GLWQA Annex 4 Objectives and Targets Task Team



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2012 GLWQA Annexes

- 1. Areas of Concern
- 2. Lakewide Management
- 3. Chemicals of Mutual Concern
- 4. Nutrients
- 5. Discharges from Vessels
- 6. Aquatic Invasive Species
- 7. Habitat and Species
- 8. Groundwater
- 9. Climate Change Impacts
- 10. Science

Objectives and Targets Task Team

- Invitation to serve distributed 9/25/13
- 25-member, binational Task Team formed
- First conference call—11/12/13
- Final Report to Subcommittee 5/25/15
- Monitoring, modeling, research and reporting recommendations 11/24/15
- Between times
 - Two 1-day meetings, two 2-day meetings, and three 3-day meetings
 - 12 more conference calls
 - Worked by consensus
 - 25-member modeling committee formed, met, & reported

Charge to Task Team

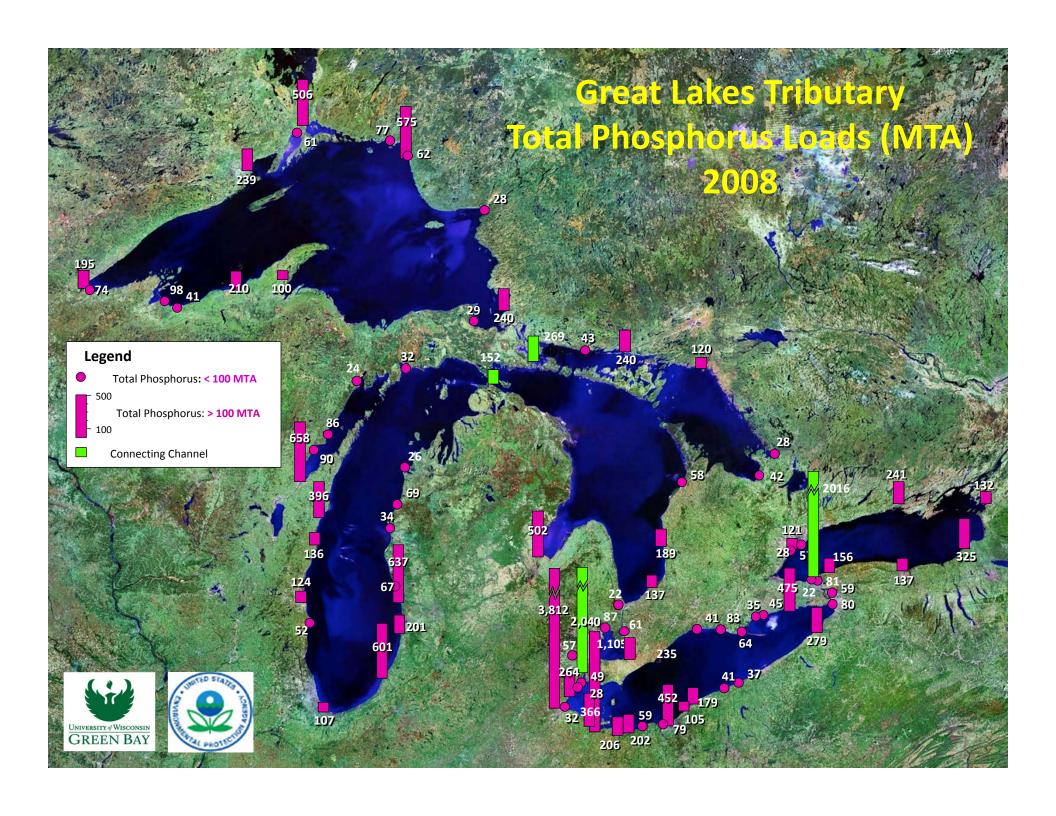
- Provide science-based recommendations to address HABs, hypoxia, and Cladophora
 - HABs—primarily Western Basin problem
 - Hypoxia—Central Basin problem
 - Cladophora—primarily an Eastern Basin north shore problem
 - A science-based decision on required P reductions to address Cladophora could not be reached.
- Recommended and needed approval of an adaptive management approach before proceeding with recommendations
 - Will HABs like 2012 be satisfactory, will climate change result in severe blooms more than 1 year in 10, etc.

Adaptive Management

- A three-component adaptive management program consisting of monitoring, research, and modeling should be sustainably implemented.
 - Monitoring of loads and FWMC, and monitoring in the nearshore and open lake should be completed and reported annually;
 - Models should be revised and re-run annually using new monitoring data and research findings;
 - Annual monitoring, modeling and research results should be reviewed and used every 5 years to evaluate progress toward achieving the loading targets and the ecosystem objectives
 - Management plans should be revised as needed based on the outcome of these evaluations

HABs Goal and Strategy

- Produce HABs smaller or equal to 2004/2012
 9 years out of 10
- 2008 will be the base year
 - Discharge was only exceeded 10% of time
 - Approximately equal to discharge during the wettest years
 - Good dataset for loading numbers
 - Models were run for that year
- Loading data from the Maumee River is most reliable, therefore, use it as surrogate for all tributaries



HABs Strategy—Continued 1

- Western Basin HABs can be accurately forecast based on spring P load (1 March to 31 July) from Maumee River
- Spring TP load of 860 tons & DRP of 186 tons (FWMC of 0.23 mg/L TP and 0.05 mg/L of DRP) or less produces desired result. That is a 40% reduction of Maumee load and FWMC in 2008.
- HABs can be observed at mouths of all Western Basin tributaries and TT believes that all tributaries contribute in some way to Western Basin HAB
- Therefore, goal should be to reduce loading from all Western Basin tributaries by 40% from their 2008 base load

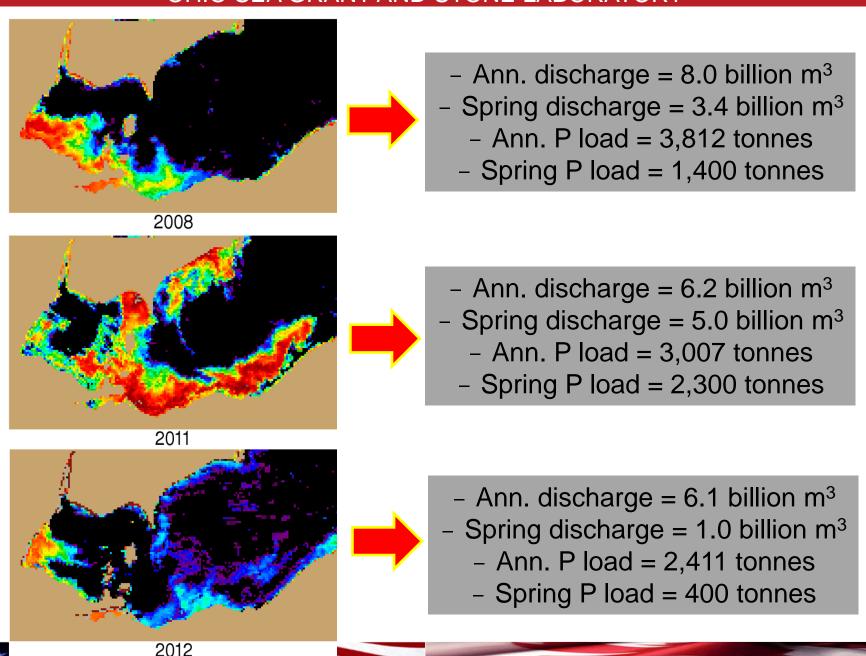
Monitoring TP and DRP loads & FWMC in Priority Tribs for HABs & Hypoxia

- 14 Priority Tributaries in TT report
- Use FWMC to track progress
- For 11 of 14 (Thames River, River Raisin, Maumee River, Portage River, Sandusky River, Huron River (Ohio), Vermillion River, Cuyahoga River, Grand River (Ohio), Cattaraugus Creek, and Grand River (Ontario)) monitor load and FWMC's using a protocol that pairs high frequency event-based sampling with base-flow sampling.
- Near mouths of tribs but upstream of lake effect
- Co-located with discharge gauge

For 3 of 14 Priority Tribs

- Learnington & Toussaint creek: nearshore monitoring coupled with satellite observations to determine nutrient concentrations and the presence or absence of HABs
- Detroit River: the Team recommend that the governments
 - devise a plan to maintain a strong, science-based,
 monitoring program at the mouth of the Detroit River in perpetuity.
 - develop a monitoring program to document loads leaving Lake Huron, entering and leaving Lake St. Clair, entering Lake Erie, leaving Lake Erie and entering Lake Ontario
 - monitor loads for all tributary and point sources in the Huron-Erie Corridor

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Annex 4 Subcommittee Response

- US and Canada officially approved loading targets on 2/22/16
- Working on domestic action plans to reach target loads
- Formation of 3 new, binational Work Groups to address recommendations
 - Tributary Monitoring Work Group (30 members)
 - Load Estimation Work Group (14 members)
 - Algae and Lake Monitoring Work Group (18 members)

What to Sample

- 15 parameters recommended in TT report
- Rationale included for each

Sampling Frequency

- Optimally—use Heidelberg protocol
 - Already in use for Raisin, Maumee, Portage,
 Sandusky, and Cuyahoga
- If not feasible—50-100 samples/year that captures monthly ambient conditions with more frequent sampling during runoff events

Watershed Monitoring and Modeling

- TT recommends developing watershed loading models for the 11 priority tribs (include nutrient delivery from land and in-stream transformation and tracking)
- Will require gauges and nutrient monitors at upstream locations
- Locations determined by modelers, BMPs being evaluated, and cooperating farmers
- High frequency sampling, if possible
- Parameters determined by BMPs being evaluated
- Coordinate with sampling at trib mouth, nearshore and open lake

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