The Nature Conservancy

Protecting nature. Preserving life.™

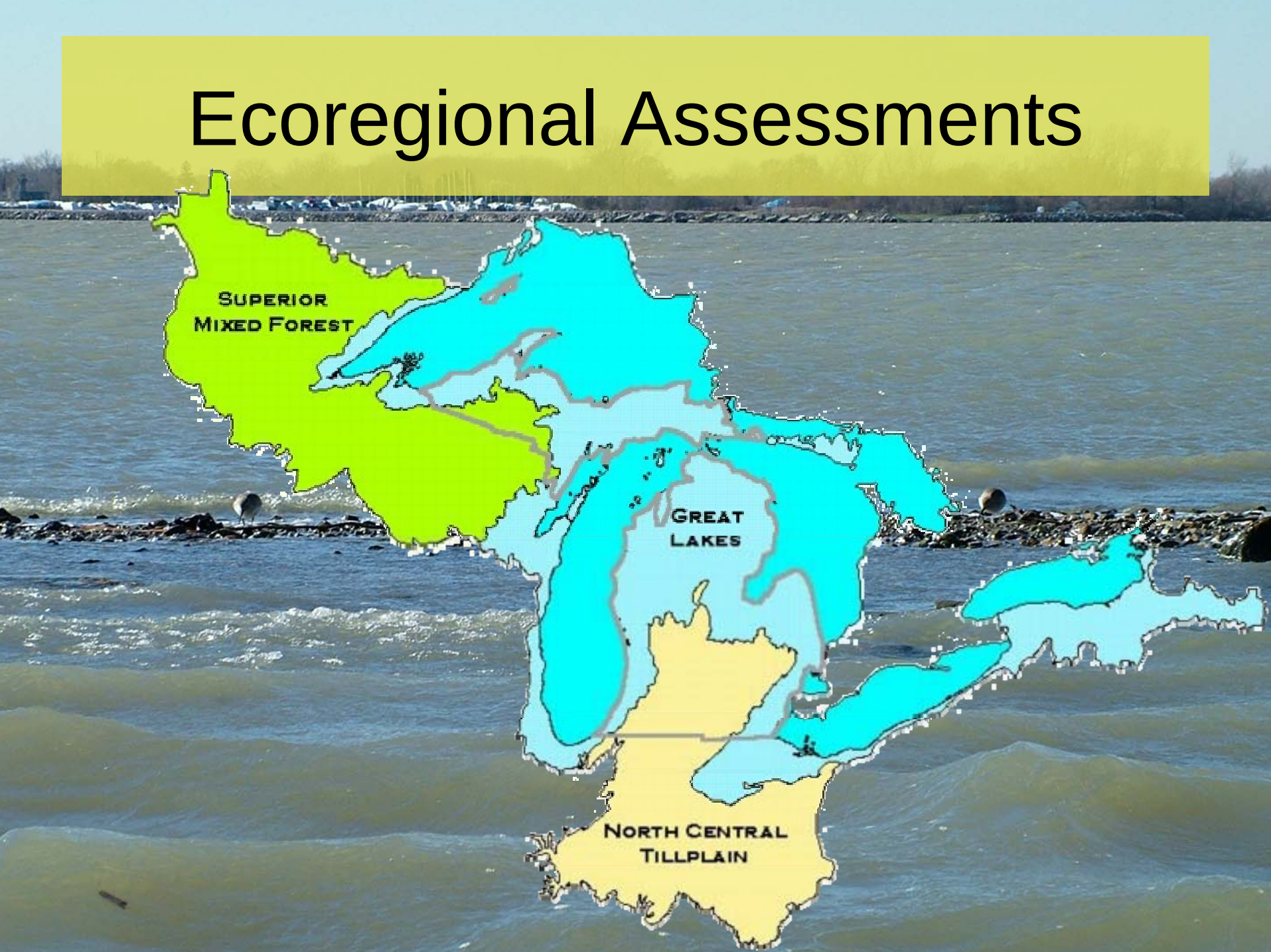
Aquatic Invasive Species: A Biodiversity Conservation Perspective

AIS Stakeholder Meeting
March 5, 2008
Douglas R. Pearsall
Senior Conservation Scientist

What is The Nature Conservancy?

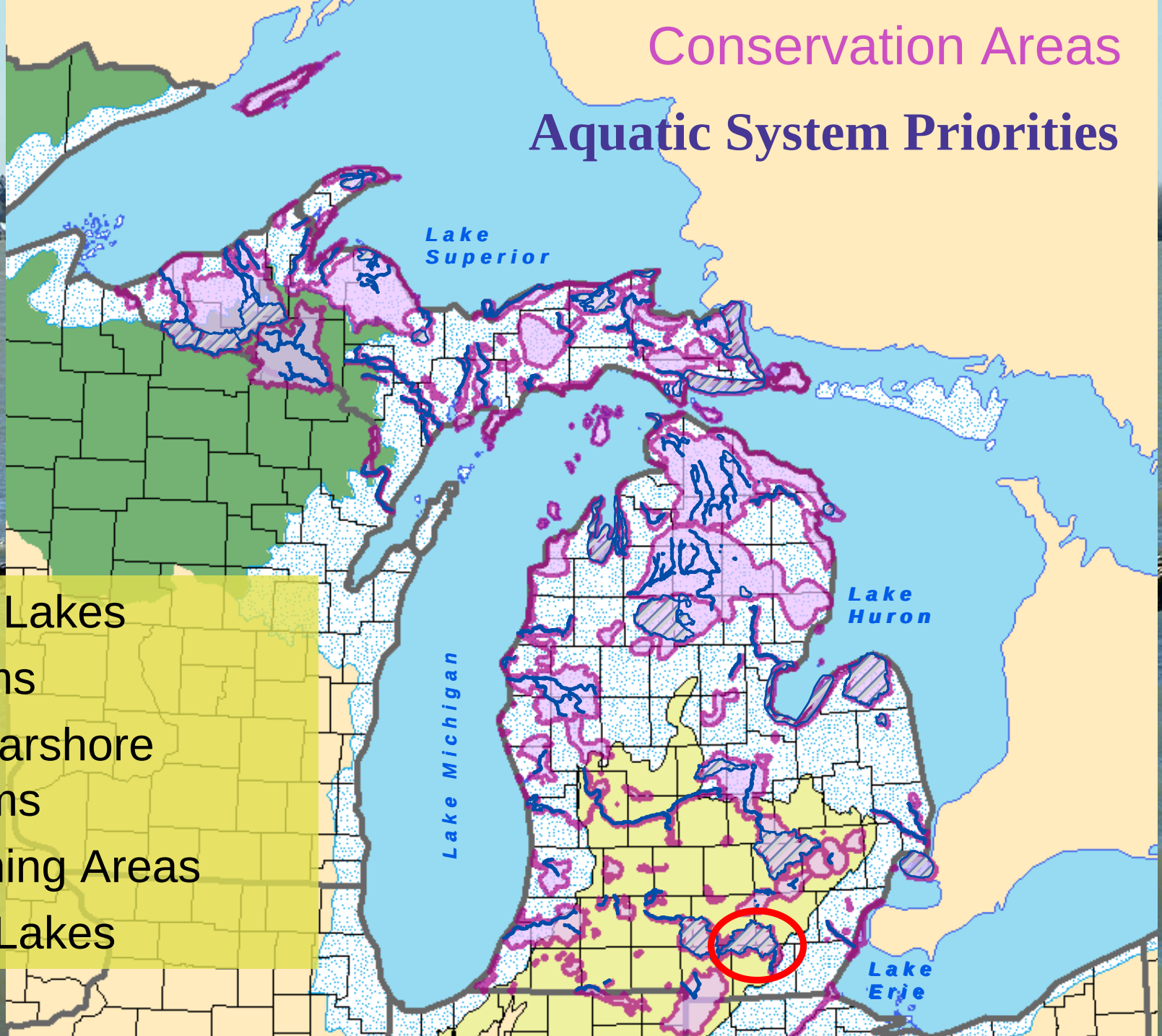
- Our mission is “to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the **lands and waters** they need to survive.”
- Since 1951, we've been working with communities, businesses and people like you to protect more than 117 million acres around the world.

Ecoregional Assessments

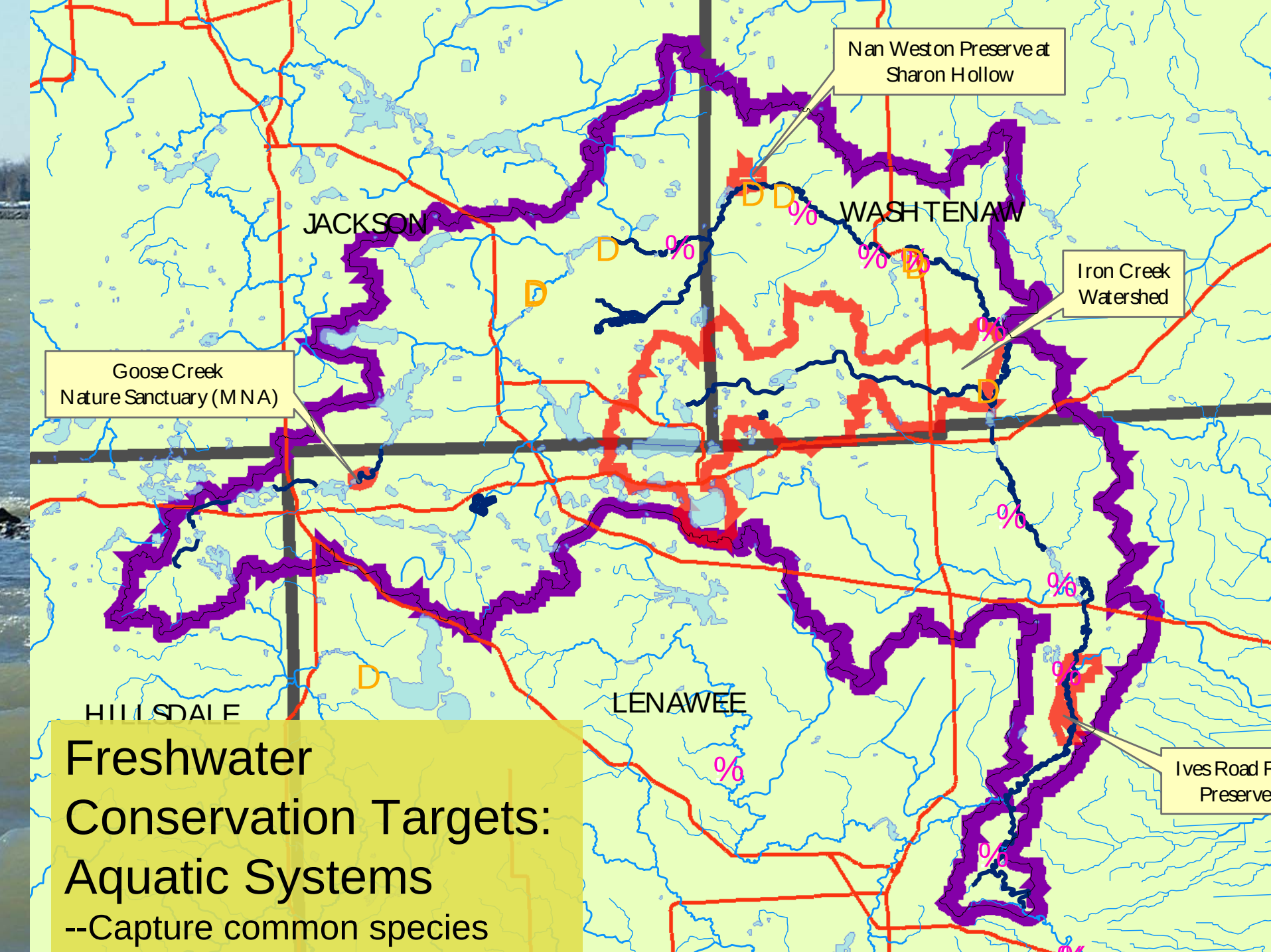


Conservation Areas

Aquatic System Priorities



- Inland Lakes
- Streams
- GL Nearshore Systems
- Spawning Areas
- Great Lakes

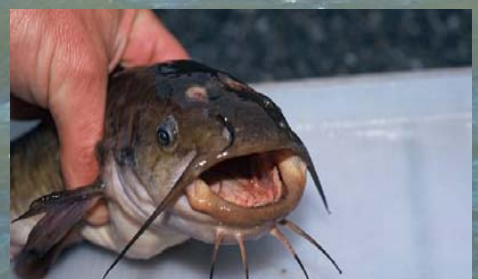


Freshwater Conservation Targets: Aquatic Systems

--Capture common species

"On a global basis...the two great destroyers of biodiversity are, first habitat destruction and, second, invasion by exotic species"
- E.O. Wilson

- Of **902** Conservancy Projects listed on its databases, invasive species most common threaten process
- Internationally aquatic invasive species are considered the largest threat to aquatic biodiversity



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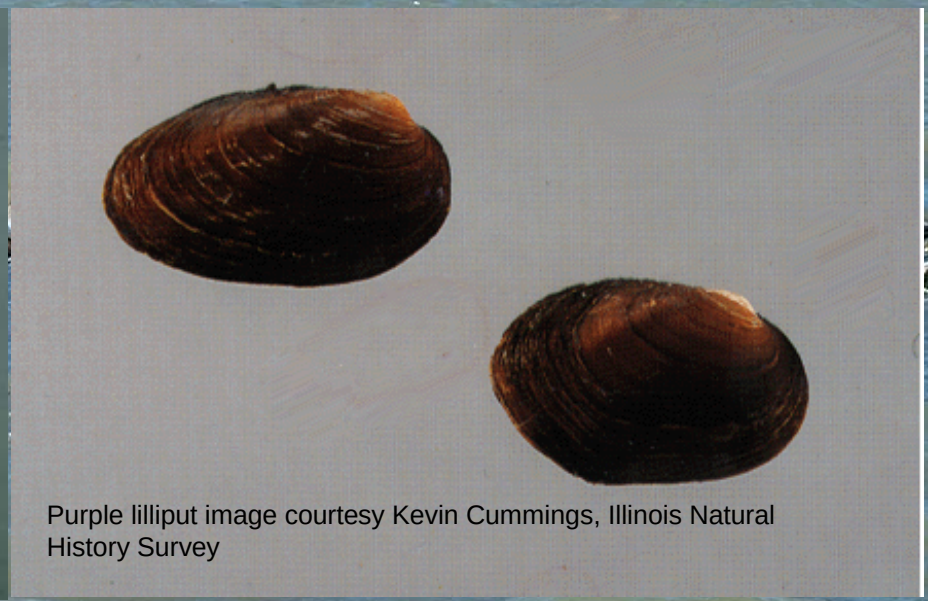
Ecological effects:
Extirpation of Native Species

Examples:

--Northern Riffleshell (G2T2/S1-Federal and State Endangered)

--Purple Lilliput (G2/S1-State Endangered)



Purple lilliput image courtesy Kevin Cummings, Illinois Natural History Survey

Global Invasive Species Team

Aims to abate the damage caused to native biodiversity by human-facilitated introduction of non-native, harmful invasive species

Two goals

- Prevent invasions and the spread of invaders at the national and international scale.

- Build the capacity of The Conservancy's and partner organizations to assess, prevent, rapidly detect new invasions and invasive species and control priority invasive species (plants, animals, diseases)

Achieved by

- advancing public policies (US and other nations)
- working with businesses, / consumer groups to minimize use and distribution of invasive species
- supporting management initiatives where appropriate

A new AIS focus & the Great lakes

- Historically the conservancy focus has been on terrestrial ecosystems and management of terrestrial weeds and animal pests

- Aquatic invasive species has been notable gap although conservancy has been building capacity
  - State Chapters most notably in arid western states actively engaged in management and
  - government relations staff in Washington focused on Comprehensive Aquatic invasive legislation (NAISA)

A new AIS focus

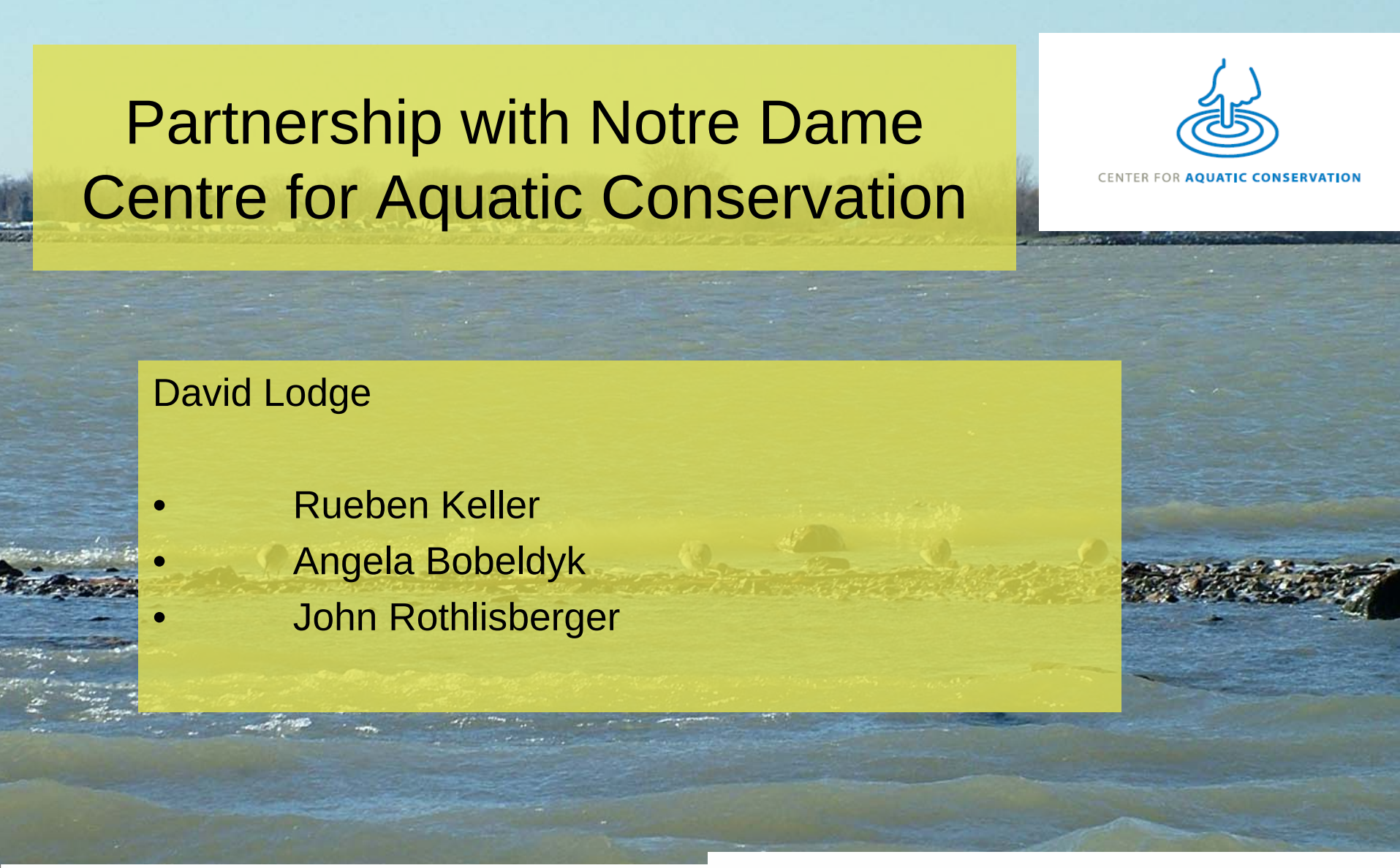
And in 2007 established a new AIS position in Great Lakes Region—Lindsay Chadderton

- links to Global Invasive Species Team and Sustainable Waters Program
- formal partnership with University of Notre Dame






Partnership with Notre Dame Centre for Aquatic Conservation



CENTER FOR AQUATIC CONSERVATION

David Lodge

- Rueben Keller
- Angela Bobeldyk
- John Rothlisberger

Science Serving Society
http://aquacon.nd.edu

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Invasion Process

Present in native range

↓

Species in pathway
(transport to new location)

↓

Introduced to new site

↓

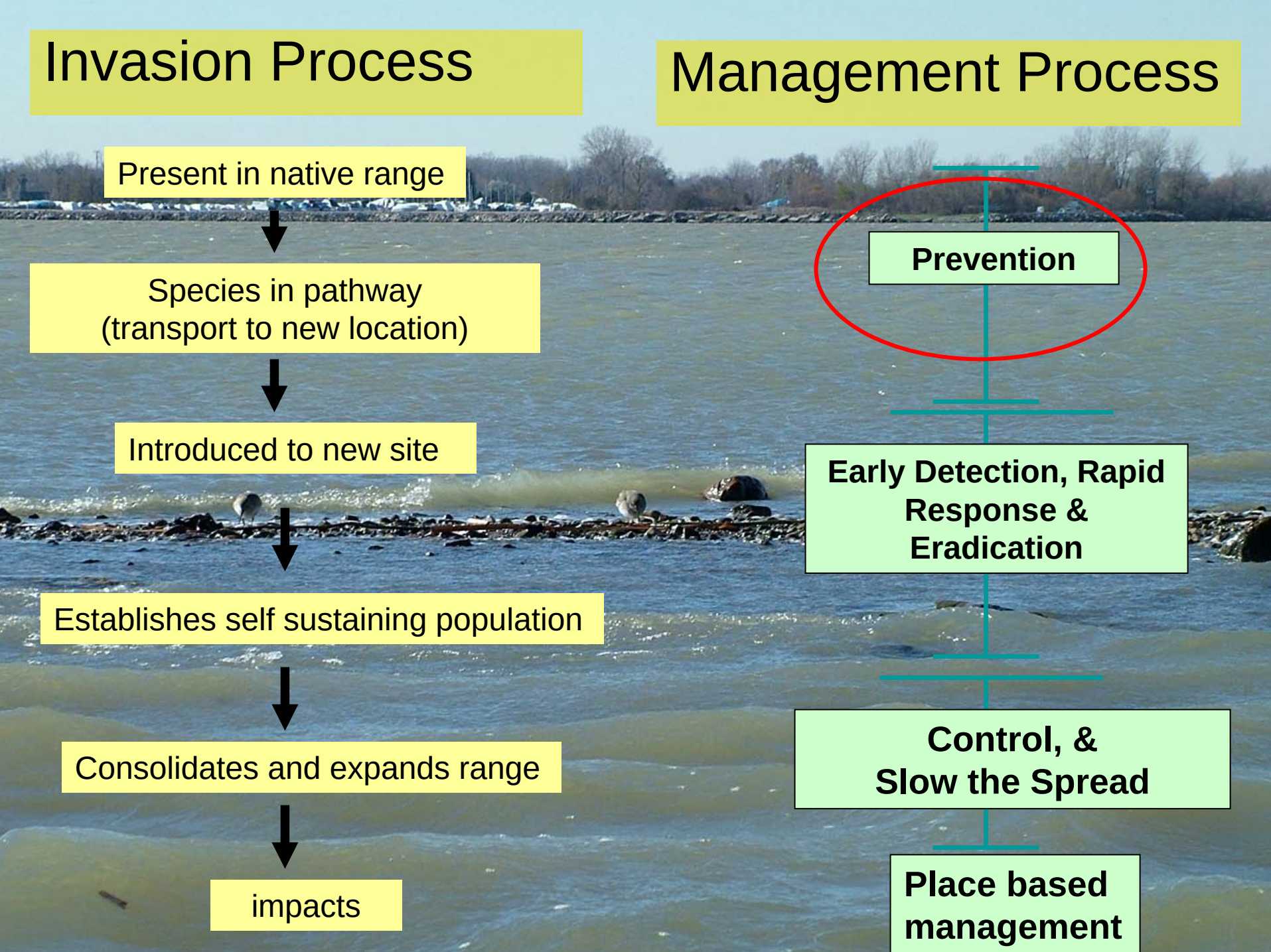
Establishes self sustaining population

↓

Consolidates and expands range

↓

impacts


Invasion Process
Present in native range
Species in pathway
(transport to new location)
Introduced to new site
Establishes self sustaining population
Consolidates and expands range
impacts
Management Process
Prevention
Early Detection, Rapid Response & Eradication
Control, & Slow the Spread
Place based management

Nature Conservancy Great Lakes program

Objectives:

- "Conserve the freshwater systems and related biodiversity of the Great Lakes,"

and to

- *"Abate the systemic threats to Great Lakes freshwater systems and related natural communities and species caused by AIS"*

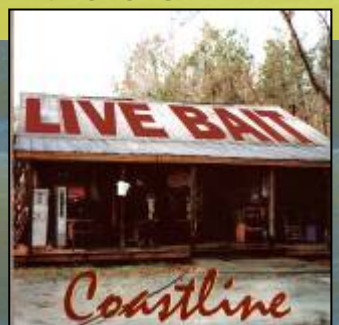
Great Lakes AIS program

"Abate the systemic threats to Great Lakes freshwater systems and related natural communities and species caused by AIS"

Actions:

- **Shipping Pathways:** Decrease rates of primary introductions to Great Lakes basin through coastal and oceanic shipping pathways (e.g., ballast water, hull fouling, anchors).

- **Trade in Live Organisms:** Decrease rate of primary introductions and secondary spread arising from trade in live organisms.

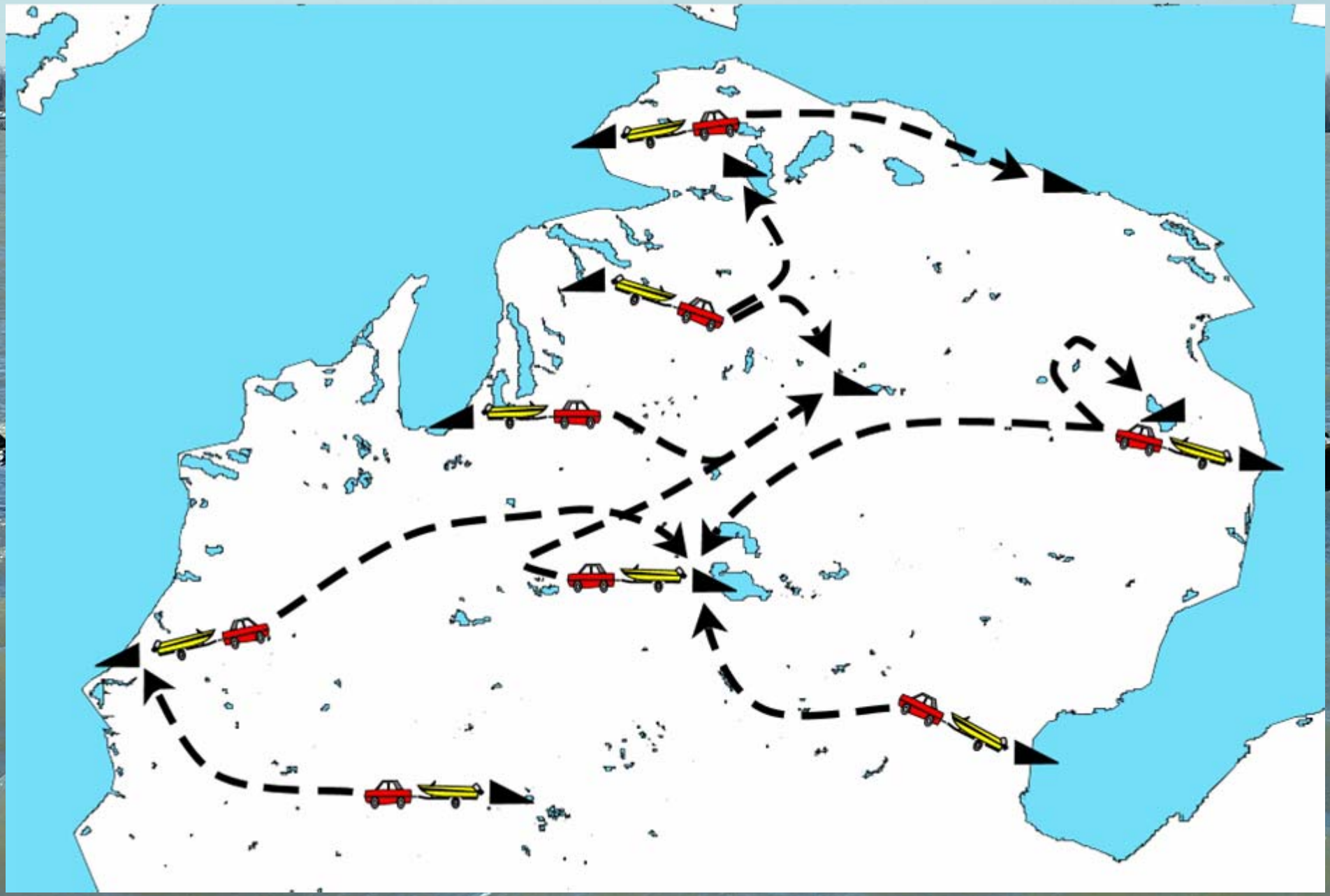


Continued:

- **Recreational Boating**: Decrease rates of secondary spread of AIS due to recreational boating activities.

- **Hydrologic Connections**: Halt introduction into and spread from Great Lakes basin of AIS arising from artificial hydrological connections (e.g., Chicago Sanitary and Ship Canal).

Recreational boaters deliver NIS to inland lakes



Forecasting or predicting spread

Use of gravity models to predict spread of AIS by recreational boaters

Objectives

- Identify high risk sites (EDRR priorities)
  - Including incursion response delimitation surveys (e.g. hydrilla)
  - Design effective monitoring programs – stratify around high and low risk sites
- Predict effective intervention strategies
- Develop performance measures