



*Invasive Mussel
Collaborative*

Introduction and Overview

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Zebra and Quagga Mussel Sightings Distribution

Dreissena polymorpha and *D. rostriformis bugensis*

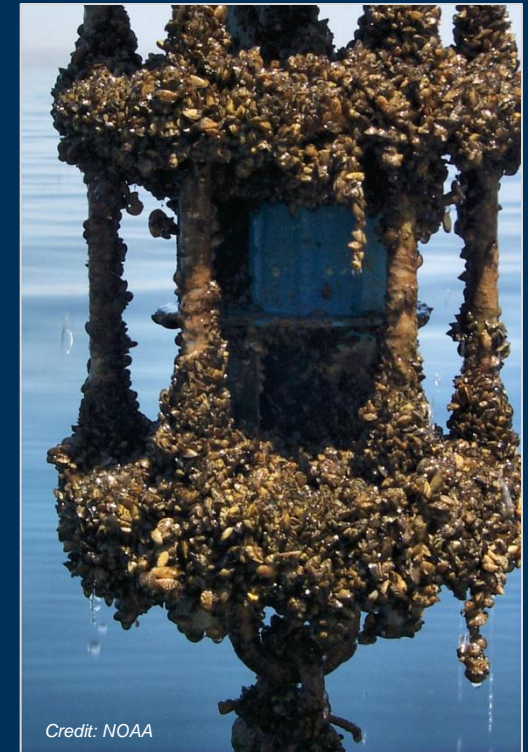


- Zebra mussel occurrences
- Quagga mussel occurrences
- Both species occurrences
- Zebra/Quagga mussels eradicated
- Zebra/Quagga mussels failed

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Effects of zebra & quagga mussels

- Water clarity
- Impacts to food webs (e.g. reductions in pelagic productivity)
- Food source for some fish (gobies, whitefish)
- Impacts on infrastructure
- Scope of problem



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New potential for management

- Approval of Zequanox®¹ for open water use
- Trial applications
 - MI, MN, WI
- Other technologies in development



Effects of biocontrol application
A colony of zebra mussels attached to a native mussel. The native mussel survives the application of biocontrol; the zebra mussels do not.

¹Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.



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- Potentially a multi-jurisdictional, multi-sector **management challenge**
- What is the most effective way to **bring agencies together** on management and science objectives related to creating a potentially powerful management tool?
- **Collective Impact:** How do we bring multiple interested parties into a common understanding and common agenda on moving forward?



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- **Purpose:** Provide a framework for communication and coordination to determine management objectives for invasive mussels and identify and guide research needed to achieve those objectives.
- **Objectives:**
 - Facilitate information exchange between decision-makers, scientists and stakeholders
 - Develop and guide a joint and strategic approach to invasive mussels
 - Implement communication and outreach activities

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Founders

Great Lakes
Commission

Great Lakes
Fishery
Commission

National Oceanic
and Atmospheric
Administration

U.S. Geological
Survey

Proposed Membership

U.S. and Canada

Federal, Tribal,
state and
provincial
agencies

Nongovernment
organizations

Industry

Academia

External Connections

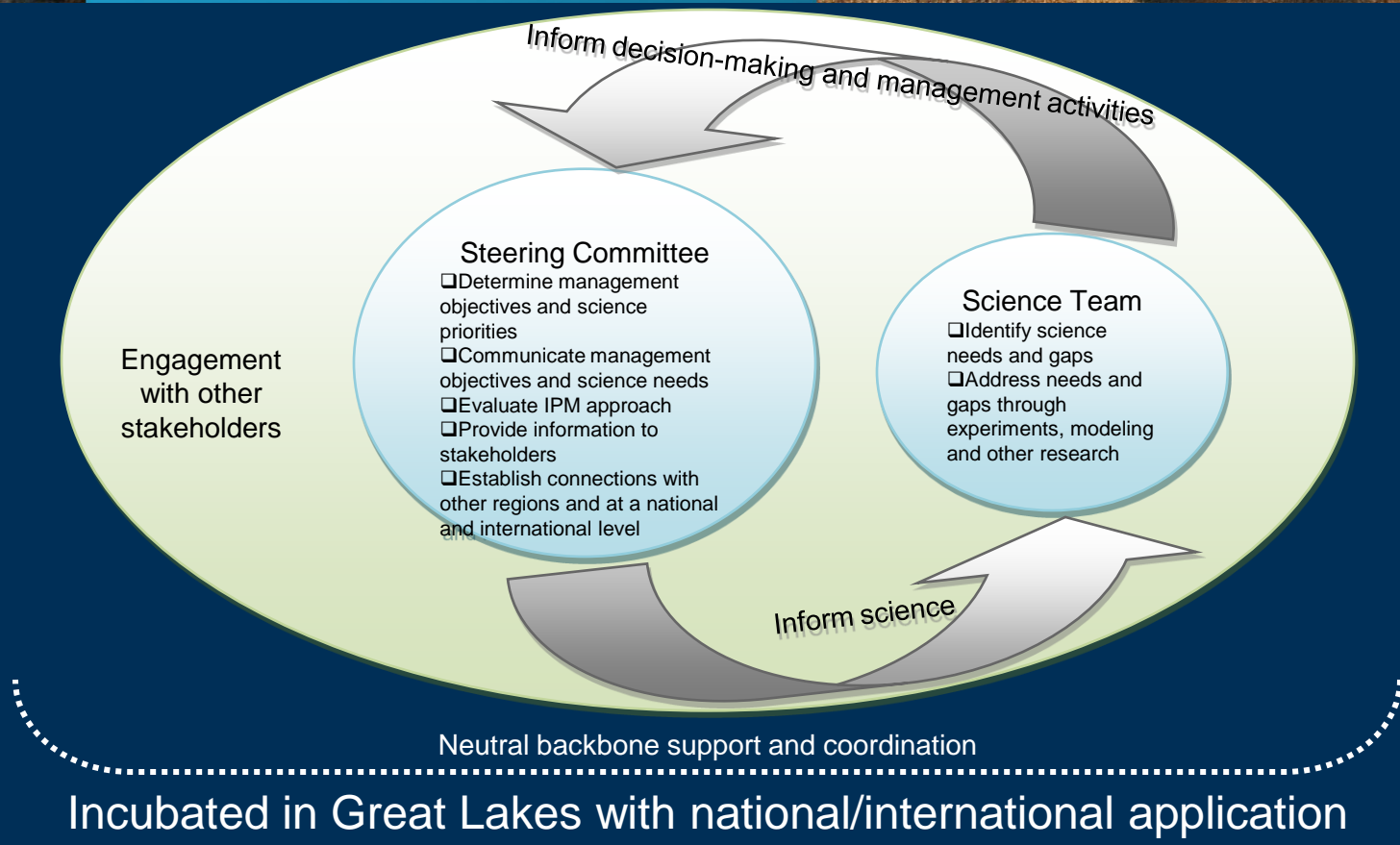
Local groups (e.g.,
lake associations)

Other regional
groups (e.g.,
Western U.S.)

Other national and
international
stakeholders

U.S. Congress

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Example science questions: Subject to modification as collaborative process moves

Develop models and decision support tools

- Develop population models for quagga mussels
- Predict how dreissenid population growth would vary with different control strategies
- Develop models to assess effects of varying levels of control on ecosystem services, including risk assessments

Understand ecosystem effects

- Determine relationship between dreissenid mussels and harmful algal blooms
- Determine effect of dying & dead mussels on oxygen and nutrient concentrations, and surrounding microbial and invertebrate community
- Determine whether dreissenid mussels affect fish populations

Develop and refine management strategies

- Optimize biocontrol application procedures
- Continue development of additional control tools
- Assess and understand the direct effects of control strategies, including biocontrol, on native and non-target species



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Next Steps

- **Ongoing communication with and feedback from partners / stakeholders**
 - Does this approach make sense?
 - What are your interests/priorities?

Please take our survey!

- **Establish collaborative structure, steering committee and science team**



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Next Steps (continued)

- **Plan first meeting of collaborative**
 - February
 - Begin defining common agenda, management objectives and research needs
- **Ongoing outreach to stakeholders, regionally, nationally and internationally**



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QUESTIONS

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