



***Workshop Framework:
Defining challenges
associated with the live
organism trade in the Great
Lakes region***

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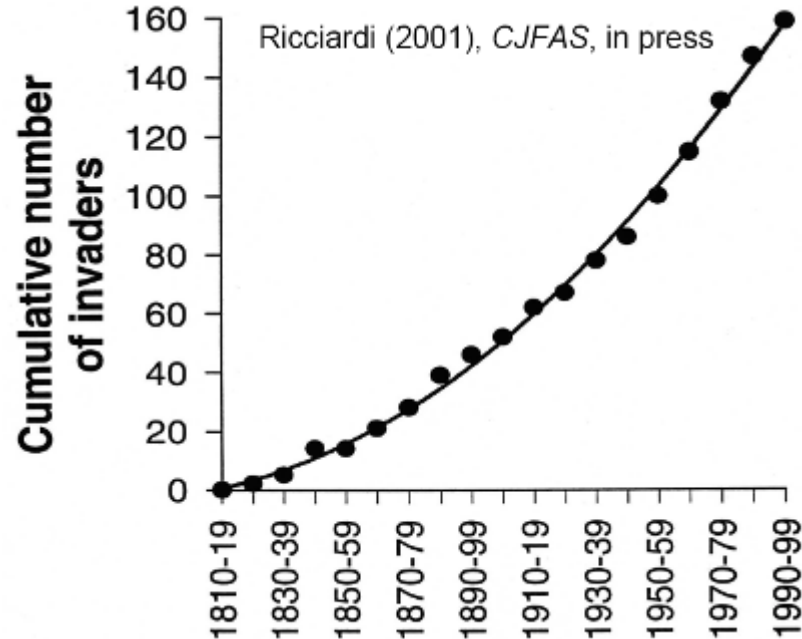
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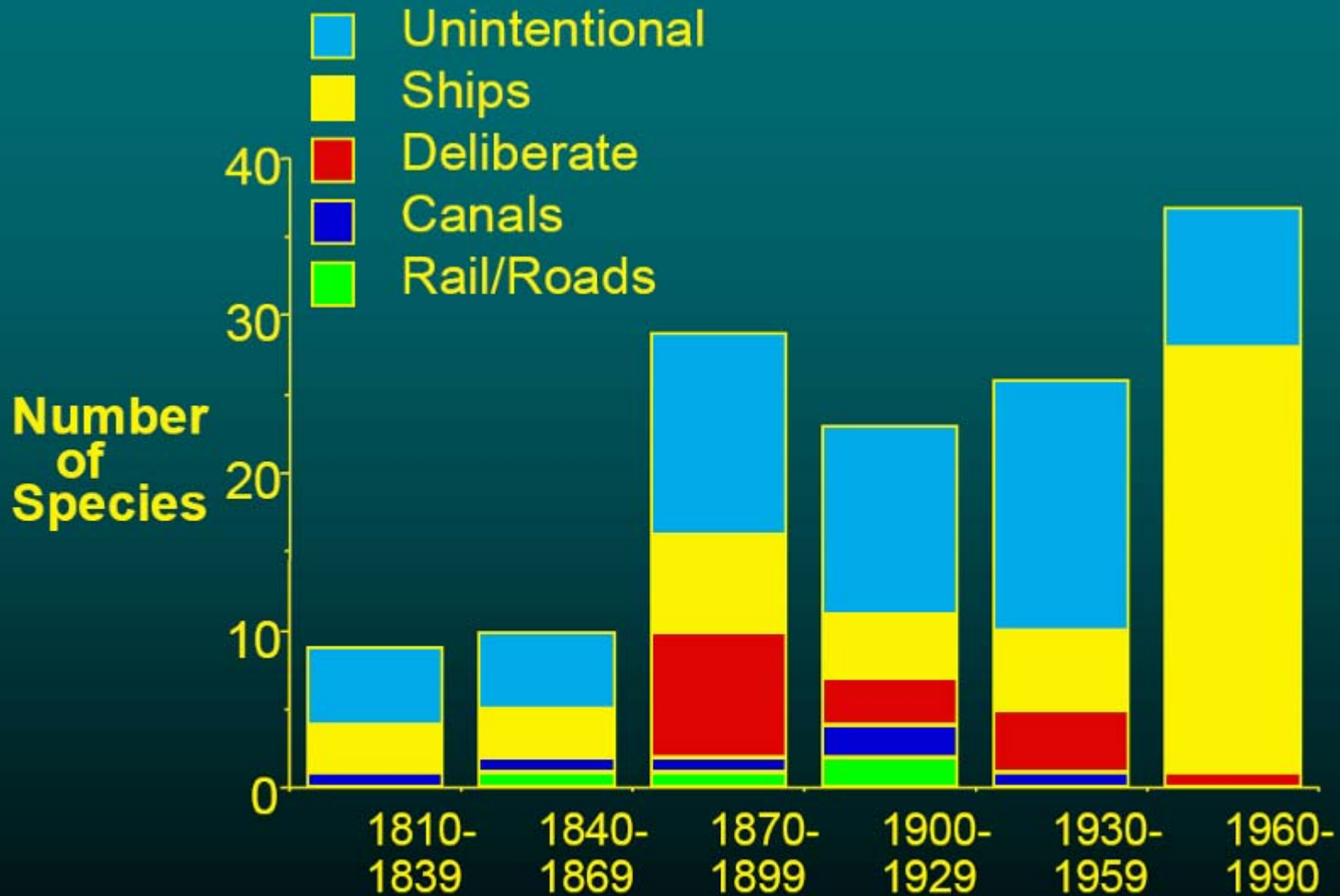
Great Lakes Aquatic Invasions: The Problem

- The integrity of the Great Lakes basin ecosystem is threatened by the presence of more than 180 nonindigenous aquatic species brought into the region from vectors across the globe



Great Lakes Aquatic Invasions: The Problem


- Primary vectors identified as contributing to Great Lakes aquatic invasions as identified by the Great Lakes Regional Collaboration (GLRC), Aquatic Invasive Species (AIS) Strategy Team (2005)
 - Maritime commerce (ballast water discharges)
 - Aquaculture
 - Canals and waterways
 - Recreational activities
 - Organisms in Trade



Mills et al., *J. of Great Lakes Research* (1993)

Great Lakes Aquatic Invasions: The Problem

- Many harmful nonindigenous species in the Great Lakes basin have been introduced through the trade in live aquatic organisms (Mills et al. 1993, Ricciardi 2001, Czarapata 2005)
- Principal **pathways** for introductions of live aquatic organisms include:
 - Live bait fish
 - Horticulture and water-garden plants
 - Aquarium
 - Aquaculture
 - Live food
 - Biological supplies



Organisms In Trade: A Contributing Source to the Process of Aquatic Invasions

- Increases in the rate of invasion have been directly tied to an expansion and globalization of trade.
- The trade of live organisms across geographic regions creates opportunities for biotic interchange, both intentional and unintentional on regional to global scales.
- Trade through human activities provides a diverse supply of organisms to new geographic regions, creating the first critical phase in a sequence of events that result in invasions and related impacts.

(Greg Ruiz and James Carlton 2003)

AIS Management in the Great Lakes

- Species vs. vector based approach
- GLRC Vectors:
 - Maritime commerce, Canals and waterways, Recreational Activities, **Organisms in trade, Aquaculture**
- Point vs. nonpoint source “pollution”

“Importation, interstate commerce and trade are among the most dangerous pathways for introduction of invasive species in the Great Lakes ecosystem” Source: GLRC AIS Strategy Team

AIS Management in the Great Lakes

■ Multiple pathways:

- aquarium and pet trade, nursery and water garden outlets, aquaculture, live bait, live food fish, etc.

■ Multiple management approaches:

- Education/outreach (Habitattitude™)
- Voluntary management practices (AIS-HACCP)
- Federal & state management plans & regulations

→ **Multiple challenges/complexities**



Building a Framework to Advance Aquatic Invasive Species Management of Organisms in Trade into the Great Lakes Region

- **Planning Grant:** Led by the Great Lakes Commission
- **Funder:** Great Lakes Protection Fund
- **Timeframe:** January – September 2008
- **Premise:** Scoping and planning exercise
- **Outcome:** Full project proposal

The overarching purpose of this exercise is to develop a project to reduce the invasion risks of organisms in trade based on a cooperative effort between the public and private sector.



Building a Framework to Advance Aquatic Invasive Species Management of Organisms in Trade into the Great Lakes Region

Project Components

- Advisory Committee providing overall guidance and direction on the project
 - 13 members
 - Agency, industry, NGOs
- OIT Pathway Expert Teams
 - Aquaculture
 - Live Bait Fish
 - Live Food Fish
 - Aquarium/Pet Pathway
 - Horticulture and Water Garden Pathway
- Information Technology Team



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Project Components

- Pathway summaries being developed by expert teams using the following guidelines:
 - **Scope of the pathway in the Great Lakes region, including the types/volume of species being sold and their economic value**
 - **Points in the pathway at which the risks of invasive species introduction or spread are the highest (e.g., choice of organism, sales, transport, end use, consumer behavior)**



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Project Components

- Pathway summaries being developed by expert teams using the following guidelines
 - **Current and past efforts to mitigate the risk of AIS introduction or slow the spread for the live bait pathway (e.g., education, outreach, best management practices, information technology, regulation, enforcement)**
 - **Gaps and unmet needs that need to be addressed in terms of additional knowledge, information technology, authority, collaboration, or other resource**



Building a Framework to Advance Aquatic Invasive Species Management of Organisms in Trade into the Great Lakes Region

Project Components

- Workshops to provide expertise, technical advice and guidance to the Advisory Committee and Commission staff
 - Workshop I:
 - Vector Assessment
 - Information Integration
 - Workshop II:
 - Information Integration
 - Management & Policy



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Workshop I: Objectives

- Convene key players (government, commercial, research, technology and non-government sectors) to stimulate dialogue on the OIT issue
- Strengthen our understanding of the OIT vector in potential AIS introduction, establishment and spread in the Great Lakes region
- Learn more on how industries involved in OIT operate and practices that may lead to or help mitigate AIS introduction and spread



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Workshop I: Objectives

- Assess how consumer behaviors may contribute to or help mitigate AIS introduction and spread
- Identify information gaps and needs that could reduce the potential of AIS introduction and spread through activities associated with OIT
- Explore potential options for addressing threats from the OIT vector through information technology and management applications



Building a Framework to Advance Aquatic Invasive Species Management of Organisms in Trade into the Great Lakes Region

Overall Project Goal

- Develop new management and policy tools and extend existing tools to help reduce the AIS introduction and spread through the trade of live organisms based on:
 - Partnerships established between representatives of industry, management and policy agencies, and environmental groups from the U.S. and Canada
 - Information technology that is applied to support systematic organization, accessibility, sharing and distribution of OIT information

Overall Challenges Posed by the OIT Vector

- Find solutions to mitigate the risks associated with the trade of live organisms while maintaining economic viability of the industry
- Develop strategies that address information that is missing, inaccurate and uncertain
- Address the issue of increasing availability of species through non-regulated sales (e.g. internet)
- Strengthen our understanding of how to influence the behavior of consumers



Overall Challenges Posed by the OIT Vector

- Apply information technology in the development of solutions needed to mitigate OIT related risks.