Abstracts

Tuesday, April 29

Session C7: Evaluating Changes and Trends Using Statistical Surveys

8:00 – 9:30 am | Room 231

Watershed-Scale Biological Monitoring and Assessment for Ecological Protection and Restoration Planning

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Abstract
Watershed-scale biological monitoring has been ongoing for over 15 years in Prince George's County, Maryland, producing two complete rounds of county-wide assessments using a stratified random design with benthic macroinvertebrate and physical habitat indicators. The biological indicator is used to calculate percent degraded streams miles within each subwatershed, which is then used to inform watershed managers the priority sub-basins for protection and restoration. Round 1 sampling and analysis occurred over a 5-year period from 1999-2003, and Round 2 over three years from 2010-2013. Using consistent field sampling, laboratory, and data analysis procedures for each Round, 41 subwatersheds within the county were assessed with approximately 283 samples from 257 wadeable stream sites. The 257 sample locations were selected at the same frequency for each subwatershed, but for different specific locations. The overall percent degradation for the county remained relatively unchanged in the two rounds (52% vs. 49%), though, several individual subwatersheds had clear directional changes, either positive or negative. The County uses assessment results at various levels. First, results help communicate watershed conditions to broader audiences at multiple spatial scales. Secondly, the results are used to inform public policy and legislation toward the county's principal goals for improving the overall water quality, one of which is from the county's green infrastructure planning program: "By the year 2025, improve the water quality in each major watershed to elevate the Benthic Index of Biological Integrity (IBI) rating of the watershed by at least one category using the 1999-2003 biological assessment as a baseline." The 2014 update to the plan by the Planning Department will evaluate whether the land use actions of the last 10 years have helped improve water quality in priority watersheds. Third, recent legislation and neighborhood-scale master planning were informed by these monitoring results and the planning strategies. Another potential use of the monitoring results will be to help elevate the efficiency of the Watershed Implementation Planning process. Routine, county-wide watershed monitoring and assessment will continue to provide objective evidence of the effectiveness of restoration (=stressor source control or elimination) in enhancing or elevating biological conditions at all scales.

Using Probabilistic Monitoring Data to Recommend Stressor Risk Levels in Aquatic Life Use Total Maximum Daily Load Studies

Jason Hill, Mary Dail and Larry Willis
Virginia Dept. of Environmental Quality, Roanoke, Va.

Abstract
Virginia Department of Environmental Quality (VADEQ) has collected water quality, habitat, and benthic macroinvertebrates at freshwater probabilistic monitoring sites for over ten years. The freshwater probabilistic program's data collection has allowed VADEQ to establish baselines for water chemistry and habitat throughout Virginia by major basin, ecoregion, and stream size. VADEQ has documented the most common stressors to the

aquatic community in several integrated reports and is now recommending risk levels for these stressors for use in aquatic life use total maximum daily load studies.

Looking at Statewide Trends in Water Quality through State-Scale Statistical Survey Data

David Chestnut
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Abstract
In 2001 the South Carolina Department of Health and Environmental Control implemented discrete state-scale statistically-valid surveys for rivers and streams, lakes and reservoirs, and estuaries. SCDHEC worked closely with EPA ORD, Western Ecology Division staff in developing the designs.

The designs were built around the existing SCDHEC monitoring strategy and resource constraints, with new sites selected each year in each resource type. The primary intent is to make statements about statewide resource conditions, with confidence estimates, to satisfy §305(b) reporting requirements.

Multiple site visits to each site each year provide sufficient data to support SCDHEC's assessment methodology and allow §303(d) listing of impaired waters. Each site can be evaluated individually to determine classified use attainment and the need for inclusion on the §303(d) list of impaired waters.

With the program in place for over ten years, this presentation will focus on changes in water quality observed for the different resource types and discussion of some of the possible driving causes for those changes.

An Emerging Picture of Changes in Coastal Water Quality: Preliminary Results from the 2010 National Coastal Condition Assessment 2010

Treda Grayson
US Environmental Protection Agency, Washington, D.C.

Abstract

Tracking water quality over time is an important objective of the National Coastal Condition Assessment, one of a series of probabilistic surveys implemented as part of the National Aquatic Resource Surveys program. Since about 2000, EPA and states have been sampling U.S. coastal, estuarine waters using a statistical survey design and standardized indicators and sampling methods. With the recent drafting of the NCCA 2010 report, we can add to an emerging picture of changes in coastal water quality. This presentation will describe the NCCA and provide information on how select coastal water indicators have changed since 2000.