Wisconsin Ballast Water Program

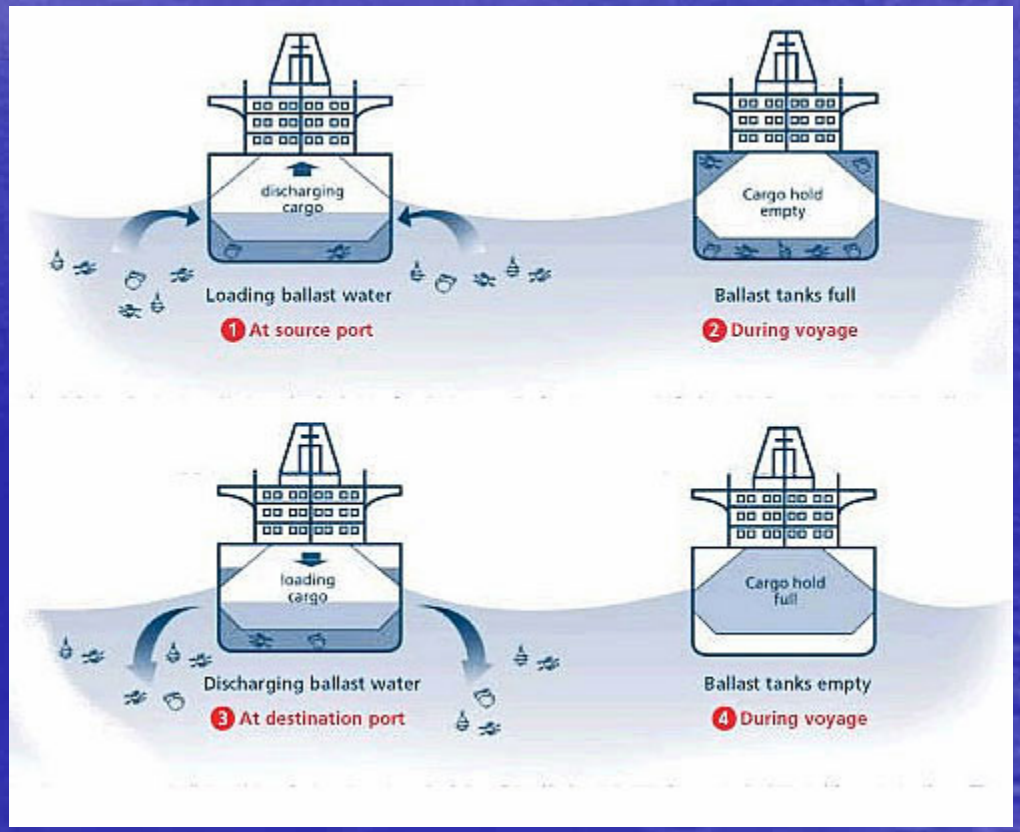
Susan Eichelkraut – Lake Michigan Ballast Inspector

WISCONSIN
DEPT. OF NATURAL RESOURCES

Ballast: Any solid or liquid used to change the Draft or Trim, to regulate stability, or maintain stress loads.

Ballast Water Capacity

- **Lakers up to 16 million gallons**
- **Pumping at 20,000 gpm**



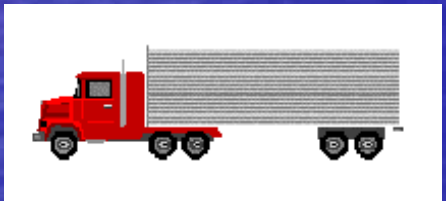
Transportation Efficiencies

How far will 1 gallon of fuel move 1 ton of cargo?

(*based on 2010 fuel efficiency)

631 Miles

553 Miles



91 Miles

Fun Facts

- 1 Laker can carry up to 78,850 tons of cargo with a cost of $60,000 per day to operate
- 2 Salt vessels in February brought 50,000 tons to Milwaukee worth close to 10 million dollars

  (normally a 2 day trip was 6)
- WI Marine Freight system moves ~ 30 million tons/yr
  - Worth more than 2.4 billion
  - Employs 10,000 workers
- Salties – oceangoing vessels
- Lakers – stay in the Great Lakes

The Economic Impact of Maritime Transportation

Reality: We live in a Global Market

Maritime impact on US: up 43% from 2007 to 2014
$4.6 Trillion per year

$4,600,000,000,000.00

[$1 out of every $4 in the US economy]

St. Lawrence Seaway Opened 1959

Although controversial the Seaway provides dramatic economic benefits and opportunity to the region.

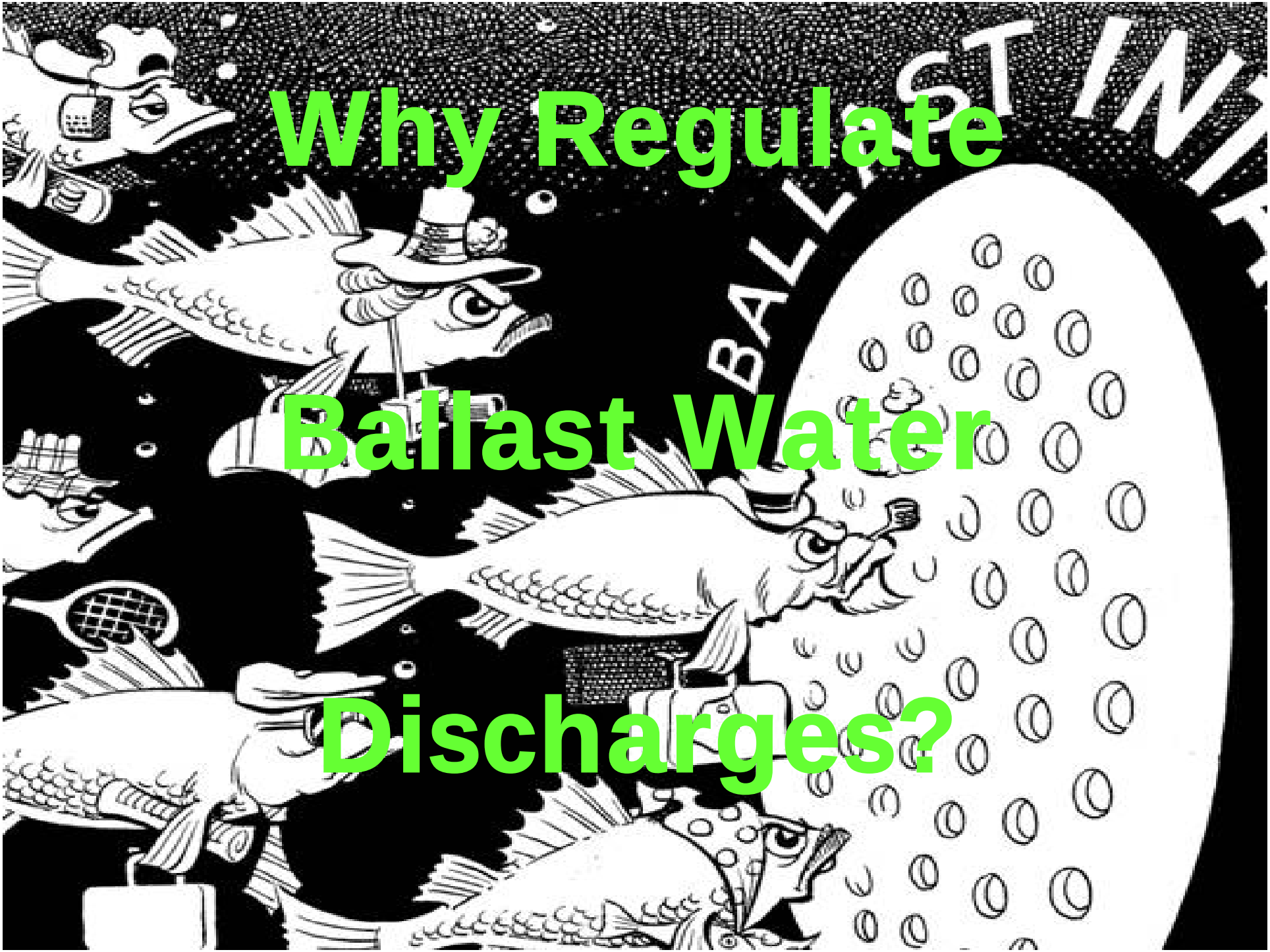
Cost of Original Construction:

Total Costs	$470 million US dollars

Annual Economic Contribution 2010 (US & Canada):

Personal Incomes	$28.6 billion US dollars
Fed/State/Local Taxes	$9.2 billion US dollars

Why Regulate Ballast Water Discharges?



Unintended Consequences

Along with economic opportunity, shipping brought something else to the Great Lakes.

Why Regulate Ballast Water Discharges?

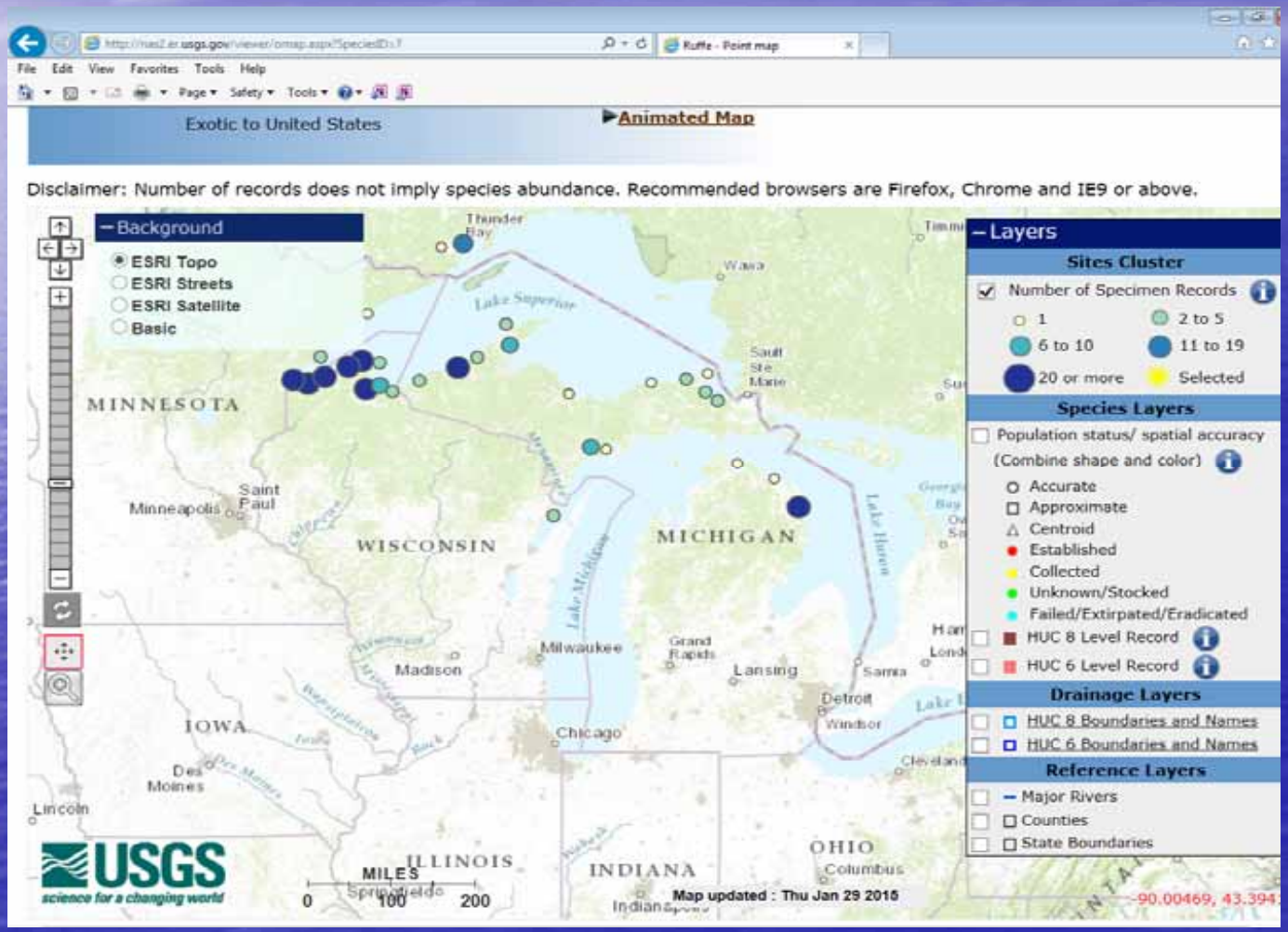
- 180 + Non-native Species in Great Lakes
- Estimated 55-70% since 1959 from ballast water
- Typically lack predators, initially
- Disrupts native ecosystems
- Cost $$ to control and manage AIS

Great Lakes Ports

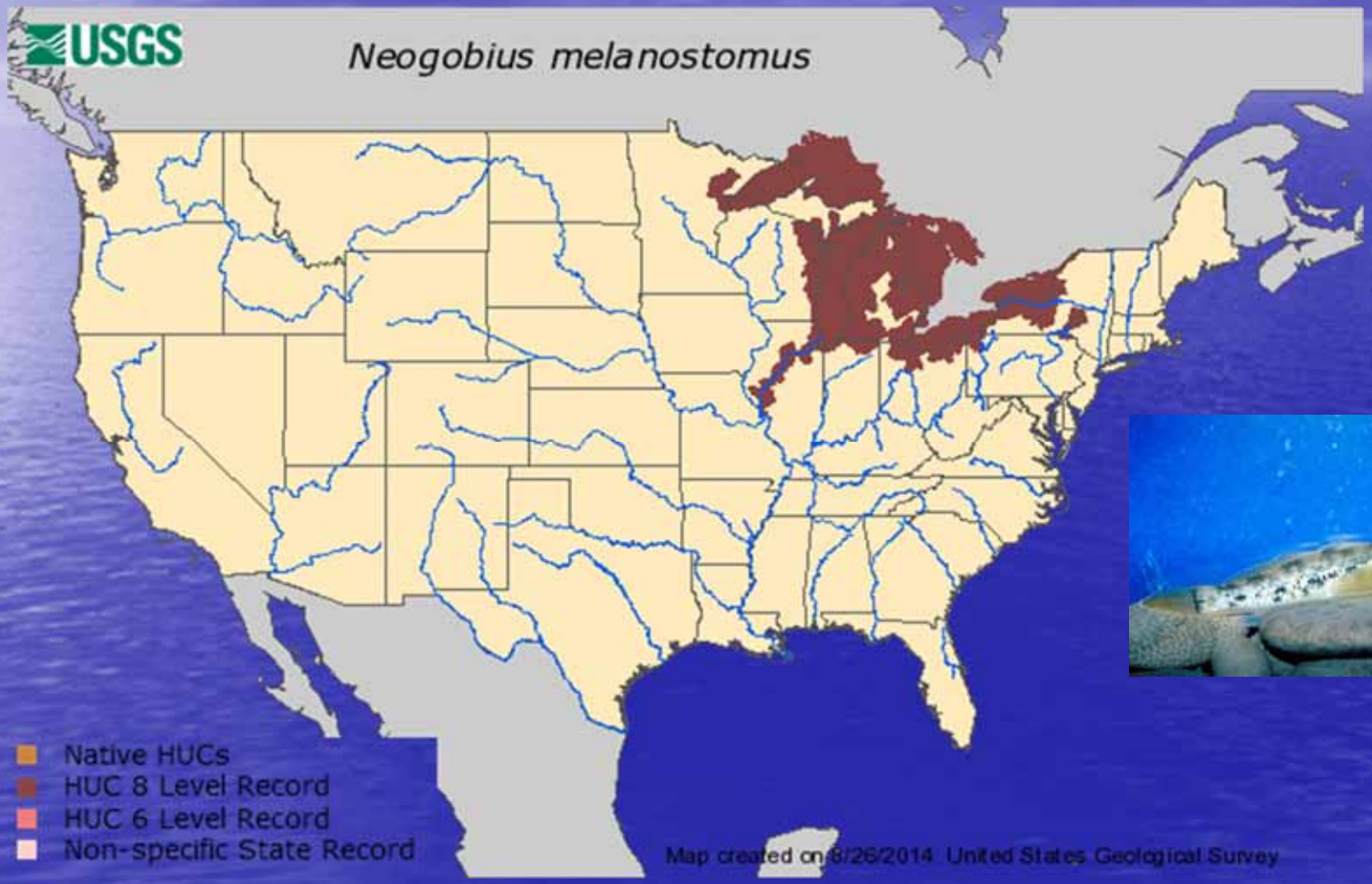
Ruffe

Data Source: U.S. Fish and Wildlife Service. Map produced by the U.S Geological Survey, Nonindigenous Aquatic Species Database, February 27, 2007.

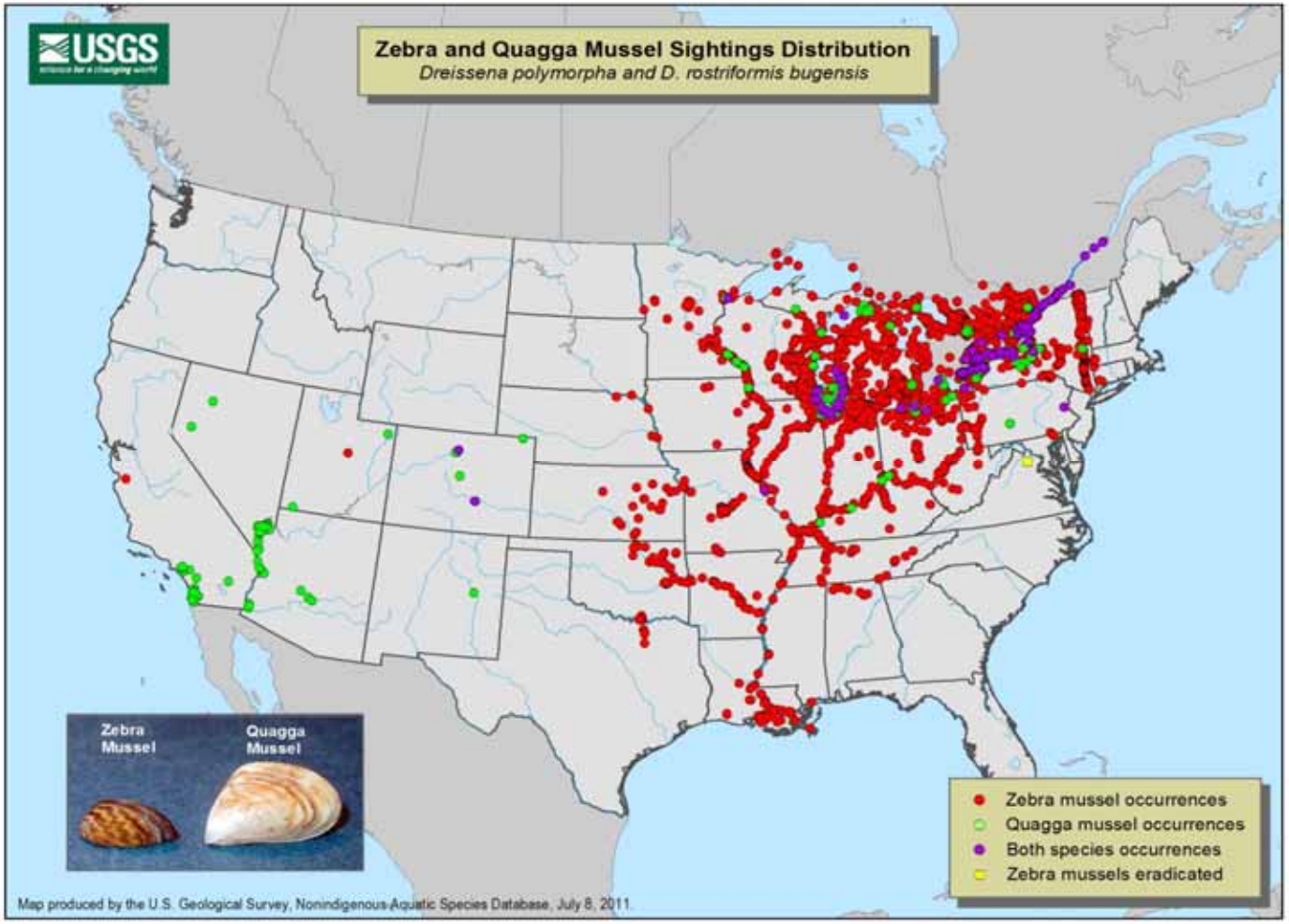
Eurasian Ruffe



Round Goby

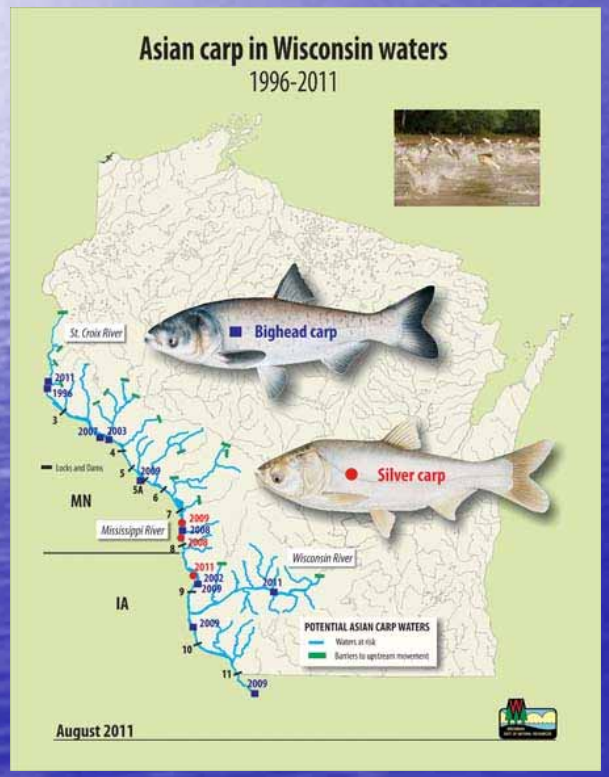

USGS
Neogobius melanostomus
Native HUCs
HUC 8 Level Record
HUC 6 Level Record
Non-specific State Record
Map created on 8/26/2014 United States Geological Survey

Zebra and Quagga Mussels



Connected Waterways

- Asian Carp
- Sea Lamprey



http://farm5.static.flickr.com

‘Watchlist’ for Potential New AIS

- GLRI funded project by ***NOAA*** in support of early detection and rapid response, synthesizing research from 1998 – 2010

- ***Geographic criterion*:** Lives in a known donor region

  (e.g., rivers/lakes adjacent to Great Lakes, western Europe, the Ponto-Caspian region)

- ***Watchlist-specific criteria:***

  1. A transport vector currently exists
  2. The species is likely to tolerate/survive transport
  3. The species has a probability of being introduced multiple times or in large numbers (Propagule pressure)
  4. The species is likely to be able to successfully reproduce in the Great Lakes
  5. The species has been known to invade other areas

http://www.glerl.noaa.gov/res/Programs/glansis/watchlist.html

High Priority 'Watchlist' for <u>Potential</u> New Great Lakes AIS (NOAA GLANSIS Project)

- **Crustaceans: 21 Total**
  - **Amphipods: 8 Species**
  - **Cladocerans: 3 Species**
  - **Copepods: 6 Species**
  - **Mysids: 4 Species**
- **Fishes: 19 Species**
- **Rotifers: 3 Species**
- **Plants: 6 Species**
- **Others: 4 Species (Mollusks, Annelids, Flatworms, Bryazoa)**

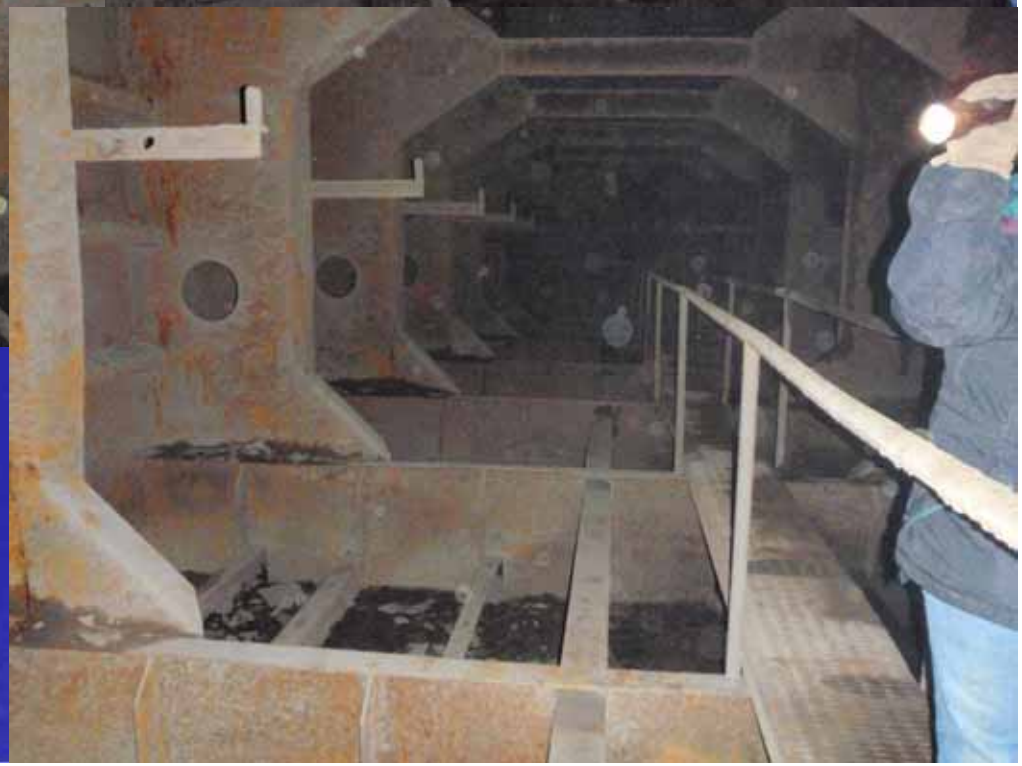
- ***<u>53 total species</u>*** identified in the literature as high risk for invading and becoming established in the Great Lakes: *32 of which may survive exchange*.

Species in North America, but not in Lake Superior… *yet*

- Bloody Red Shrimp *(Hemimysis anomala)*
  - Mysis shrimp now found in all other Great Lakes. Food web impacts predicted.

- 'Cell from Hell' (*Pfiesteria piscicida*)
  - Dinoflagellate microbe found on the Atlantic coast that can cause fish kills.

Ballast tanks w/ Residual Mud:
Resting stages of some potential AIS may survive transport under harsh conditions such as residing in sediment in ballast tanks.



Ballast Water Regulation History

- Since 1973: BW discharges exempt from EPA regs. under Clean Water Act
- 2005 CA court decision: Exemption exceeded authority
- 2008 EPA Vessel General Permit (VGP)
- 2009 GL Ballast Water Collaborative formed
- 2012 Coast Guard Rule
- 2013 EPA VGP2

Current Federal Regulations

- 3/2012 – Coast Guard rule
  - International Maritime Organization (IMO) effluent limit standards (technology-based)
  - Requires Coast Guard treatment system type approval
  - Sunsets Ballast Water Exchange
  - Treatment system implementation less stringent
- 3/2013 – EPA VGP2
  - IMO standards
  - Keeps Ballast Water Exchange
- These do not regulate Lakers!

How Did We Get Here?

- Couldn't wait for federal action to implement discharge standards
- Following other states, WI issued a Ballast Water Discharge permit February 1, 2010 and re-issued permit the permit April 1, 2015
- More stringent than EPA VGP & Coast Guard Rule

BW Regulation: A Delicate Balance!

Recent ballast water contested cases

- Environmental groups
  - Permit not stringent enough
- Shipping companies
  - Installation dates too stringent
- Summary Judgment decision 11/12
  - Revised treatment requirement dates
  - Water Quality Certification to EPA 11/12

Modified Permit Effective 11/29/12

Re-issued Permit 4/1/15

WI Water Quality Certification to EPA Vessel General Permit

Summary of WI Conditions

- Ballast Water Exchange for all Salties
- All vessels must meet WI's water quality standards
  - Emergency treatment measures
  - Test systems for freshwater use
  - Monthly visual inspection of systems
    - Report all non-compliance

WI Ballast Water Program Getting Started

Hired 3 full-time staff late 2010

- 2 Inspectors – The only 2 in the Great Lakes States!
- 1 Program Coordinator

Issued over 375 permits

WI Permit Applicability

- Salties (ocean going) and Lakers
- > 24.1 m AND > 8 m^3 ballast capacity
- Operating in WI waters

WI Requirements (All Vessels)

- Ballast Water and Sediment Management Plan
  - Best Management Practices
  - Disposal requirements
  - Record keeping
- Ballast Log Book
  - Uptake
  - Discharge
  - Sediment Disposal
  - Treatment

WI Permit Requirements

- Open ocean Ballast Water Exchange/Flushing
  - Must be > 30 ppt salinity to enter St. Lawrence Seaway
  - **No new AIS intros since 2006!**
- Treatment system approval (2013/2016)
- Biocide discharge limits
- Salinity < 2.7 ppt

WI Requirements all Vessels

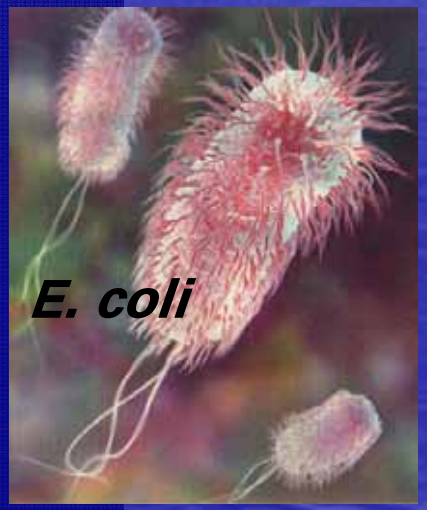
New Salties: 12/2013*

Existing Salties 1st dry dock after 1/2016*

Lakers first dry dock after 3/2018*

** if treatment systems available*

- IMO standards for viable organisms
  - < 10/m³ for organisms > 50 µm
  - < 10/ml for organisms 10-50 µm
  - E. coli < 250 cfu/100 ml
    - *(beach standard is 126 cfu/100 ml)*
  - Intestinal enterococci < 100 cfu/100 ml
    - *(beach standard is 33 cfu/100 ml)*
  - Vibrio choleae < 1 cfu per 100 ml



2011 Outreach – Implementing a New Program

- Terminal tenants
- Shipping companies
- Agents
- Press Release

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
101 S. Webster Street
Box 7921
Madison WI 53707-7921

Scott Walker, Governor
Cathy Stepp, Secretary
Telephone 608-266-2621
FAX 608-267-3579
TTY Access via relay - 711

NOTICE TO OWNERS, OPERATORS and AGENTS OF VESSELS OPERATING IN WISCONSIN WATERS, USA:

BALLAST WATER DISCHARGE PERMIT REQUIRED
INSPECTIONS WILL BE CONDUCTED

EFFECTIVE FEBRUARY 1, 2010

Oceangoing vessels and Great Lakes vessels required to obtain the EPA Vessel General Permit (VGP) that operate within waters of the State of Wisconsin, USA, and which have a ballast tank capacity of at least 8 cubic meters and are 50 meters in length or more, shall obtain coverage under Wisconsin Pollution Discharge Elimination System from the Wisconsin Department of Natural Resources at least 30 days prior to entering Wisconsin waters.

To obtain permit coverage, a copy of the EPA VGP notice of intent (NOI) must be submitted to:

Wisconsin Department of Natural Resources
Bureau of Watershed Management – Wastewater Permits Section, WT/3
Attn: Laura Madsen
PO Box 7921
Madison, WI 53707-7921

If you have questions on the permitting process, please contact Laura Madsen at the above address, (608) 264-6285 or Laura.Madsen@wisconsin.gov

You should also be advised that inspections by the Department of Natural Resources will be conducted this shipping season. Inspections may include reviewing: records, sediment management plans, ballast water management plans and ballast log books. **Please let us know who you want us to contact to set up inspections when you are entering Wisconsin ports if is someone other than who is listed as the contact on the EPA VGP NOI**, contact information for the Wisconsin Department of Natural Resources Ballast Water Inspectors is below:

Susan Eichelkraut-**Lake Michigan**
Wisconsin Department of Natural Resources
2300 N DR MLK JR DR
Milwaukee, WI 53212
Susan.Eichelkraut@wisconsin.gov
(414) 263-8682

Cordell Manz-**Lake Superior**
Wisconsin Department of Natural Resources
1701 N 4th St
Superior, WI 54880
Cordell.Manz@wisconsin.gov
(715) 392-0805

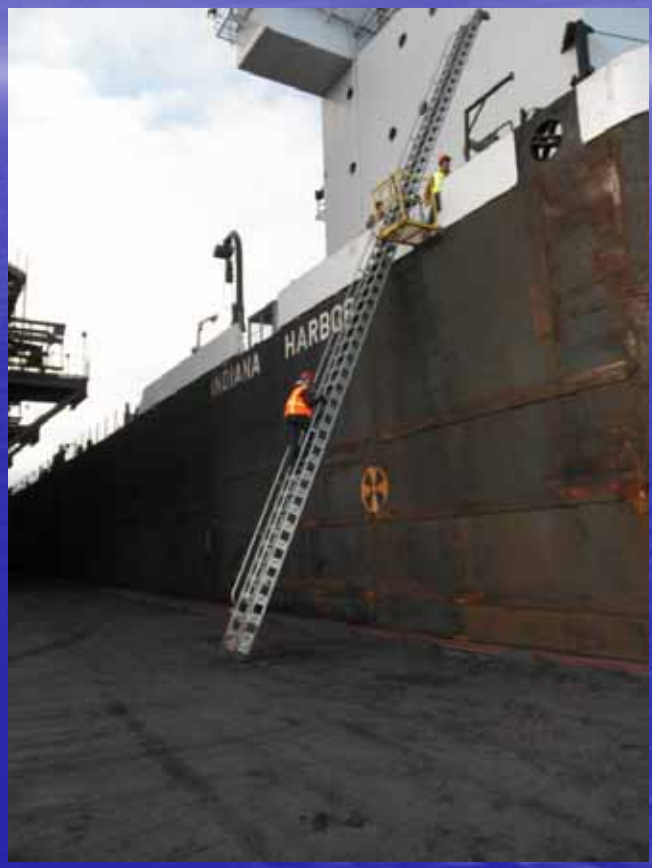
For more information on the permit and other ballast water information, please see the following website: http://dnr.wi.gov/org/water/wm/ww/gpindex/gpinfo.htm

2011-12 Inspections – Scheduling…

- Logistics in scheduling
- Contacts
  - Agents
  - Shipping companies
  - Terminal operator
- Where to find updated EAT and EDT
- Conducted first inspections in early May, 2011

WI Ballast Water Inspection Reviews

- Ballast water management plans
- Log books
- Sediment records
- Seaway exam report and potential letter of retention compliance
- Look for hull fouling
- Educate crew on AIS, permit and BMPs
- Sample ballast water salinity if discharging



Every Vessel is inspected and every ballast tank is tested in the St. Lawrence Seaway before vessels are allowed to enter the Great Lakes.

Hull Fouling

- **Currently no regulations in U.S/Canada for hull fouling (low risk)**
- **IMO recently approved Guidelines for Biofouling** – Canada may adopt
  - Titan Acorn Barnacle, *Megabalanmus coccopoma*

<u>BMPs</u>

Raising seachest intakes

BMPs

- Rinse anchors and chains
- Stop de-mudding ballast tanks
- Voluntary BW Exchange

Minimize uptake at:

- Dark
- Infestations
- Overflows
- VHS outbreaks
- Shallow areas
- Other high risk areas

Lake Carriers voluntary suggested BMPs (i.e. Ruffe)

WI Inspection Issues

- Vessel not permitted
  - Review shows other ships did not have permit upon arrival
- No copy of permit/updated permit onboard vessel
- Discharge of seawater exceeding chloride limits
- No sediment cleaning/disposal records onboard
  - Some companies discharge sediment in Can. Waters
- BWMP is not specific to the vessel, limited in detail
- Knowledge of WI permit
- Responsibility
- Knowledge of ballast water management plans
- Overall – good compliance
- Follow-up letter for all inspections

Inspections

- Great Lakes shipping season:
  Mid-March – early February

2014 47 total inspections

2013 58 total inspections

2012 72 total inspections

2011 59 total inspections

All received follow-up letters Summarizing inspection and any recommendations.

Possible Treatment Systems

Globallast

- 57 systems approved
- 47 Alterative Management Systems

A few may potentially work in Fresh Water

National Park Service Ranger III

The First Treatment System on the Great Lakes!

Filtration and UV

Ship board testing

to be completed soon.

Future Plans

- Continue inspections
  - Prioritize ships and companies not previously, goal 25% of all vessels
- Expand knowledge of treatment systems
- Oppose Vessel Incidental Discharge Act S. 373 that would preempt the States' full authority to regulate discharges
- Continue to educate crew members on AIS and BMPs & public outreach
- Continue to assist/facilitate ballast sampling for research
- Continue to actively participate in the Ballast Water Collaborative and Ballast Water Task Force

Wisconsin Department of Natural Resources Ballast Water Contacts

Susan Eichelkraut – Lake Michigan Ballast Water Inspector

(414) 263-8682

Susan.Eichelkraut@wisconsin.gov