aquamet, which calculates metrics and indices for indicators used in the 2008-2009 National Rivers and Streams Assessment (NRSA). The package uses raw data collected using NRSA methods for physical habitat, fish, and macroinvertebrates to calculate a variety of metrics. For fish and macroinvertebrates, the user can also calculate multimetric indices for fish and macroinvertebrates, as well as assign condition based on these indices. This presentation will provide an overview of the package functionality, with details on the types of data required and options available. A secondary goal is to identify R users who may be interested in testing the package and providing feedback on ease of use and compatibility of outputs provided with user needs. This is an abstract and does not necessarily reflect EPA policy. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

Implementation of Oklahoma's Statewide Probabilistic Survey Design for Surface Waters: Considerations, Implications, and Results

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Abstract

Since 2004, Oklahoma has worked to build a comprehensive, statewide probabilistic survey for surface waters, including lakes, rivers, and streams. Since initially participating in the 2004 Wadeable Streams Assessment, the state has been through several design iterations for flowing waters, including a 3-year REMAP study from 2005-2007, the 2008-2009 National Rivers and Streams Assessment, and a third study from 2010-2011. Moreover, Oklahoma participated in the inaugural National Lakes Assessment (NLA) in 2007, and has since implemented a 5-year statewide study in lakes that incorporated the 2011 NLA. An evaluation of both design and outcomes has occurred from study to study to ensure adaptive program maturity that considers short and long-term questions, for both ecology and water quality management. Specifically, designs have attempted to properly account for ecological diversity, disparate size classes, historical continuity, appropriate indicators, indicator development, and broader availability of results. Oklahoma has 12 distinct level III Omernik ecoregions supporting everything from warm water prairie streams and shallow, municipal lakes to cool water Ozarkian streams and large, deep dendritic reservoirs, as well several major river systems, including the Red and Arkansas Rivers. Additionally, much consideration has been given to survey designs that complement well developed long-standing trend monitoring programs for all three waterbody types. Results from the surveys have included traditional extent estimates for Clean Water Act 305(b) reporting requirements, but have also utilized relative and attributable risk to pose questions for water quality management scenarios, stressor-indicator relationships, and development/improvement of biological indices for biological indicators.

Assessing the Ecologic Condition of Wetlands at National and Regional Scales: Results from the National Wetland Condition Assessment

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Abstract

The ecologic condition of wetland resources across the conterminous United States is poorly understood. To address the issue, the U.S. Environmental Protection Agency (USEPA), in collaboration with states, tribes, and other federal partners, conducted the first-ever National Wetland Condition Assessment (NWCA). The fifth in a series of National Aquatic Resources Surveys by USEPA to improve understanding of the quality of the Nation's waters, the NWCA identified and developed indicators of ecologic condition and evaluated these in relation to measures of stress, disturbance, and reference condition. Understanding these relationships facilitates identification of potential causes of decline in, or threats to, ecologic condition. The results of the national assessment will be valuable in informing decision-making regarding the use, management, and protection of wetland resources.