**Grass Carp Priorities for the Great Lakes Worksheet**

*Updated: October 30, 2015*

| **PRIORITY** | **AGENCIES** | **STATUS / NOTES** |
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| **TRADE** |
| Strengthen the National Triploid Grass Carp Inspection and Certification Program based USFWS MICRA Report (February 2015). | USFWS working with states and distributers  | * Program is sufficiently strong; concerns that some are misusing the program and aspects around the program could be strengthened
* Concerns remain about laundering diploids as triploids
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| Improve understanding of existing shipping and stocking activities to provide direction of future enforcement activities and policy. Develop a list of certified Grass Carp transporters and assess the extent to which Grass Carp are actively stocked in the Great Lakes region. | Great Lakes risk assessment team pulling regional information from MICRA report | * MICRA report was finalized and is useful for this (Information collected by HDR for MICRA)
* Live food is a huge issue
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| Quantify past stocking introductions to assess the scale and extent of the potential threat: Collate data on historic introductions of triploid and diploid Grass Carp into the Great Lakes basin (i.e., sites, numbers, ploidy status) to quantify potential scale of introductions and identify locations with the greatest historic introduction pressure. | Collect data from USGS, Federal, state, provincial stocking agencies; private stocking entities; universities or others could collate data | * Need to coordinate this effort among FWS, USGS, IL, MI
* Questions around about availability of data
* Potential to assess past stocking based on current distribution using USGS data from NAS database
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| Natural resources management agencies should implement routine and random inspections of known and suspected live grass carp shipments to encourage compliance and deter non-compliance.* Undertake surveillance and monitoring of key pathways of legal and illegal importation of Grass Carp to quantify the level of diploid contamination and movement of diploid stocks into the basin.
* Quantify the levels of diploid contamination of Grass Carp stocks by monitoring importations of certified triploid Grass Carp to assess effectiveness of USFWS National Triploid Grass Carp Inspection and Certification Program.
 | Great Lakes Law Enforcement Committee under Council of Lake Committees; state police; USFWS; Canadian Border Services Agency; enforcement agencies at state and federal level. R&D agencies/entities to develop a rapid ploidy field test to facilitate enforcement | * Not much is known about enforcement activities
* U.S. customs and border inspection staff enforce regulations on behalf of APHIS
* Generally, must purchase fish and send eye to lab
* Illinois has a sheet for inspectors
* Groups are working on developing a ploidy field test
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| Develop and conduct outreach to Grass Carp shippers to help ensure compliance and reduce risk during transport  | North Central Regional Aquaculture Center; Great Lakes Sea Grant Network; Extension agencies  | * Something happens after inspection
* NCRAC/Michigan State University is looking into this
* Potential to apply/expand AIS HACCP
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| Determine and assess the level of risk presented by other pathways for Grass Carp (e.g., bait, Internet sales) | Universities; researchers; GLC for Internet trade |  |
| **DATA COLLECTION AND STATUS** |
| Adopt standardized protocols for collection and analyses of Grass Carp to ensure data standards, quality assurance and that all relevant information is collected from all Grass Carp captured in the basin, including but not limited to information on ploidy, otolith micro-chemistry, reproductive and life history characteristics. | USGS, USFWS, all agencies that do collection | * USFWS, USGS and DFO developed a protocol; collecting agencies need to adopt (several state partners already follow it). “How to sample a carp for ploidy” and kits
* Most agencies need newer technology for better analysis of otolith chemistry
* Samples should be sent to USGS Lake Erie lab, University of Windsor, Central Michigan University, and/or Bowling Green *(If sent to USGS first, can ensure they get to UW/BGSU)*
* Need water chemistry information from other tributaries. *(Currently there is information from the Maumee, Sandusky, Detroit, and River Raisin; GLP members will develop list of missing tribs)*
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| Determine the extent, origin and nature of any natural Grass Carp recruitment within the Great Lakes basin through: * Targeted surveillance and outreach/education to maximize collections of any Grass Carp captured.
* Record location of capture and determine ploidy status of captured Grass Carp.
* Undertake analysis of otolith microchemistry of captured Grass Carp to determine fish origin, where recruitment is occurring, extent of recruitment, and movement within the Great Lakes basin.
* Record additional life history and reproductive information from all captured Grass Carp to improve understanding of Great Lakes recruitment dynamics.
* Undertake movement studies to identify preferred habitats, home range and seasonal movement patterns to inform management strategies.
* Broaden the collection of Grass Carp through other means such as commercial fishers, power plants and other industrial facilities to enhance datasets.
* Identify which laboratories are available and have capacity and equipment to undertake appropriate elemental analysis of Grass Carp otoliths.
 | USFWS, USGS, Dept. of Fisheries and Oceans Canada, other federal and state agencies; commercial fishermen. State of Michigan and MSU (underway); University of Minnesota; USGS for movement studies. Outreach groups; state water quality permitting agencies under EPA federal statute (316B) could help broaden collection efforts. GLANSP could develop inventory of laboratories | * Sampling for eggs and larvae in the Sandusky River continuing through 2016, probably beyond. This sampling was also conducted in the River Raisin in 2015 and continuation in 2016 will be dependent upon future funding.
* Modeling of spawning/rearing locations beginning 2016, continuing through 2018, in Sandusky River through USGS/Univ. of Toledo
* States and provinces are collaborating with universities and partner agencies to assess natal origins. Majority of samples to date have come from western Lake Erie and are being analyzed by Central Michigan University.
* Low sample size limits movement studies. Commercial fishers were contracted by Michigan in 2015 to conduct targeted seining in attempts to increase sample sizes. Continuation is dependent upon future funding.
* State of Michigan and MI State Univ. currently working on movement study, but low sample size has limited the information gained.
* 316B requirement should mean power plants are sending in collected fish/information – need to figure out if they are doing this
* Basin wide surveillance and focused survey on hot spots. Regional EDRR group will be working on basinwide surveillance planning for fish
* Can surveillance be incorporated into ongoing agency monitoring efforts (e.g. EPA and NOAA)?
* Some states (e.g., Michigan) have a incentives for commercial fisherman turning in collections
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| Grass Carp data collection should be coordinated and communicated to help federal, state and provincial management and research entities better understand the scale of the problem, to facilitate a regional analysis and ensure information collected from any Grass Carp captures is maximized.* Develop a guidance document for data sharing and external communication.
* Explore housing this collection information within appropriate regional or national entities that facilitates open access to all the data.
 | USGS and NOAA (NAS database and GLANSIS); Great Lakes Interstate EDRR planning efforts on communication plans; ACRCC | * USFWS and USGS have discussed this and will not proceed without discussion among all partners
* Information is not consistently in USGS-GLANSIS and additional data not traditionally collected in these formats is needed
* Diploid vs. triploid collection reports are mixed
* Question about ACRCC functionality for grass carp data
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| **POLICY AND COORDINATION** |
| Encourage commensurate regulations among states that are consistent regarding possession, transport, and use of Grass Carp. | Council of GL Gov. AIS Task Force; GLFC; regional panels for other regions; ACRCC; GLWQA Annex 6 (Federal, state and provincial); state invasive species councils  | * Mostly consistent in basin, more work needed outside the basin
* GLFC has compiled list of regulations
* State invasive species councils might be able to assist (e.g., in PA reports directly to Governor and coordinates among state agencies)
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| Develop next steps (e.g., control plan) if Grass Carp are determined to be established in the Great Lakes. | State and provincial management agencies; potentially coordinated or supported through Great Lakes ANS Panel, ACRCC |  |
| **INFORMATION AND EDUCATION** |
| Use existing forums, including the GLP I/E Committee, the ACRCC Communications Work Group, and the Great Lakes Sea Grant Network, to coordinate outreach and ensure that efforts on Grass Carp in the U.S. and Canada are aligned. | ACRCC Communications Work Group–– DFO, GLFC, USFWS, USGS | * ACRCC Grass Carp specific subgroup under communications work group that is currently working on this
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| Develop clear, concise and consistent messages for use in I/E materials, emphasizing threats, methods of prevention, laws and regulations, and mechanisms to report suspicious sightings of Grass Carp to appropriate authorities. | Sea Grant; Invasive species Centre; OFAH; all agencies outreach programs | * A Great Lakes-wide effort exists and should be updated as needed
* Opportunity through CGLG AIS Task Force harmonization efforts to implement consistency
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| Encourage partners to join and leverage resources through the *Stop Aquatic Hitchhikers!*TM campaign to promote best practices regarding the disposal of unwanted live bait and other activities that will reduce the risk that Grass Carp. | USFWS; ANSTF Education Committee; Invasive Species Centre; OFAH; Wildlife Forever |  |
| Communications strategies and I/E messages and/or materials should acknowledge the differences in each jurisdiction’s regulations regarding managing and responding to Grass Carp, including differences relating to diploid and triploid Grass Carp. | Sea Grant; Invasive species Centre; OFAH; all agencies outreach programs | * Include Grass Carp in agency website updates
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