2011 ASIAN CARP Control Strategy Matrix

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Contributing Members:

City of Chicago
Great Lakes Fishery Commission
Illinois Department of Natural Resources
Illinois Environmental Protection Agency
Indiana Department of Natural Resources
Michigan Department of Natural Resources and Environment
Minnesota Department of Natural Resources
New York Department of Environmental Conservation
Ohio Department of Natural Resources
Pennsylvania Department of Environmental Protection
Pennsylvania Fish and Boat Commission
Wisconsin Department of Natural Resources
Metropolitan Water Reclamation District of Greater Chicago
National Oceanic and Atmospheric Administration
United States Army Corps of Engineers
United States Coast Guard
United States Department of Transportation/Maritime Administration
United States Environmental Protection Agency
United States Fish and Wildlife Service
United States Geological Survey
White House Council on Environmental Quality

2011 Asian Carp Control Strategy Matrix
November 2010

Action Item	Action	Agency	Agency Point of Contact	2010 Remaining GLRI Funding	2011 GLRI Funding Requested	2011 Available GLRI Funding (2010 Carryover & 2011 Requested)	Comments
				Targeted Monitoring Assessment Activities Above and Below the Electric Barrier System*			
2.1.1	Enhanced Monitoring Efforts Above and Below the Electric Barrier System	IL DNR	John Rogner	$0	$800,000	$800,000	Collection of eDNA samples, contract commercial fishing, and conventional monitoring in "high risk" locations. USFWS, IL DNR, and USACE all have activities under this task and they include rapid response team support, enhanced monitoring, and eDNA monitoring of the CAWS.
2.1.2	Monitoring (Electrofishing) and Rapid Response Team Support	USFWS	Charles Wooley	$0	$1,000,000	$1,000,000	Funding to allow a USFWS Team to conduct activities related to the Asian carplong-term monitoring and rapid responses.
				Commercial Harvesting and Removal Action Below the Electric Barrier System			
2.2.1	Commercial Fishing for Removal Below Lockport Pool	IL DNR	John Rogner	$0	$800,000	$800,000	Budget increased to reflect RCC reprioritization after the May 2010 fish sampling event near the O'Brien Lock. A comprehensive monitoring and rapid response plan for the Upper Illinois River was developed to systematically determine the distribution and abundance of Asian carp in the waterway and define the leading edge and reproduction locations of those populations. This activity will focus on commercial overfishing for Asian carp at their leading edge.
2.2.2	Commercial Market Enhancement/Recruitment Overfishing	IL DNR	John Rogner	$0	$3,000,000	$3,000,000	IL DNR is collaborating with the Illinois Department of Commerce and Economic Opportunity (DCEO) for the development of an Asian Carp Training, Certification, Incentives, and Market Development Program intended for commercial fishermen during the State's fiscal year 2011. IL DNR and DCEO made an initial $2 million dollar investment necessary to upgrade the Illinois' fish processing facilities. The state will continue to expand the commercial market for Asian carp in Illinois and beyond This activity funds the recruitment overfishing and processing of Asian carp for this effort.
2.2.3	Investigation of Certification Requirements for Asian Carp Usage	IL DNR, USDA, USAID	John Rogner, IL DNR	$0	$0	$0	IL DNR will work with the Illinois Congressional delegation to identify certification procedures necessary for Asian carp to be declared suitable for use in US sponsored humanitarian relief efforts.
				Barrier Action and Waterway Separation Measures			
2.3.1	Construction of Des Plaines River and I&M Canal Barriers	USACE	Col. Vincent Quarles, USACE	$1,190,000	$0	$1,190,000	The construction of channel blocking in the I&M Canal to preclude transfer of Asian carp during flood events into the CSSC was completed in June 2010. The Des Plaines River temporary barriers consisting of concrete barriers and woven wire mesh fencing over a 13.2 mile stretch from Romeoville to Willow Springs was completed on October 26, 2010. Any remaining carryover monies will be reprogrammed for other Framework items. Additional and/or more permanent separation measures will be assessed in the Efficacy Study Report.
2.3.2	Expedited Construction of Barrier IIB	USACE	Col. Vincent Quarles	$0	$0	$0	USACE will continue construction of a second barrier capable of running at voltage levels high enough to repel fish to further fortify the existing electric barrier. Additional power was required for Barrier IIB due to increased salinity in the water and USACE funding was used to build another power station. Construction and operational testing is expected to be completed by December, 2010. Safety testing is expected to be complete in January 2011 for a fully operational start no later than February 2011.
2.3.3	Modified Structures and Operations	USACE	Col. Vincent Quarles	$0	$0	$0	USACE evaluated whether and how to modify the operations of the Chicago and O'Brien locks to deter Asian carp migration into the Great Lakes. In its Interim III Report of the Efficacy Study, USACE recommended installing screens on the sluice gates at the T.J. O'Brien Lock and Dam (other sluice gates in the CAWS are operated by MWRD). USACE also decided to use the intermittent closure of the Chicago and O'Brien locks, on an as-needed basis, in support of fish control and eradication efforts performed by the resource agencies and in coordination with USCG. TThe installation of the screens was approved and concurred with the recommended method of intermittent lock closures only in support of fish suppression measures in July of 2010. USACE installed one screen at T.J. O'Brien lock and dam in December 2010 and will install the remaining screen in Spring 2011 after the winter season.
2.3.4	Tagged Fish Research to Test Barrier Effectiveness	USACE	Col. Vincent Quarles	$0	$200,000	$200,000	In 2010, as part of the Monitoring and Rapid Response Work Group (MRRWG) monitoring plan, the telemetry effort objective was refined to assess the effect and efficacy of the Electric Dispersal Barrier (Barrier) on fish in the upstream and downstream environment of the CSSC. Tagging focuses on both Asian carp and surrogate species. Two hundred tags were procured for this effort. By Spring 2011 all 200 tags will be utilized (as of December 2010, 105 tags have been implanted). Smaller fish will also be used to observe fish response to the Barriers. Tracking (stationary receiver supplemented by mobile tracking) will continue to monitor the location of all tagged fish.
2.3.5	Wabash-Maumee Interim Watershed Separation	Indiana DNR	Doug Keller	$0	$0	$0	Eagle Marsh, a 705-acre wetland southwest of Fort Wayne, IN, straddles a natural geographic divide at the Wabash and Maumee River basin boundaries. Asian carp are currently known to exist on the Wabash River approximately 20 miles from Eagle Marsh. During flood conditions, there is concern that Asian carp will move upstream through Little River and cross over the divide to the Maumee basin giving the Asian carp direct access to Lake Erie. As an interim solution mesh fencing was installed across a section of the marsh, creating a barrier against passage of Asian carp between the basins. The fence is approximately 1,200 feet long and rises above the 100-year flood elevation. It was completed October 6, 2010. Also included in this measure is operation and maintenance, equipment, and personnel costs. eDNA sampling will occur twice a year as per the contract. An Asian carp telemetry project in the area is also being considered under this action.
2.3.6	Wabash-Maumee Permanent Watershed Separation	USACE	Ernest Drott	$1,000,000	$3,800,000	$4,800,000	A permanent solution will include a feasibility study to determine what actions are to be taken and under what available authorities for construction activities. USACE can construct a permanent solution following study completion given appropriate funding, authorities and eventually willing and viable cost sharing partners. This action is dependent upon funding, regulation authority and a local sponsor. Based on initial analysis of permanent options and potential corresponding costs, the FY2011 funding level is an estimate only.
				CAWS Barrier System and Great Lakes Mississippi River Inter-Basin Study Activities			
2.4.1	Efficacy Study	USACE	Col. Vincent Quarles	$0	$0	$0	USACE completed Interim Reports 1, 3 and 3A of the Efficacy Study. Additional work in 2011 will include evaluation of other potential measures to deter the migration of the Asian carp and be documented in the Efficacy Study report. Other types of electrical and behavioral barriers, assisted transits/vectors , and review of the use of existing structures and monitoring technologies are being considered. The report will also provide a preliminary assessment of economic impacts from lock closures and consider measures to control access to Lake Michigan through the Little Calumet and Grand Calumet Rivers.
2.4.2	Great Lakes and Mississippi River Interbasin Study (GLMRIS)	USACE	Col. Vincent Quarles	$2,030,000	$2,850,000	$4,880,000	USACE is conducting a Feasibility Study of the options and technologies that could be applied to prevent or reduce the risk of AIS transfer between Great Lakes and Mississippi River basins, through aquatic pathways. This is a long-term effort performed in collaboration with federal, state, regional, and local agencies and NGOs. The study will provide a thorough identification of potential hydraulic connections between the two basins, identification and exploration of existing and potential aquatic nuisance species, and analysis of aquatic nuisance species control and migration prevention technologies. These technologies include but are not limited to physical or ecological separation. The study will also evaluate the potential for extended (temporary or permanent) closure of locks and other physical structures to impede continued migration of AIS. The study is being conducted in two focus areas: Focus Area 1 consists of the CAWS and Focus Area II consists of Outside Pathways. GLMRIS was authorized in December 2007. NEPA scoping meetings will begin on December 15, 2010. This study is depenedent upon adequate funding over multiple fiscal years and fuill collabroation with federal, state, local agencies and governmental/regulatory bodies.
2.4.3	Feasibility Assessment of Interbasin Transfer of Aquatic Invasive Species	USGS	Leon Carl	$120,000	$150,000	$270,000	Fractures and other potential pathways by which water that could contain eggs or roe could transfer between the Des Plaines River above the electric barriers is being assessed. Also, a high-flow event along the Des Plaines River which creates overland flow will also be logged to determine the effectiveness of the Des Plaines and I and M Canal barriers installed by the USACE to prevent migration of Asian carp. Additional activities with Upper Midwest Environmental Research Center in LaCrosse could include scale tests of Asian carp eggs moving through scale models with similar types of fractures.
2.4.4	Great Lakes Ecological Models for Risk Assessment	USFWS	Charles Wooley	$0	$1,200,000	$1,200,000	USFWS will develop quantitative models that predict Asian carp impacts on the food web of Lakes Michigan, Erie, and Huron. These modeling approaches will provide decision makers with separate predictions of Asian carp impacts, and uncertainties of those predictions. Predicted impacts of Asian carp will support decisions about what actions to take to: prevent invasions, monitor for new invasions, rapidly respond to incipient invasions, and control established populations of invaders.
2.4.5	Forecasting Spread and Bio-economic Impacts of AIS from Multiple Pathways	NOAA	Jennifer Day	$0	$439,000	$439,000	Without forecasts of the arrival and bio-economic impact of non-indigenous species, natural resource management agencies cannot cost effectively respond to current invasions or prevent future invasions. Investigators will combine scientific, economic, risk analysis, and management expertise to increase capabilities for forecasting both ecological and economic impact of current and future species invasions, quantify major uncertainties and ways to reduce uncertainty, and identify actions to improve cost effective management of invasive species in the Great Lakes.
				Research and Technology Development			
2.5.1	Investigate Tow Boats and Barges as Potential Vectors	USCG, USEPA, IL DNR, USACE	Tim Cummins, USCG	$413,075	$0	$413,075	The first part of the barge survey assessed more than 100 local and long distance barges and 10 towboats. The results from this study will be used to develop plans for further carp studies next spring. These studies will include (through field experimentation) sampling barge tanks for indications of Asian carp, evaluating the effects that tank leakage has on the potential transport of Asian carp, evaluate the probability of Asian carp survival in barge tanks.
2.5.2	Assessment Study of Potential Impacts of Steel-hulled Barges on Fish Movement Across Electric Barrier II	USACE	Ernest Drott	$0	$750,000	$750,000	Design and conduct experiments to test the effectiveness of the Electric Barriers IIA and IIB in the presence of steel-hulled barges and other vessels. Studies have indicated that fish swimming in the vicinity of steel-hulled barges are affected differently by the electric feilds than if they are swimming without the presence of such vessels. Given timely funding, this Framework item could inform other on-going study efforts.
2.5.3	Research on the Impacts of Potential Asian Carp Vectors Being a Source of Fish or eDNA Movement in the CAWS	USACE, USEPA	Ernest Drott, USACE; Bill Bolen, USEPA	$0	$300,000	$300,000	Form interagency/industry task force to validate or disprove the vector paths of eDNA entering the water column via dead Asian carp being discarded from barge decks, fish trapped between lashed barges, other fish materials sloughed from moving vessels, and eDNA present in sewer outflows. The task force must establish factual evidence that supports or refutes the viability and effectiveness of these access pathways.
2.5.4	Understanding Asian Carp and Bluegreen Algae Dynamics	USGS	Leon Carl	$179,000	$200,000	$379,000	The project will be expanded in 2011 to outdoor water bodies to accommodate larger fish than those used in the first year of the project. Due to the life history of the animals, the young fish required to begin the project were available in July 2010 so data collection began at that time. Blue green algae blooms resulting from the mussel invasion may provide an food source for bighead carp, enhancing their invasion. Noxious bluegreen algal blooms, under some circumstances, can be enhanced by interaction with silver and bighead carp, and presence of these carp may enhance toxin production by noxious algae.
2.5.5	Risk Assessment of Asian Carp Establishment in the Great Lakes Based on Available Food Sources	USGS	Leon Carl	$49,000	$117,000	$166,000	Bighead carp have yet to become established in the open waters of the Great Lakes. However, under varying conditions bighead carp have been observed to diversify their diet beyond their preferred plankton sources and feed on detritus. Feeding studies are needed under controlled conditions where the flexibility in the carp diet can be defined thus establishing their ability to maintain large populations in the Great Lakes, which includes looking at the behavior of Asian carp to eat alternative food sources such as Cladophora found in the Great Lakes.
2.5.6	Use of Seismic Technology to Divert or Eradicate Invasive Asian Carp	USGS	Leon Carl	$15,000	$450,000	$465,000	Plans for FY 2011 will include purchase of additional hydro guns, construction of an array for mobilization along with additional testing on behavioral modification in carp and lethality in threatened and endangered species. Additional work will study lethal and sub-lethal effects of seismic technology to divert or eradicate invasive Asian carp as a means to inhibit passage and reduce recruitment. Initial dose response studies will determine the effects of different sound wave frequencies on various age classes of Asian carp at a range of distances from the sound source. Initial and delayed lethality will be assessed, as well as sub-lethal evading behaviors. This project presented several collaborative opportunities with other agencies throughout the year including efforts taken with USFWS, the Bureau of Reclamation, Alaska Fish and Game, and IL DNR. USACE also expressed interest in future work to model how the sound waves travel through the CSSC and its effects on the canal.
2.5.7	Expand Research on the Identification of Asian Carp Attraction/Repulsion Pheromones	USGS	Leon Carl	$173,000	$160,000	$333,000	In 2011, USGS expects to complete physiological olfactory screen of over 100 chemicals from 18 classes of compounds, and behavioral studies of about 40 of the most efficacious of these. Expanded screening will be conducted for the most promising of the attractants to determine consistency and persistence of response with follow up tests to confirm responsiveness in the field. USGS is also working with University of Minnesota to screen 240 different potential compounds for pheromone attraction research. In 2011, compounds will be screened by electric stimuli to see how strongly fish respond. Six hundred juvenile Bighead carp were acquired for testing phase and USGS is currently working to obtain permits to transport fish to Minnesota for testing.
2.5.8	Identify Potential Compounds for Inclusion in a Toxicant Screening Program	USGS	Leon Carl	$264,600	$216,000	$480,600	USGS will develop cooperative research and development agreements to access pharmaceutical or agrochemical company chemical libraries to identify potential candidate toxicants. Studies will be required to assess selective toxicity of candidate toxicants between Asian carp versus native fishes. Additional data would be required to support registration. Efforts would be made to target those compounds/formulations with present agrichemical/pesticide use. USGS is also currently synthesizing a new chemical to determine if it is a potential toxicant for species-specific control.
2.5.9	Evaluate Physical Methods to Disrupt Asian Carp Spawning Behavior and Decrease Egg Viability	USGS	Leon Carl	$0	$160,000	$160,000	Research will be conducted to evaluate potential methods to disrupt Asian carp spawning and to alter Asian carp egg viability through the identification of sound wave amplitude and frequency which elicit silver carp avoidance behavior. Also, evaluation of Asian carp egg response to electrical fields, sonication, etc. to develop methods to reduce egg viability while the eggs drift downstream of Asian carp spawning areas will be conducted.
2.5.10	Characterization of Organism-Level Target Delivery Sites in Native Aquatic Animals	USGS	Leon Carl	$164,600	$170,000	$334,600	Unique characteristics (e.g., digestive system pH, enzyme profile, microbial community, etc.) that can be used in the development of species-specific management chemicals will be identified. Research will be conducted to identify and characterize potential bioactive agent delivery sites within Asian carp including the gill, skin, and gastrointestinal tract. Research will focus on collection of data on the physiological characteristics of both Asian carp and native species to provide an understanding of factors that might affect delivery of a bioactive agent. Additional basic and applied research will lead to development of optimized delivery components to enhance selectivity and sensitivity.

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2.5.11	Great Lakes' Tributary Assessment for Asian Carp Habitat Suitability	USGS	Leon Carl	$175,000	$166,000	$341,000	Tributaries that would be suitable for bighead carp spawning need to be identified to focus management efforts for evaluating invasion success, as well as sites to launch control actions. Recent USGS research has determined the developmental stage at which bigheaded carp larvae are capable of swimming and migrating laterally from flowing water into nursery habitats. This knowledge can be used in a model of river velocity and temperature to more accurately determine which rivers are suitable for spawning and recruitment of bigheaded carp. These funds would allow the completion of the two tributary assessments that began in FY 2010, and the start of assessments of two more tributaries in FY 2011. Each tributary assessment involves the collection of field data during a high-flow event. The high-flow events collected in FY 2010 will be analyzed and documented to finish the first two tributaries, the St. Joseph River in Michigan and Indiana, and the Milwaukee River in Wisconsin.
2.5.12	Technologies Using Oral Delivery Platforms for Species-Specific Control	USGS	Leon Carl	$1,096,000	$1,030,000	$2,126,000	Work will continue to (1) compare and contrast Asian carp gill structures relative to native fish, (2) characterize Asian carp gastrointestinal pH and digestive enzyme profiles, and (3) determine the response of Asian carp to oral dosing with rotenone or antimycin for targeted delivery systems. Work will be initiated to prepare incorporated registered piscicides into a targeted delivery platform using one or more MicroMatrix™ formulations and determine appropriate locations to conduct experimental field applications. Development of a targeted oral delivery platform using novel incorporation technologies that have the capacity to deliver biocides to specific target sites in AIS may increase the selectivity and specificity of both current and potential new management chemicals.
2.5.13	Study Efficacy of Reducing Asian Carp Food Source Through Nutrient Removal	USEPA	Candace Bauer; Bill Bolen	$0	$300,000	$300,000	In the CAWS, the Waste Water Treatment Plants (WWTP) effluent makes up the majority of the flow and, thus, the nutrients fuel phytoplankton growth, which (along with suspended organic matter present in effluent) serves as the primary food source of the carp. Nutrient reductions could be accomplished by removing phosphorus and nitrogen (using advanced biological nutrient removal processes) from WWTPs that discharge into the CAWS/Upper Illinois Watershed thereby removing the primary food source of Asian carp and limiting their movement through this area.
2.5.14	Efficacy Study for Toxic Zones Using Plant Effluent	MWRD	Richard Lanyon	$0	$0	$0	Create a toxic zone through the bypass of ammonia-laden primary effluent to the CSSC at the Stickney plant and the Little Calumet River at the Calumet plant to kill fish migrating upstream. The two zones would block passage to the lakefront control structures. Full-scale testing would be included in the study.
2.5.15	Develop Alternate Traps and Net Designs to Enhance Asian Carp Capture Rates	IL DNR	John Rogner	$0	$0	$0	Successful control or eradication of Asian carp requires that the rate of removal exceeds the rate of increase and that there is an ability to target all individuals in a population. There is a need to develop new trap or netting methods that can capture Asian carp at low densities. A working group of experts will be established to design a set of alternative nets and trap designs, and identify available chemical and sound attractants and/or repellants that could be used in combination to increase Asian carp capture rates that would lead to the design and construction of systems that would more effectively drive or herd Asian carp into net or trap designs. These systems would be built and refined for optimum performance downstream of USACE's electric barriers where low densities of carp are known to occur and then deployed above the electric barriers in the CAWs and/or Great Lakes rivers where eDNA technology indicates the likely presence of Asian carp.
2.5.16	Development of a Rapid and Quantitative Genetic-Based Asian Carp Detection Method	USGS	Leon Carl	$0	$205,000	$205,000	USGS proposes to develop a genetic-based method to determine the relative abundance of microbes in fecal materials discharged from bighead and silver carp. This approach is based on the same assumption that host-specific microbial populations are present in the fecal materials from Asian carp, and can be identified based on the use of a common genetic biomarker found in all life. This approach has been successfully applied to identify sources of fecal contamination in rivers, lakes, and drinking water distribution systems. To identify Asian carp-specific biomarkers, fecal materials from different Asian carp and indigenous fishes will be obtained. The DNA materials will be extracted and used in conjunction with DNA sequencing technology. Quantitative polymerase chain reaction (qPCR) will be applied to detect the abundance of specific biomarkers. On-site detection is possible with proper equipment provided. As the amount of fecal materials discharged from Asian carp is significantly high, the detection sensitivity can be greatly enhanced compared with the current eDNA method. The use of genetic biomarkers can further ensure the specificity of detection for Asian carp, and differentiate the detection signal from other non-Asian carp in the river. These features have advantages over the current technology and may allow for more rapid results.
							eDNA Analysis and Refinement
2.6.1	eDNA Monitoring of the CAWS	USACE	Col. Vincent Quarles	$0	$600,000	$600,000	eDNA sampling within the CAWS will include the collection of water samples at various fixed sampling reaches and at other locations designated by the Monitoring and Rapid Response Workgroup. USFWS and IL DNR support this effort by collecting the samples with the USACE field crew. Samples will be filtered at the USEPA Region 5 lab and processed at the USACE Engineering Research and Development Laboratory to determine the presence of Asian carp eDNA within the CAWS.
2.6.2	USFWS Capacity for eDNA Sampling for Early Detection	USFWS	Charles Wooley	$0	$300,000	$300,000	USFWS Great Lakes Fish and Wildlife Conservation Offices have the expertise and capability to perform eDNA sampling in support of analysis work planned for the La Crosse Fish Health Center. However, no comprehensive, effective, and efficient program is currently being conducted in the Great Lakes to detect incipient invasions. This framework item will provide USFWS Fish and Wildlife Conservation Office facilities with the resources and expertise to conduct integrated long-term early detection activities with a particular focus on locations in southern Lake Michigan, western Lake Erie and other investigational hotspots. USFWS will also begin work on development of an eDNA sampling protocol to be incorporated into long term monitoring strategy in collaboration with participating agencies.
2.6.3	eDNA Calibration and Increased Efficiency	USACE	Ernest Drott	$0	$1,970,000	$1,970,000	To further validate its use as an effective tool, its methodology must be further refined and its analysis capacity increased. A series of experiments will be done to refine the sensitivity and intensity of eDNA detections in manipulated pond and artificial stream experiments to better inform the management actions needed to help prevent Asian carp establishment in the Great Lakes.
2.6.4	USFWS Region 3 Fisheries Capacity for eDNA Processing	USFWS	Charles Wooley	$0	$750,000	$750,000	Develop capacity for systematic collection and analysis of eDNA samples in the support of species management plans (such as, AIS prevention and control and native species recovery and restoration).
2.6.5	eDNA Genetic Marker Development	USACE	Ernest Drott	$0	$350,000	$350,000	The goal is to develop high-fidelity, sensitive genetic markers for detecting the presence of Asian carp DNA in filtered water samples based on real-time or quantitative polymerase chain reactions (qPCR). This activity will lead to the development of optimized fluorescent oligonucleotide probes for use in quantitative PCR assays for eDNA silver carp and bighead carp. Development of new qPCR-based eDNA markers for Asian carp will allow more direct control over eDNA processing schedules, should provide for greater efficiency of eDNA processing, and may provide for a greater degree of sensitivity to eDNA at low concentrations. This work will serve as a basis for advancing future potential studies on eDNA calibration.
							Enforcement Activities
2.7.1	Investigation of Northeast Illinois' Bait Shops	IL DNR	John Rogner, IL DNR	$0	$30,000	$30,000	Use eDNA technology to collect water from area bait shops minnow stock tanks and test for the presence of Asian carp minnows. This monitoring will help ensure fisherman are not inadvertently redistributing Asian carp. Fifty two wholesale and retail establishments with valid permits to sell live minnows were identified in Lake, McHenry, Kane, Cook, DuPage, Kendall, Kankakee, Will and Grundy counties. IL DNR, assisted by a university, investigated these bait shops to identify whether Asian carp are collected and sold as bait in the Chicago area. IL DNR will continue to collect one or more water samples from bait shops to screen for the presence of Asian carp using eDNA.
2.7.2	Increased Lacey Act Enforcement of Illegal Transport of Injurious Wildlife	USFWS	Charles Wooley	$0	$400,000	$400,000	This activity includes intra- and interstate surveillance and enforcement of illegal transportation of Asian carp and will support Federal law enforcement activities to enforce the Lacey Act, and to work in coordination with State law enforcement partners to enforce State statutes and regulations related to AIS prevention and control. Also, USFWS has reinitiated the process for listing bighead carp as injurious under the Lacey Act and preparation of the preliminary rulemaking package and support documentation has begun, with an estimated complete date of approximately one year.
2.7.3	Increased Public Outreach and Enforcement	IL DNR	John Rogner	$0	$500,000	$500,000	Increase officer presence and enforcement activity related to Asian carp. In addition to continuing audits and inspections of bait shops, IL DNR staff and Conservation Police officers will perform education and enforcement activities at fish processors, fish markets, and retail food establishments. These activities will focus on ethnic markets known for having a preference for live fish for release or food preparation. In addition, import and export audits and inspections will be performed to ensure compliance with both federal Lacey Act and Illinois Injurious Species Rule.
							Funding Opportunities and Agency Preparation Activities for AIS
2.8.1	State and Interstate AIS Management Plans	USFWS	Charles Wooley	$0	$0	$0	State and Interstate Pest Management Plans and Asian carp activities for eight Great Lakes states. While funding of these plans is not directly related to Asian carp activities, States may direct resources as they deem appropriate to prevent the introduction or migration of Invasive Species which could include Asian carp.
2.8.2	Competitive Funding Opportunities	USEPA	Bill Bolen	$0	$0	$0	For FY 2010, USEPA awarded a $1,000,000 grant to a university for the assessment of eDNA analysis within Lake Michigan and the Great Lakes. Similar opportunities may be available once again in FY2011.
2.8.3	Incident Command System Training and Communication	IL DNR	John Rogner	$0	$100,000	$100,000	This activity will fund training for redundant Incident Management Teams and provide for basic Incident Command System training for all responding personnel. Lessons learned from the Rotenone response actiivites in FY2010 have indicated that the only effective, efficient, and safe way by which to conduct these multi-agency response activities is through this system.
2.8.4	USFWS National Asian Carp Plan/Activities - Great Lakes Basin	USFWS	Charles Wooley	$0	$1,500,000	$1,500,000	Develop and implement an early detection surveillance program for bighead and silver carps in and near the Great Lakes. This program would complement the eDNA sampling and analysis programs already being implemented by other agencies. If either bighead or silver carp are collected in the Great Lakes, then USFWS would implement a rapid assessment sampling program to describe distribution and relative abundance. Initial sampling is proposed targeting rivers being monitored for eDNA, western Lake Erie, the Wabash-Maumee separation site, and several other Great Lakes-Mississippi River inter-basin flood connection points.
							Other Asian Carp Support Activities
2.9	Other Asian Carp Support Activities	USEPA	Bill Bolen	$0	$1,150,000	$1,150,000	Contract support for Great Lakes National Program Office, Region 5, and CEQ activities to include the following: • Federal Executive Committee and ACRCC support ($100,000) • Contractor support ($300,000) • Multi-agency barrier defense activities ($300,000) • Rapid response support including costs for travel and relocation of equipment by other agencies ($400,000) • Communication and outreach activities ($50,000)

	2011 GLRI Funding Requested	2011 Available GLRI Funding (2010 Carryover & 2011 Requested)
Total MRR		
Total USFWS	$5,150,000	$5,208,000
Total USGS	$3,024,000	$5,260,200
Total USACE	$10,820,000	$15,040,000
Total USCG	$0	$413,075
Total IL DNR	$5,230,000	$5,230,000
Total IN DNR	$0	$0
Total USEPA	$1,450,000	$1,450,000
Total NOAA	$439,000	$439,000
Total	$26,113,000	$33,040,275