

19th International Conference on Aquatic Invasive Species

OHIO SEA GRANT AND STONE LABORATORY

Great Lakes Sea Grant Network's Assessment of Asian Carp Research, Education, and Outreach Efforts

Dr. Christopher J. Winslow

Interim Director, Ohio Sea Grant College Program

April 11th, 2015



What is Sea Grant?

- NOAA supported program:
 - Total of 33 Sea Grant programs
 - 7 Great Lakes States (MN, WI, IN/IL, MI, OH, PA, NY)
- Mission of **R**esearch, **E**ducation and **O**utreach
- Guided by NOAA National Strategic Plan:
 1. Resilient Communities and Economies
 2. Sustainable **Fisheries and Aquaculture**
 3. Healthy Coastal Ecosystems
 4. Environmental Literacy and Workforce Development



Sea Grant Up Close

- University-based programs that have:
 - Strong research and education assets
 - Comprehensive communication capabilities
 - On-the-ground outreach workforce; local knowledge
- Capable of rapidly identifying practical solutions to real problems
- Sea Grant generates, translates, and delivers cutting-edge, unbiased, science-based information to address complex issues



Why Do Assessment

- GLRI and ACRCC initiative
- Our ACRCC objective:
 - Survey state/federal agencies **and** academic researchers to summarize current research (includes identifying research gaps)
 - Outreach efforts:
 - Develop a bibliography of existing education and outreach materials (Mississippi and Great Lakes basins)
 - Summarize existing education and outreach materials to identify various messages being conveyed



Why Do Assessment

- Our ACRCC objective....continued:
 - Identify network of speakers across Great Lakes to help ACRCC carry current science-based information to public and local interest groups
 - Produce a regional educational PPT to convey research efforts, “common” outreach messages, and common misconceptions
 - Incorporate lessons learned from this effort into the current Sea Grant education/outreach



Summary of Research Efforts

- Lead by Wisconsin Sea Grant (Titus Seilheimer and Phil Moy*)
- Asked the following:
 - Life history updates/findings
 - Movement and behavior
 - Monitoring / eDNA
 - Control, including:
 - Prevention
 - Capture
 - Killing Carp



Summary of Research Efforts

- Interviewed (N=27; Not exhaustive, but representative):
 - USGS
 - Missouri Department of Conservation
 - Illinois Natural History Survey
 - US Fish and Wildlife
 - Academia (numerous universities)
- Identified Gaps:
 - Outreach
 - eDNA
 - Management
 - “Biology”



Identified Outreach Gaps

- Necessary to facilitate a better understanding of Asian Carp management (specifically legislature and public)
- What does control of Asian Carp mean?
 - “Control” -- misleading to public because we will never control/eradicate Asian Carp, rather hope to manage populations at acceptable levels (e.g., Sea Lamprey)
- Eat more Asian Carp!
 - Blind taste tests
 - Highlight low contaminant load
 - Slippery slope
- How do we gauge the effectiveness of outreach campaigns
- Can bait dealers identify juvenile Asian Carp?



Identified eDNA Data Gaps

- What in the environment or food-items inhibit eDNA?
- Need for new markers, validate those markers, and compare to existing methods?
- Use species-specific metabolites for detection?
- What are background levels of eDNA in the natural environment for these species
- Many water samples are not collected at random and are taken from the surface only
 - Is this best methodology?
- Does public understand what eDNA means?



Identified “Management” Data Gaps

- What is the lag time in a new environment?
- Evaluate how we manage over different jurisdictions with different policies?
- Need a visual way (e.g., interactive map) to see where investment are occurring (research dollars and work)
- Regulatory hurdles before new solutions could be used (e.g., CO2, poisons, etc.)?
- How do we tie all Asian Carp research together?



Identified “Biology” Data Gaps

- Population dynamics of Asian Carp
- Continued work on what triggers movement?
- How many fish are needed to successfully spawn?
- Continue to assess where are juvenile Asian Carp?
- How can we track smaller fish at a finer resolution?
- Continue to assess what predators are eating juvenile Asian Carp



Outreach Efforts

- PPT (developed but being updated)
 - 50+ Slides
 - Goal is a “master slide deck”
- Bibliography of materials that exist (next slide)
 - Lead by Indiana/Illinois Sea Grant
 - Includes review of messages
- Sea Grant’s ability to spread the word:
 - Sponsored/Organized events; 337 to 2,486
 - Public/Professional presentations; 792 to 44,161
- Glossy finished document



Existing Outreach Materials

- Indiana, Michigan, and Wisconsin DNR
- Kentucky Department of Fish & Wildlife Resources
- Sea Grant programs
- U.S. Army Corps of Engineers
- U.S. Coast Guard
- U.S. Fish and Wildlife Services and Mississippi River Basin Panel
- Great Lakes Fishery Commission
- Illinois Natural History Survey
- Mississippi Interstate Cooperative Resource Association
- St. Croix River Association and Mississippi River Fund
- Tennessee Wildlife Resources Agency & Wildlife Forever
- Louisiana State University AgCenter
- Midwest Fish Habitat Partnerships
- Missouri U.S. Geological Survey
- Tennessee Wildlife Resources Agency
- Wildlife Forever
- Canada Fisheries and Oceans
- Great Lakes Aquatic Nuisance Species Information System
- NOAA
- Ontario Ministry of Natural Resources
- Ontario Federation of Anglers and Hunters
- Upper Midwest Environmental Sciences Center
- USGS
- Asian Carp Regional Coordinating Committee
- International Joint Commission
- Missouri Department of Conservation



Existing Outreach Materials

- What we evaluated:
 - Are the following messages present in material reviewed:
 - We can prevent additional introductions of Asian carp into Great Lakes waters
 - It is necessary to prevent additional introductions at this time because if breeding populations are established we will be left with no good options
 - Audience(s) each material is trying to reach; e.g., anglers, bait stores, food markets, stocking entities (aquarium dealers, water gardens, state agencies)



Existing Outreach Materials

- What we evaluated **Continued:**
 - What messages are the education/outreach materials sending? Purpose of material?
 - Is material strictly info based; e.g., life history info, current distribution, ecology info, etc.
 - Contains identification tips
 - Contains monitoring and early detection info.
 - Conveys state policy
 - Material attempts to drive the audience to more information; e.g., provides website, phone number, organizations, etc.
 - Material is trying to change behavior (i.e., telling the reader what they can do)



Message Summary

- We can prevent additional introductions of Asian carp --- 58%
- It is necessary to prevent additional introductions because if established no good options --- 22%
- Control programs will be costly, possibly damaging to natives, and almost certainly ineffective --- 16%
- If we do nothing...suffer the full effects and economies will be impacted --- 4%



Take Home Continued

- Message conveyed:
 - Strictly info based; e.g., life history info, current distribution, ecology info, etc. --- 44%
 - Identification tips --- 40%
 - Monitoring and early detection --- 29%
 - Conveys state policy --- 42%
 - Attempts to drive the audience to more information --- 78% (website, phone number, organizations, etc.)
 - Material is trying to change behavior --- 58%



Take Home Continued

- Audiences:
 - Anglers: 64%
 - Bait Stores: 24%
 - Food Markets 22%
 - Stocking Entities: 20%
 - State Agencies: 22%
 - Boaters: 51%
 - Marinas/Harbors: 16%
 - General Public: 49%



Speaker Network

- Reuben [Goforth](#) and Alison [Coulter](#); Purdue University, Dept. of Forestry and Natural Resources
- Jim [Garvey](#); Southern Illinois University –Carbondale, Center for Fisheries, Aquaculture, & Aquatic Sciences
- Eric [Fischer](#) and Doug [Keller](#); Indiana Department of Natural Resources
- Sarah [Zack](#) and Pat [Charlebois](#); Illinois-Indiana Sea Grant / Illinois Natural History Survey
- Tatiana [Garcia](#); University of Illinois, Department of Civil & Environmental Engineering
- Matt [O'Hara](#), Kevin [Irons](#) and Vic [Santucci](#); Illinois Department of Natural Resources
- Tim [Campbell](#) and Titus [Seilheimer](#); Wisconsin Sea Grant
- Jon [Amburg](#), Mark [Gaikowski](#), and Terrance Hubert; U.S. Geological Survey, Upper Midwest Environmental Sciences Center
- Emy [Monroe](#); Fish and Wildlife Service
- John [Janssen](#) and Jake [Vander](#); University of Wisconsin -- Milwaukee
- Bob [Wakeman](#) and John [Lyons](#); Wisconsin DNR
- Brandon [Schroeder](#), Steve [Stewart](#), Dan [O'Keefe](#), Mark [Breederland](#), Mary [Bohling](#); Michigan Sea Grant, Extension Educators
- Doug [Jensen](#) and Marte [Kitson](#); University of Minnesota Sea Grant Program, Extension Educators
- Nick [Frohnauer](#) and Ann [Pierce](#); Minnesota DNR
- Byron [Karns](#) and John [Anfinson](#); National Park Service
- Peter [Sorenson](#); University of Michigan, Invasive Species Research Center
- Mike [Hoff](#) and Todd [Turner](#); U.S. Fish and Wildlife Service
- Mike [Gaikowski](#); U.S. Geological Survey, La Crosse
- Chris [Winslow](#), Tory [Gabriel](#), Sarah [Orlando](#), and Kristen [Fussell](#); Ohio Sea Grant College Program



Conclusions:

- Comprehensive review of current research findings, more importantly, the gaps
- Project has increased the transfer of information to the public and important Great Lakes user groups; includes:
 - Danger posed by Asian Carp
 - What can we do to keep them from invading
- Ultimately, we hope that our Great Lakes efforts have reduced the likelihood of a successful carp invasion



Acknowledgments

- ACRCC
- Dave MacNeill -- New York Sea Grant
- Helen Domske -- New York Sea Grant
- Patrice Charlebois -- Indiana/Illinois Sea Grant
- Sarah Zack – Indiana/Illinois Sea Grant
- Doug Jensen -- Minnesota Sea Grant
- O'Keefe, Daniel -- Michigan Sea Grant
- Sarah N. Whitney -- Pennsylvania Sea Grant
- Sara Grise -- Pennsylvania Sea Grant
- Phil Moy -- Wisconsin Sea Grant
- Titus -- Wisconsin Sea Grant
- Gabriel, Tory -- Ohio Sea Grant



Questions?

- For more information:
 - Dr. Christopher Winslow
 - **Phone:** 614-292-8949
 - **E-mail:** winslow.33@osu.edu



Interviewed

- Ryan [Adams](#), U.S. Geological Survey, Illinois Water Science Center
- Jon [Amberg](#), U.S. Geological Survey, La Crosse
- Marybeth [Brey](#), Southern Illinois University
- Steve [Butler](#), Illinois Natural History Survey
- Duane [Chapman](#), U.S. Geological Survey, Columbia, MO
- Matt [Diana](#), Illinois Natural History Survey
- Jim [Dunkirk](#), U.S. Geological Survey, Illinois Water Science Center
- Sam [Finney](#), U.S. Fish and Wildlife Service, Carterville, MO
- Mark [Gaikowski](#), U.S. Geological Survey, La Crosse, WI
- Tatiana [Garcia](#), University of Illinois Campaign-Urbana
- Terry [Hubert](#), U.S. Geological Survey, La Crosse
- Ryan [Jackson](#), U.S. Geological Survey, Illinois Water Science Center
- Chris [Jerde](#), University of Notre Dame
- Wen-Tso [Liu](#), University of Illinois Campaign-Urbana
- Ruairi [MacNamara](#), Southern Illinois University
- Bill [Marle](#), U.S. Geological Survey, Illinois Water Science Center
- Emy [Monroe](#), U.S. Fish and Wildlife Service, Onalaska, WI
- Elizabeth [Murphy](#), U.S. Geological Survey, Illinois Water Science Center
- Aaron [Parker](#), U.S. Fish and Wildlife Service, Carterville, MO
- Nick [Phelps](#), University of Minnesota
- Quinton [Phelps](#), Missouri Department of Conservation
- Peter [Sorensen](#), University of Minnesota
- Cory [Suski](#), University of Illinois Campaign-Urbana
- Dave [Wahl](#), Illinois Natural History Survey
- Greg [Whitledge](#), Southern Illinois University
- Marion [Wittmann](#), University of Notre Dame
- Doug [Yeskis](#), U.S. Geological Survey, Illinois Water Science Center

