Abstracts

Tuesday, April 29

Session C4: Communicating Science for Action

8:00 – 9:30 am | Room 237

Fox River Low Flow Dissolved Oxygen Monitoring: A Collaborative Effort

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Abstract
The Fox River flows approximately 115 miles and drains 1,720 square miles after crossing the Wisconsin/Illinois border till its confluence with the Illinois River near Ottawa, Ill. The Fox has long been a working river with large portions of the middle reached now impounded by a series of low-head dams. Throughout its length the Fox is used extensively for recreation, provides critical wildlife habitat and is the public drinking water supply for several municipalities within the watershed. The Illinois Environmental Protection Agency lists the entire length of the Fox River in Illinois as well as several significant tributaries including; Nippersink, Poplar, Blackberry, and Somonauk Creeks, and part of Little Indian Creek as impaired. The current assessment shows aquatic algae listed as a cause of impairment for 60% of the assessed mainstem miles, dissolved oxygen for 29%, and total phosphorus for 32% of the assessed mainstem miles.

In 2002 the ISWS began working with the Fox River Study Group (FRSG), a stakeholder group representing the diverse interests utilizing the river, to prepare and execute a plan to investigate water quality in the surface waters of the watershed. The result was a coordinated modeling and monitoring program designed to develop the modeling tools that would allow stakeholders to investigate efficient methodologies to address water quality concerns within the watershed.

To support the QUAL2K modeling component an intensive 72-hour monitoring effort was conducted during low flow conditions in June 2012. This collaborative effort by the ISWS, Deuchler Environmental Inc., USGS, Fox Metro WRD and Fox River WRD sought to characterize the dissolved oxygen regime in a 70-mile reach of the Fox River. Data collected over the 72 hour period included continuous water quality monitoring, discrete water quality monitoring and sampling, benthic algae determinations, sediment oxygen demand measurements, discharge, and stage. Monitoring efforts included the Fox River mainstem, its tributaries, and major point sources. This presentation focuses on the logistics of the intensive monitoring conducted and the multiple datasets obtained by several collaborating institutions. Results for dissolved oxygen flux and SOD determinations and the challenges they represent will also be presented.

Visual Stream Monitoring: Exploring Georgia's Newly Developed Visual Monitoring Methods

Harold Harbert and Tara Muenz
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Abstract
Visual stream monitoring is one of the easiest and most important ways for citizens to assess stream health, but it's often the most overlooked. Recently, Georgia Adopt-A-Stream produced an updated version of their visual stream monitoring program including a revised manual, forms and procedures. The highlight of the forms is a

newly developed rapid habitat assessment of instream conditions. This survey is Georgia specific and includes an evaluation of 10 parameters for both rocky and muddy bottom streams. Created for volunteers, this rapid assessment includes drawings of stream conditions, in-depth directions and a poster guide with descriptions and photographs. Additionally, the visual program includes taking photo points, cross-section measurements and pebble counts, as well as measuring flow and conducting a biological assessment. All data can be entered and viewed by the public in our online database. The database displays data in matrixes and graphs, producing time-lapse reproductions of some the surveys including the cross-section measurements. The new visual survey will compliment other monitoring activity, indicating the chemical and biological health of a stream. This presentation will describe the process Georgia Adopt-A-Stream went through to update the visual monitoring program, sharing lessons learned while demonstrating the value of these surveys in assessing stream health with our volunteers and our partners across the State.

EcoAtlas and CRAM: Online Resource Management Support Tools

Cristina Grosso, Patty Frontiera, Shira Bezalel, Kristen Cayce, Todd Featherston, Tony Hale, Andrew Smith and Meredith Williams
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Abstract
How can resource managers evaluate new and ongoing wetland restoration activities? Effective resource management requires the synthesis of multiple data types related to wetland extent and condition. Consideration of objectives for water supply, water quality, habitat, recreation, flood protection, agriculture, and industry requires timely access to environmental data and information to support management decisions at site-specific and landscape scales.

EcoAtlas provides a unique combination of information resources to meet these needs. EcoAtlas (ecoatlas.org) is an online tool developed through the California Wetland Monitoring Workgroup of the Water Quality Monitoring Council to integrate of a wide range of data to meet federal and state reporting requirements about wetland extent and condition, restoration activity, and water quality conditions in the ecosystem. The tool aggregates and synthesizes data needed to support specific planning, reporting and management actions, such as compensatory mitigation planning at the landscape scale, climate change planning, and 305(b) reporting. Its interactive maps and project tracking tools enable users to easily access, analyze, synthesize, and visualize different data sets within a spatial context.

Two important data layers provide information wetland extent and condition. The California Aquatic Resource Inventory (CARI) is a standardized statewide map of wetlands, streams, and riparian areas. This Geographic Information System (GIS) dataset provides accurate and detailed information about wetland and riparian distribution and abundance for management, planning, and research of the State's aquatic resources. California Rapid Assessment Method (CRAM: cramwetlands.org) is the second vital layer. CRAM assessments provide the data needed to inform managers on wetland condition. CRAM itself is a cost-effective, scientifically proven tool for assessing the health of wetlands and riparian habitats. It is designed for assessing ambient conditions within watersheds, regions, and throughout the State EcoAtlas' Landscape Profile tool allows users to explore a particular area of interest and summarize the salient information about the condition and extent of streams, wetlands, lakes, and their surrounding riparian areas. EcoAtlas can be used to create a more comprehensive picture of aquatic resources in the landscape by integrating information important to California's wetlands.

Iowa's Water Quality Index – From Data to Action

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Abstract

Iowa's Water Quality Index (IWQI) was created to adequately reflect the water quality conditions of Iowa and to help decision makers understand the condition of Iowa's water without becoming mired in the results of individual parameters. In Iowa, this WQI is calculated by using nine common water quality parameters (dissolved oxygen, *E. coli* bacteria, 5-day BOD, total phosphorus, nitrate + nitrite as N, total detected pesticides, pH, total dissolved solids, and total suspended solids). Values range from 0 to 100 and streams are classified as very poor (0-25), poor (25-50), fair (50-70), good (70-90), or excellent (90-100). WQIs were calculated on the streams monitored monthly as part of Iowa's Ambient Water Monitoring Program. This geographically specific index ensures that Iowa's unique geographical characteristics will be properly reflected in the water quality index. Since 2001, the IWQI has been reported to the Governor of Iowa as a tool to communicate progress on water quality goals. The IWQI has also been used by various non-governmental entities seeking to understand the impact of concentrated animal facilities in Iowa. This presentation will examine the role of the IWQI in communicating water quality status and trends and helping to focus efforts to improve Iowa's water resources.