

Partnership Opportunities for Statewide Assessments of Lake Condition

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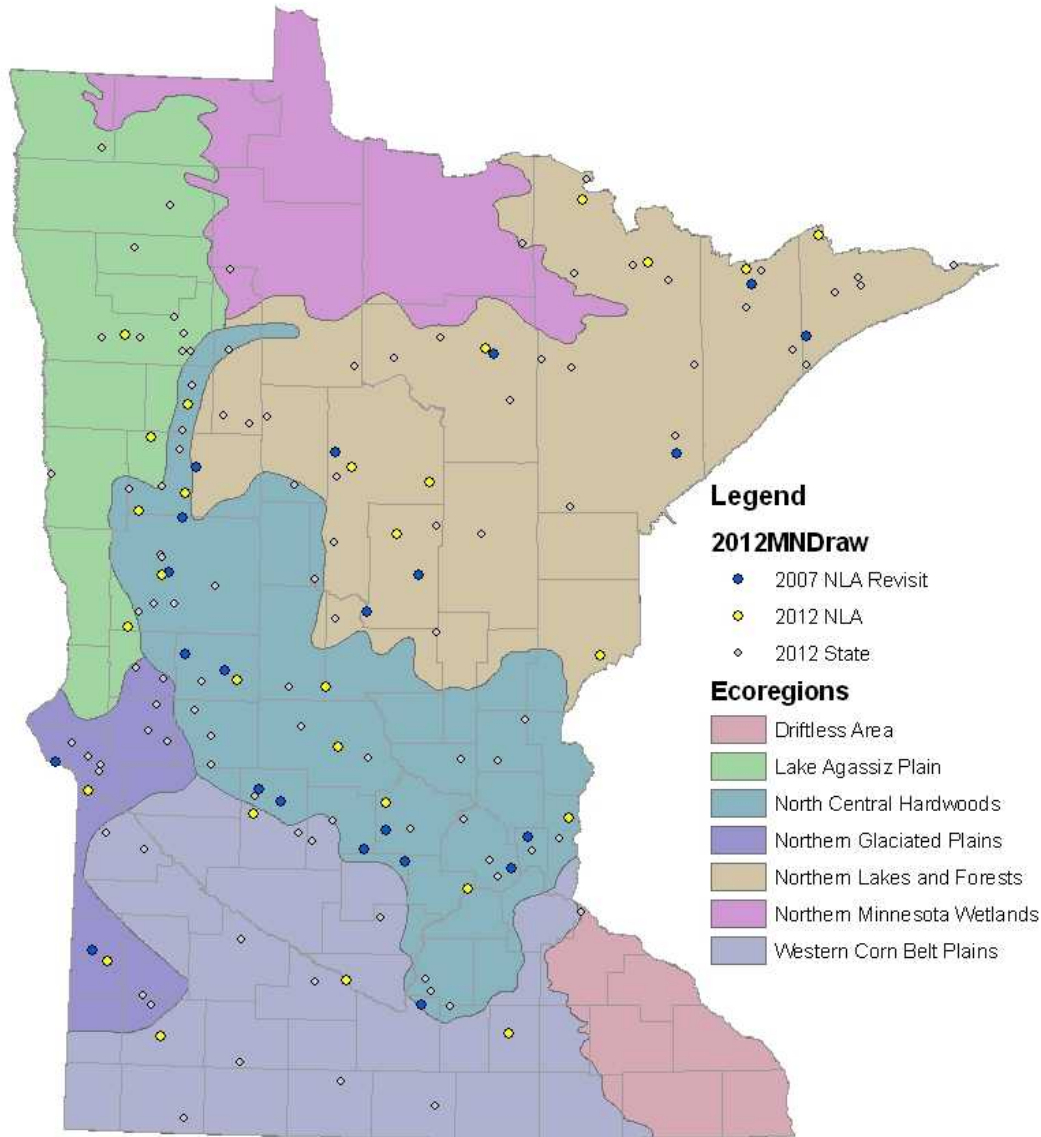


**Minnesota Pollution
Control Agency**

Outline

- ▣ Minnesota 2012 survey overview
- ▣ 2007 Collaborations
- ▣ 2012 Study add-ons, partners & products;
- ▣ Summary
- ▣ Recommendations for developing partnerships
- ▣ MPCA web page & 2007 products

MN 2012 draw



- 42 lakes for national study plus 2 re-sampled lakes (includes 23 re-visit lakes from 2007);
- Add 8 lakes to allow for state-based assessment;
- Add 100 lakes to allow for ecoregion-based assessment.
- 100 ecoregion lakes: WQ, MC & triazine assay;

Developing Partnerships

- ▣ Share information on NLA – broadly & with different groups/staff;
- ▣ Internally – presentations at an annual monitoring information meeting;
- ▣ E-mail and personal invitation
- ▣ Share past results and web page;
- ▣ Consider who may have mutual interests, can make use of data, &/or can contribute resources to overall effort.

MN NLA 2007 Partnerships & Add-ons

- ▣ Microcystin - MPCA pelagic & nearshore comparison
- ▣ Water Hg- collaborate with USGS (Dr. Krabbenhoft)
- ▣ Water pesticides - collaborate with MN Dept. of Ag.;
- ▣ Sediment contaminants - MPCA collected sediment samples for metals & trace organics (**internal staff**);
- ▣ Macrophyte assessment - MDNR identified rooted plants & maximum rooting depth;
- ▣ Fish IBI - **MDNR** advanced IBI to additional lakes;
- ▣ Multi-state assessment of Prairie Pothole Region;

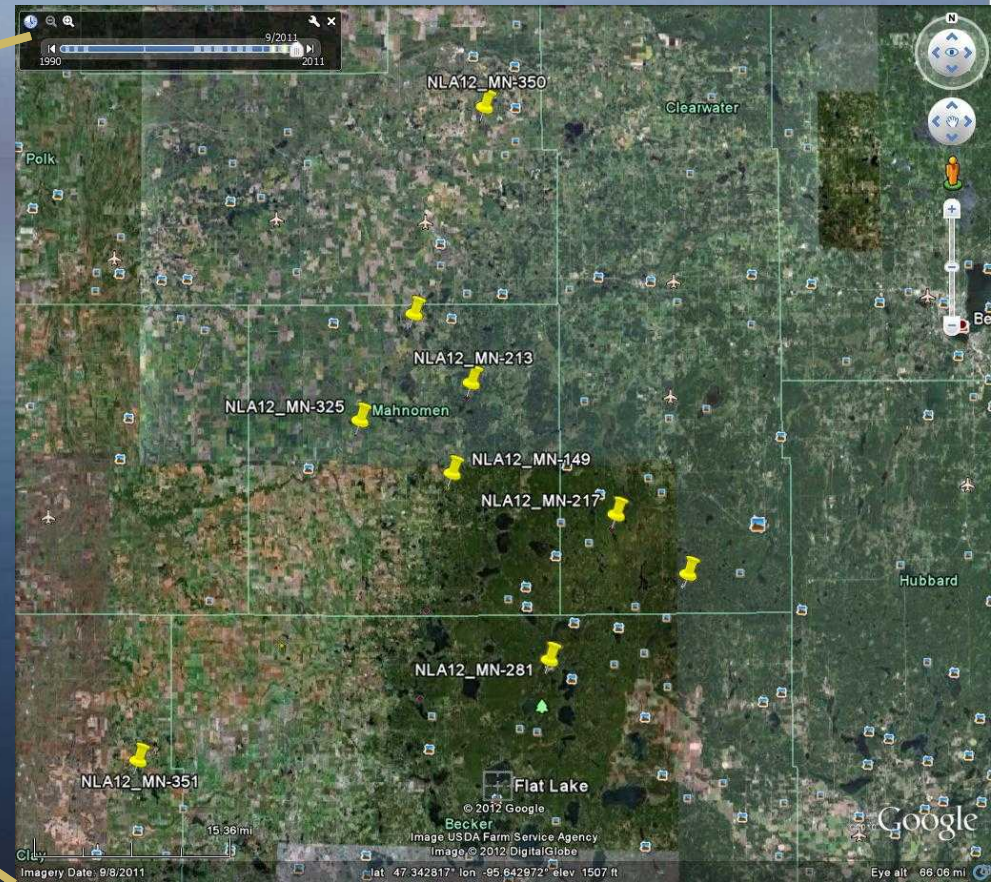
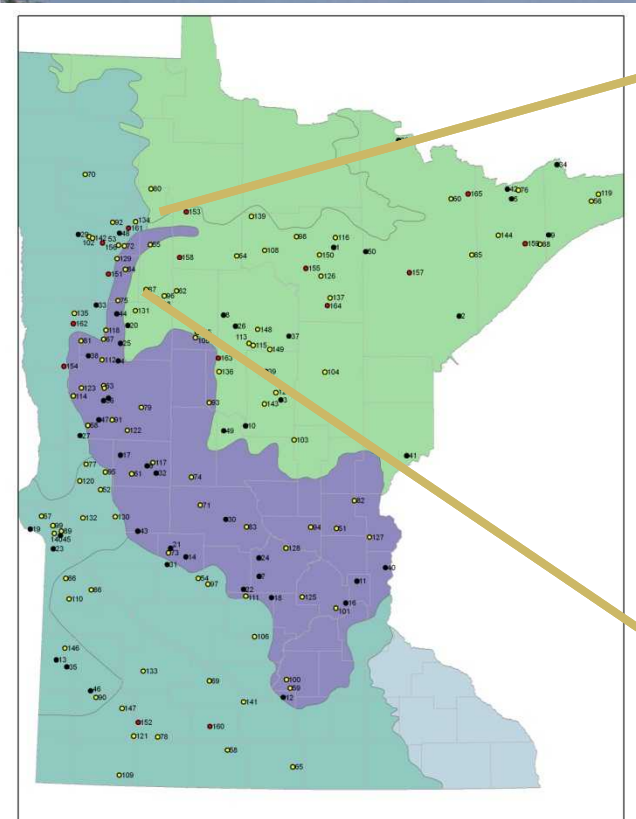
MN NLA: 2012

- Variety of lakes, access, & watercraft
- 2012 - ~one-third public access, remainder private, hike, portage or road right-of-way access;
- Collaborate w/ MDNR, USFS & Native American Bands;
- Summer index period, ~July & Aug.
- 1 lake/day for national frame lakes;
- Multiple crews needed to sample 150 lakes in 2.5 months



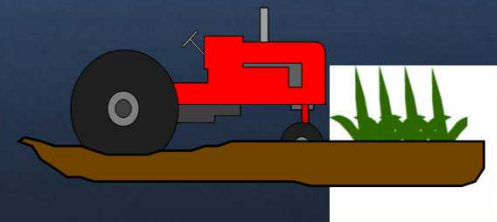
Native American Bands

MN NLA draw includes lakes on White Earth, Red Lake & Leech Lake;
Examples – White Earth helped recon sites & find access;
Red Lake will assist with sampling;
Data will be shared with all



Study add-ons: Pesticides

- ▣ Collaborate with **MN Department of Agriculture**
- ▣ Similar to 2007 - analyze pesticides and degradates in 50 lake state-frame;
- ▣ New: triazine immuno-assay (national design - used to estimate conc. of triazine compounds);
- ▣ MDA: Triazine assay all 150 MN lakes. Allows for:
 1. statewide patterns in pesticides;
 2. trends based on re-visits to 2007 lakes
 3. ecoregion-based patterns in triazine
 4. MDA will fund analytic expenses



Study add-ons: Contaminants of Emerging Concern

Previous targeted studies reveal widespread presence of contaminants in Minnesota lakes by:

- Endocrine active chemicals
 - Alkylphenols, bisphenol A, hormones
- Pharmaceuticals and Personal Care Products
 - Antibiotics, antidepressants, triclosan, analgesics
- In 2012 -assess extent and concentration of these contaminants based on 50-lake statewide sample.
 - ▣ Collaborate with internal MPCA specialists;
 - ▣ Separate pool of funds for this work

Study add-ons: Zooplankton

- ▣ Zooplankton collected via 50 & 150 um mesh nets on all 50 lakes; 80 & 243 um on revisit;
- ▣ We will collect zooplankton all 150 lakes;
- ▣ **MDNR** will identify samples from the 100 lakes & conduct analysis of all data. Allow for:
 1. Regional & trophic status patterns;
 2. Lake morphometric & watershed patterns.
 3. Potential for index development
- ▣ Used NLA grant to fund work

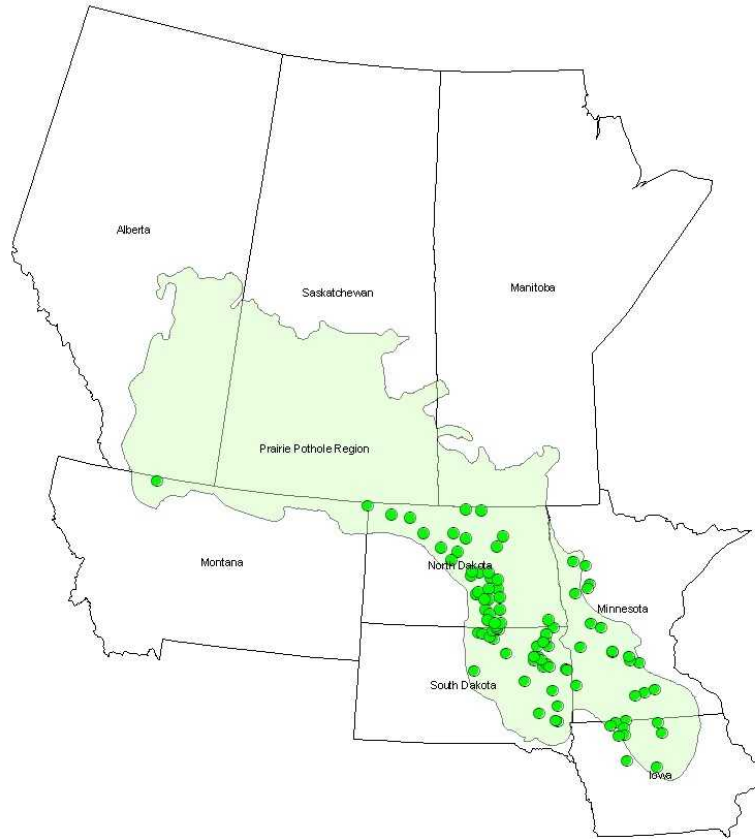


2012 ecoregion-based WQ & microcystin analysis

- WQ samples analyzed at MN Dept. of Health for all 100 ecoregion lakes, plus sub-sample of national lakes (QA);
- All 150 microcystin (MC) samples at MDH;
- Allow quick turn-around on results and reporting on MC
- Allow for comparisons with 2007 NLA MC project



Assess Prairie Pothole Region Lakes: 2007



- **Multi-state: ND, SD, MN, IA, & MT;**
- **>70 lakes in 2007 ;**
- **Statistically describe PPL;**
- **Initial analysis has been done. Emphasize metrics important to the health of shallow lakes;**
- **MN State Mankato graduate student project on reference;**
- **2012 - even richer data set;**

Recommendations for developing partnerships

- Share information on NLA & its potential
- Promote possible partnerships;
- Collaborate with Native American bands;
- Share data and reports broadly;
- Be open to new ideas
- Make full use of grant \$\$ to pursue additional ideas and partnerships;
- In MN - Build on 2007 experiences, renew partnerships with MDNR, MDA, & USFS.
- Collaborate with border states on PPL study;

NLA web page - 2007 reporting

- ▣ NLA Statewide Reports: report series examines statewide patterns in chemical, physical and biological parameters based on 2007 NLA. In collaboration with MDA & MDNR
- ▣ Microcystin in Minnesota Lakes, Jan. 2008
- ▣ Aquatic Macrophytes in MN Lakes, May 2008 (MDNR)
- ▣ Water Mercury Concentrations in MN Lakes, Oct. 2008
- ▣ Fish-Based Index of biotic Integrity for MN Lakes, Sept. 2008; (MDNR)
- ▣ Pesticides in MN Lakes, Oct. 2008; (MDA)
- ▣ An Overview of Water Chemistry in MN Lakes, Nov 2010
- ▣ <http://www.pca.state.mn.us/nwqhae1>



Questions?

