

Abstracts

Wednesday, April 30

Session G1: National Lake Assessment: National and State Perspectives

10:00 – 11:30 am | Room 263

National Lakes Assessment: Project Overview, Status Update, and Preliminary Results

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Abstract

The National Lakes Assessment (NLA), one in a series of National Aquatic Resource Surveys, is designed to assess the biological, chemical, physical, and recreational condition of lakes in the conterminous United States. This assessment uses a statistically-based design to represent the condition of all lakes in similar regions sharing similar ecological characteristics. States, Tribes, and Federal partners used consistent collection and analytical procedures to ensure that the results can be compared across the country. This presentation is offered in two sections. First, I will provide a brief overview of the National Lakes Assessment and a status update of the 2012 assessment effort. Approximately 1100 lakes were sampled by 90 field crews across the United States in the summer of 2012. The samples have been processed and we are starting our data analysis efforts. Second, I will present a first look at preliminary results from our assessment. I will discuss the preliminary findings of the screening-level occurrence and distribution of an important algal toxin, microcystins, and a common pesticide, atrazine, in lakes. Algal toxins are a common concern for the public and a challenge for lake managers. We do not attempt to capture specific events or target lakes where we expect particularly high or low concentrations; as such, the NLA data set provides unique information about baseline concentrations in lakes. I will highlight the NLA findings with respect to the occurrence and distribution within a lake (microcystins only) and among lakes across the US from the 2012 NLA effort.

Minnesota's 2012 National Lakes Assessment: National, State and Ecoregion-based Approach

Steven Heiskary

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Abstract

Minnesota's participation in the 2012 National Lakes Assessment (NLA) involved a collaborative approach that included USEPA, USFS, MN Department of Natural Resources (MDNR), MN Department of Health (MDH), MN Department of Agriculture (MDA) and the Red Lake and White Earth Native American Bands. A total of 1,000 lakes were included in this survey. Minnesota drew 42 lakes as a part of the initial draw for this statistically-based national survey effort and added 8 lakes to allow for state-based assessment. All 50 lakes received the national level of assessment so these lakes contributed not only to state-based assessment, but the overall national assessment. In addition, 100 lakes were added from the overdraw pool to allow for ecoregion-based assessments (50 per aggregated ecoregion) in Minnesota.

This collaboration and the various survey add-ons provided several "value-added" elements to the NLA survey. Examples include:

- Emerging contaminant analysis in 50 lakes;
- Pesticide analysis in 50 lakes and triazine analysis in all 150 lakes;

- Zooplankton analysis in all 150 lakes;
- Microcystin analysis in all 150 lakes;
- Water chemistry and profiles in all 150 lakes; and
- Comparisons among 2007 and 2010 results.

The presentation will provide a brief overview of Minnesota's 2012 NLA effort, describe roles of collaborators, and share available results to date, including examples at the state, ecoregion, and individual lake basis.

Comparison of Wisconsin's Results from National Lake Assessments in 2007 and 2012

Paul Garrison and Caitlin Carlson

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Abstract

Wisconsin participated in the National Lake Assessment in 2007 and 2012. The sampling design is probability based so that it provides statistically valid estimates of all lakes in the state. A total of 50 lakes were sampled to strengthen the statistical inferences. Various indicators and stressors were sampled from each lake. The 2007 assessment indicated that nationally the most widespread stressor was lakeshore habitat. Wisconsin had more lakes in the good category compared with nationally. Nationally more lakes were classified as having good physical habitat complexity and shallow water habitat than in Wisconsin. Phosphorus levels were lower in Wisconsin compared with the national average. The biological conditions of Wisconsin lakes were better than nationally but not as good as the neighboring states of Minnesota and Michigan. Recreational indicators indicated Wisconsin lakes were at lower risk than lakes nationally and generally lower than neighboring states.

The 2012 assessment found that trophic variables were higher compared to the 2007 survey. The average phosphorus concentration was twice as high in 2012 at 26 µg L⁻¹ and water clarity was worse by 1 meter at 1.6 m. Recreational indicators were also worse in 2012 with the algal toxin microcystin more common and the chlorophyll risk greater. It is not clear what the reason for these differences is. The weather in 2012 was much warmer and drier compared with 2007. The minimum lake size was smaller in 2012 but this does not seem to be the reason.

Using the Results of the 2007 National Lakes Assessment to Influence Lake Management Policy in Vermont

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Abstract

A purpose of EPA's National Aquatic Resource Surveys is to assess the condition of the nation's waters in a manner that allows one to rank which stressors are more widespread than others and to summarize findings in a simple report card manner. The utility of such a sampling design is that it can be used to inform policy decisions as resource managers, politicians and the public decide where to apply limited funding available for protecting, maintaining and restoring water resources. By surveying fifty-one lakes in Vermont using the same methods used by the National Lakes Assessment for the first time it was possible to directly compare the condition of Vermont's lakes to the Ecoregion and to the Nation. The most worrisome finding in this assessment was that only 18% of Vermont lakes are in good condition for lakeshore disturbance. In this stressor category, Vermont is lagging behind both the region and the nation. These findings were presented to the Vermont Legislature during the 2013 legislative session. This finding corroborated results from another study conducted by the Vermont Department of Environmental Conservation. While the VTDEC specific study and studies from the scientific literature were compelling reasons for the legislature to act, seeing Vermont lakes rate so poorly against lakes in the region and nation was even more so. While Vermont was right behind Wisconsin and Minnesota at being one of the first

states to pass a statewide shoreland protection law in 1970, it was repealed before it ever went into effect. So over the last 42 years, while other states in the region and nation went on to pass some sort of shoreland protection laws, Vermont did not. While the lake scientists at VTDEC have known this has been a major stress to Vermont's lakes, efforts and interest by the public and legislature have focused on tackling the stressors of phosphorus and aquatic invasive species. The results of the National Lakes Assessment have helped to restart the conversation on lakeshore protection. The Vermont House passed a bill and over the summer the Vermont Senate held public meetings to get input.