Inland Seas Angler

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Genetic analysis reveals fish eggs found in Upper Mississippi not Asian Carp

Scientists have extracted DNA from fish eggs found in northern sections of the Upper Mississippi River and have determined that the eggs and larvae are not from Asian carp. Genetic analysis instead shows that the fish eggs collected in the summer of 2013 likely belong to a native North American species in the same family as carp. All Asian carp species are considered invasive species and belong to the cyprinid fish family.

To confirm visual identification of the eggs' species, scientists from the U.S. Geological Survey genetically tested 41 of the 65 eggs and larvae that were collected from the Upper Mississippi River (Pool 9 and Pool 11) in Wisconsin and Iowa.

DNA sequences successfully obtained from 17 eggs revealed that they were similar to those of other cyprinid fishes and did not come from Asian carp. The one exception was an egg collected from Pool 19 in southern Iowa, which had been visually identified as an Asian carp, and was later genetically confirmed by the USGS as a grass carp, one of the four Asian carp species.

"What we have learned from this research is that non-Asian carp cyprinid eggs in the northern portions of the Upper Mississippi can closely resemble Asian carp eggs in size and shape," said Leon Carl, USGS Midwest Region Director. "These findings underscore the importance of using genetic testing to confirm the results of visual identification."

Researchers were surprised to learn that the large eggs from Pools 9 and 11 belonged to other species in the cyprinid family rather than to Asian carp species. Such findings are contrary to previously published work that had established that non-Asian carp cyprinids indigenous to the Midwest have considerably smaller eggs compared to the invasive carp that were the focus of the study.

Detailed visual analysis of the eggs' size and shape earlier this year indicated that they were consistent with the eggs of Asian carp species and led scientists to believe that invasive carp may have successfully spawned in this northern portion of the Upper Mississippi. Given the

Genetic analysis

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Obama approves closure of Upper St. Anthony Falls lock

A significant step has been taken toward protecting the Upper Mississippi River above the Twin Cities from invasive carp.

President Barack Obama signed legislation June 10 that will close the Upper St. Anthony Falls lock to boat traffic. Located in downtown Minneapolis, the lock is the northern-most navigational structure on the Mississippi River. Closure will help keep invasive carp, such as bighead and silver carp, from reaching Mille Lacs Lake and other important waters north of the Twin Cities.

"Closing the Upper St. Anthony Falls lock is the single biggest and most important step Minnesota can take to keep invasive carp out of the Upper Mississippi River watershed, including Mille Lacs Lake," said DNR Commissioner Tom Landwehr. "This will protect our local economies and outdoor heritage in the north-central part of the state."

The DNR anticipates the U.S. Army Corps of Engineers and city of Minneapolis will work with affected parties to ensure timely and efficient closure. Under the new law, the Corps has up to one year to close the lock.

While lock closure will prevent carp from swimming upstream, there still exists the risk of humans introducing carp into the Upper Mississippi River watershed, despite the fact it is illegal to transport invasive carp. The DNR will continue its education and enforcement efforts to minimize this risk.

Obama approves closure

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PCB levels continue to decline in key Lake Michigan sport fish

MADISON – New research shows a continuing decline in PCB levels in key Lake Michigan sport fish more than 30 years after regulations on manufacture, use and disposal were put into place.

Wisconsin DNR researchers Paul Rasmussen, Candy Schrank and Meghan Williams, in a paper published in the June 16 online edition of the Journal of Great Lakes Research, describe a statistical model based on fish samples collected from 1975 to 2010 that quantified how toxic polychlorinated biphenyls have diminished in Chinook and coho salmon—two prized fish among sport anglers and home chefs. The researchers found that over time, the rate of decline has moderated—from decreases of 16.7 percent annually in Chinook and 23.9 percent annually in coho from 1975 to the mid-1980s—to decreases of 4 percent per year in Chinook and 2.6 percent per year in coho from the mid-1980s to 2010.

"Although the rate of decline has slowed from the early days of the ban, the continuing improvement is significant," said Candy Schrank, an environmental toxicologist and fisheries expert with DNR. "PCBs remain the contaminant of greatest concern for the health of people who eat fish from Lake Michigan and these findings will help us evaluate ongoing efforts to reduce the amount of chemical contamination entering the lake and to learn about how PCBs move in the environment."

Until their U.S. ban in 1979, PCBs were used to make electrical transformers, carbonless papers, cutting oils and hydraulic fluids. However, because the man-made PCBs are slow to break down in the environment, they remain a problem.

The new study and its supporting data are among a number of factors taken into account as DNR monitors for multiple contaminants to update fish consumption advisories designed to protect the health of people who eat fish. The current advisory recommends that people should eat no more than one meal per month of Chinook and coho salmon from Lake Michigan. While the new PCB data are not expected to result in a short-term advisory change, they signify an important, positive trend.

Schrank said the DNR study of coho and Chinook mirrors the findings of other researchers with respect to PCB concentrations in water, gull eggs and lake trout from Lake Michigan as well as some fish in Lake Ontario. The DNR research took into account the size of the fish (older, larger fish accumulate more chemicals over time) and seasonal changes (salmon gorge themselves on smaller fish during the summer and contain higher fat and chemical concentrations in fall).

In a separate study published earlier in the Journal of Great Lakes Research, Schrank, Williams and Dr. Henry Anderson from the Wisconsin Dept. of Health Services reported on the concentration of beneficial fatty acids such as omega-3 and omega-6 in key Wisconsin sport fish including Lake Michigan coho and Chinook.

"These and other Wisconsin sport fish contain enough healthy omega-3 and other beneficial compounds that they don't need to be eaten every day to provide cardiovascular advantages," Schrank said. "In fact, an 8 oz. serving of coho or Chinook provides nearly twice the daily intake of healthy compounds recommended for the prevention of heart disease by the Harvard School of Public Health."

The abstract of the PCB study may be found at **www.sciencedirect.com/science/article/pii/S0380133014001373;** the abstract of the beneficial fatty acid study may be found at **www.sciencedirect.com/science/article/pii/S038013301400118X**. More info on fish consumption advice can be found at **dnr.wi.gov** for "**eating your catch.**" For more info: Candy Schrank, **Candy.schrank@wisconsin.gov**; Jennifer Sereno, communications, 608-770-8084, **Jennifer.sereno@wisconsin.gov.** ✧

Position Statement

Representing a major interest in the aquatic resources of the Great Lakes states and the province of Ontario, the Great Lakes Sport Fishing Council is a confederation of organizations and individuals with a concern for the present and future of sport fishing, our natural resources and the ecosystem in which we live. We encourage the wise use of our resources and a search for the truth about the issues confronting us.

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New revelation on Lake Huron's collapse could spell trouble for Lake Michigan

The harsh winter of 2002 was a key factor in the collapse of baitfish in Lake Huron, according to a USGS report. Could last winter's record ice cover on Lake Michigan have similar consequences?

In the study of freshwater ecosystems there is a classic debate regarding the control of baitfish populations. In simple terms, it can be boiled down to those who argue that baitfish numbers are controlled by the abundance of their food (plankton) vs. those who argue that baitfish numbers are controlled by larger fish that prey on baitfish.

In Lake Huron and Lake Michigan, this "bottom-up" vs. "top-down" debate is ongoing and complex. Baitfish, and alewife in particular, have declined in recent years. There is evidence that overabundance of Chinook salmon, which prey almost exclusively on alewife, are implicated but there have also been changes in plankton abundance and composition due to invasive species like quagga mussels. While this does not seem to account for a decline in alewife numbers directly, it has affected their condition and, as a result, salmon now must eat more to fill their bellies.

A recent paper published in the "Journal of Great Lakes Research" adds another wrinkle to the debate. Authors from the **Ontario Ministry of Natural Resources** and **U.S. Geological Survey** present analysis that links the harsh winter of 2002-2003 to the steep decline in Lake Huron alewife numbers that immediately followed. From 2003 to 2012, winters were relatively mild but alewife failed to mount a comeback in Lake Huron. This is where the top-down and bottom-up factors may have come into play. Hard winters had knocked back alewife populations in the past, but they had always recovered. Not so this time, but the changes in Lake Huron were not all bad and the decline of alewife led to resurgence of native walleye, lake trout, and certain native baitfish.

What does this mean for Lake Michigan? It is no secret that last winter was a cold one, and Lake Michigan experienced record-setting ice coverage of 93.29 percent in early March. Alewives are not native to the upper Great Lakes, and are not well-adapted for dealing with northern winters in a freshwater environment. Adult alewife sometimes die off in large numbers as waters begin to warm up after a hard winter, and young alewife can have difficulty surviving through the winter if they were not able to put on enough weight during their first summer.

For Lake Michigan, this means that last year's crop of alewife may not contribute much to the forage base in coming years. Acoustic sampling conducted by U.S. Geological Survey in 2013 found that the 2013 alewife year-class was very poor in terms of both numbers and growth rate even before the harsh winter conditions. Declines in older alewife due to the harsh winter are also possible, but only time will tell how Lake Michigan baitfish—and the salmon and trout fishery that depends on them—weathered the hardest winter in recent history. ✧

IL Conservation Police Officer Trainee exam offered July 14-17

Veterans are encouraged to submit military documentation prior to testing

SPRINGFIELD – The Illinois DNR Conservation Police Office of Law Enforcement is seeking qualified applicants to take the written exam for Conservation Police Officer Trainee. The exam will be offered at several Central Management Services (CMS) testing centers throughout the state on July 14 - 17 from 8:00 a.m. to 1:30 p.m. each day. Tests will be administered on a walk-in basis at Springfield and Chicago testing centers. The Marion, Champaign and Rockford testing centers are by appointment only.

Applicants should be aware of the following information:

- If applicants have not already submitted a CMS-100 application to CMS Examining (or applied online), they should be prepared to bring a completed application with them to the assessment center on the day that they anticipate testing. Applicants should not be directed to submit their applications to CMS Examining as our grading section will not be doing pre-qualification screening of applicants.
- Applicants seeking a waiver of the college degree requirement under PA 97-0948 and who have not yet established their status with the CMS Veterans Outreach Program should be encouraged to submit their military documentation as soon as possible prior to testing to CMS-VOP to establish their status. CMS will not be providing the "grace period" after testing to allow veterans to establish their medal standing with CMS-VOP as has been done on recent administrations of the CPOT exam. They can still bring their certified military documentation with them when they test but it is to their advantage to establish their status as soon as possible with CMS-VOP. Questions about establishing veteran status should be directed to CMS-VOP at (217) 524-1313.

For more information about career opportunities with the Illinois Conservation Police: **http://dnr.state.il.us/law3/career.htm** or call Lt. Curt Lewis in the Conservation Police Training Section at (217) 785-8407.

Climate change accelerates hybridization between native and invasive species of trout

BOZEMAN, Mont. – USGS Scientists have discovered that the rapid spread of hybridization between a native species and an invasive species of trout in the wild is strongly linked to changes in climate.

In the study, stream temperature warming over the past several decades and decreases in spring flow over the same time period contributed to the spread of hybridization between native westslope cutthroat trout and introduced rainbow trout—the world's most widely introduced invasive fish species—across the Flathead River system in Montana and British Columbia, Canada.

Experts have long predicted that climate change could decrease worldwide biodiversity through cross-breeding between invasive and native species, but this study is the first to directly and scientifically support this assumption. The study, published in *Nature Climate Change*, was based on 30 years of research by scientists with the U.S. Geological Survey, University of Montana, and Montana Fish, Wildlife & Parks.

Hybridization has contributed to the decline and extinction of many native fishes worldwide, including all subspecies of cutthroat trout in western North America, which have enormous ecological and socioeconomic value. The researchers used long-term genetic monitoring data coupled with high-resolution climate and stream temperature predictions to assess whether climate warming enhances interactions between native and nonnative species through hybridization.

"Climatic changes are threatening highly prized native trout as introduced rainbow trout continue to expand their range and hybridize with native populations through climate-induced 'windows of opportunity,' putting many populations and species at greater risk than previously thought," said project leader and USGS scientist Clint Muhlfeld. "The study illustrates that protecting genetic integrity and diversity of native species will be incredibly challenging when species are threatened with climate-induced invasive hybridization."

Westslope cutthroat trout and rainbow trout both spawn in the spring and can produce fertile offspring when they interbreed. Over time, a mating population of native and non-native fish will result in only hybrid individuals with substantially reduced fitness because their genomes have been infiltrated by nonnative genes that are maladapted to the local environment. Thus, protecting and maintaining the genetic integrity of native species is important for a species' ability to be resilient and better adapt to a rapidly changing climate.

Historical genetic samples revealed that hybridization between the two fish species was largely confined to one downstream Flathead River population. However, the study noted, over the past 30 years, hybridization rapidly spread upstream, irreversibly reducing the genetic integrity of native westslope cutthroat trout populations. Genetically pure populations of westslope cutthroat trout are known to occupy less than 10 percent of their historical range.

The rapid increase in hybridization was highly associated with climatic changes in the region. From 1978 to 2008 the rate of warming nearly tripled in the Flathead basin, resulting in earlier spring runoff, lower spring flooding and flows, and warming summer stream temperatures. Those locations with the greatest changes in stream flow and temperature experienced the greatest increases in hybridization.

Relative to cutthroat trout, rainbow trout prefer these climate-induced changes, and tolerate greater environmental disturbance. These conditions have likely enhanced rainbow trout spawning and population numbers, leading to massive expansion of hybridization with westslope cutthroat trout.

"The evolutionary consequences of climate change are one of our greatest areas of uncertainty because empirical data addressing this issue are extraordinarily rare; this study is a tremendous step forward in our understanding of how climate change can influence evolutionary process and ultimately species biodiversity," said Ryan Kovach, a University of Montana study co-author.

Overall, aquatic ecosystems in western North America are predicted to experience increasingly earlier snowmelt in the spring, reduced late spring and summer flows, warmer and drier summers, and increased water temperatures—all of which spell increased hybridization between these species. More info, go to the USGS Northern Rocky Mountain Science Center **website**. ✧

DNR to conduct fish surveys at 16 northern Indiana lakes

Fisheries biologists will conduct standard fish surveys at 16 northern Indiana natural lakes as part of an annual project to monitor the long-term status and trends of fish populations in the region's lakes.

Lakes to be surveyed are: Indiana Lake in Elkhart County; Hill, McClure, and Waubee lakes in Kosciusko County; Adams and Royer lakes in LaGrange County; Crooked, Gordy and Miller lakes in Noble County; Flint Lake in Porter County; Riddles Lake in St. Joseph County; Arrowhead, Hamilton, Little Lime, and Silver lakes in Steuben County, and Little Cedar Lake in Whitley County.

Contact Information: Jed Pearson, (260) 244-6805, **jpearson@dnr.IN.gov**.✧

PFBC to receive $800,000 from power plant certification

HARRISBURG – The Pennsylvania Fish and Boat Commission (PFBC) said that the $800,000 it will receive as a result of a water quality certification of Exelon's Muddy Run hydroelectric plant in Lancaster County will be used specifically to remove small dams within York and Lancaster counties.

The Department of Environmental Protection (DEP) announced on June 3 that it had issued a 401 Water Quality Certification for the continued operation of Exelon's hydroelectric project on the Susquehanna River in Martic and Drumore townships, Lancaster County. The company must renew its operating license with the Federal Energy Regulatory Commission (FERC) by the end of 2014. The DEP certification is part of the renewal application.

"Along with DEP, the PFBC and others have been negotiating with Exelon for several years leading up to the relicensing to ensure that fish and aquatic resources are protected," said PFBC Executive Director John Arway. "We thank DEP for their years of hard work and leadership in developing a water quality certification which allows Exelon to continue to responsibly operate the Muddy Run facility. We also want to thank the Exelon Corporation for their cooperation in working with the resource agencies to get to this point."

"This certification and the anticipated FERC license renewal will provide protection, conservation and appropriate mitigation for American shad, American eels, and resident fish," he added. "It also will lead to beneficial small dam removals on tributaries to the Susquehanna River and provide for water quality improvements in York and Lancaster counties."

The PFBC estimates that there are several hundred dams in the two counties.

The agreement calls for Exelon to pay the PFBC $50,000 annually from 2014 to 2030, for a total of $800,000. Also, Exelon will pay $450,000 per year total to the Lancaster and York County conservation districts to help fund projects that will help Pennsylvania achieve commitments to protect the Chesapeake Bay.

The DEP certification also provides for a plan to protect and improve the American eel population by trapping eels below the Conowingo Dam in Maryland and transporting them upstream annually to various locations in the Susquehanna watershed. It is anticipated that 1 million juvenile eels will be moved upstream per year. The plan remains in effect from 2014 until 2030.

"The effort to restore eels to the Susquehanna River in Pennsylvania will provide ecological benefits not only to the eels themselves and the species that prey upon them, but also the eastern elliptio freshwater mussel, whose primary host is the American eel," said Andy Shiels, PFBC Deputy Director of Operations.

"As eel numbers have declined in the Susquehanna River, so have the elliptio mussels, as they cannot reproduce successfully in the absence of eels which serve to transport the mussel larvae throughout the watershed."

Muddy Run, owned and operated by Exelon, is an existing 800 megawatt hydroelectric project located on the eastern shore of the Conowingo Pond on the Susquehanna River in Lancaster County. The project has operated since 1966. ✧

Walleye stocking a success despite challenging spring weather

On the lake's surface at the end of a fishing line, a splash and the flash of gold confirm the success. It's a walleye, perhaps the most sought-after fish species in Minnesota. For many anglers, moments like these are a direct result of skill, persistence and sometimes a little luck. But often, there is another important ingredient—fish stocking by the Minnesota Department of Natural Resources. Without the process of taking fish eggs and putting the newly hatched fry or small walleye fingerlings into lakes, these fish generally could only be caught on large rivers and on 260 lakes predominantly in the northern half of the state. But after stocking, walleye can be found in around 1,300 Minnesota lakes.

"This spring we took more than 600 million walleye eggs. From those, 270 million fry were stocked in 277 lakes," said Neil Vanderbosch, DNR fisheries program coordinator. "Crews worked in some pretty rough weather including snow this year during egg take. Falling temperatures delayed spawning activity and egg take for a few days, but in the end we met quotas."

Despite the stocking effort, natural reproduction accounts for the majority of walleye caught and harvested by anglers in the state. An estimated 85 percent of all the walleye harvested in Minnesota result from natural reproduction, with most of these fish pulled from popular walleye lakes like Lake of the Woods, Leech, Red and Winnibigoshish.

"While most walleye caught result from natural reproduction, stocking provides anglers throughout the state the chance to catch walleye on medium and small lakes," said Vanderbosch.

In all, the DNR stocks about 1,050 lakes that can't maintain a walleye population through natural reproduction. Stocking usually takes place in lakes every other year, and about half of the stocking uses fry, which are newly hatched fish that are a few days old and about a third of an inch long.

For stocking information about individual lakes, enter the lake name on LakeFinder at the DNR Fish Minnesota page. ✧

Updated plans to protect the Great Lakes from invasive species announced

WASHINGTON, D.C. – The Asian Carp Regional Coordinating Committee (ACRCC) late last month, announced the release of an updated Monitoring and Response Plan MRP) intended to protect the Great Lakes from Asian carp, and to prevent the invasive fish species from developing self-sustaining populations in the Great Lakes. For the first time the MRP is being released concurrently with a summary of the U.S. Fish and Wildlife Service's Great Lakes eDNA Monitoring Program.

The MRP outlines actions for the 2014 field season focused on monitoring and removal of Asian carp downstream of the Electric Barrier System in the Chicago Area Waterway System (CAWS) and the upper Illinois Waterway, and on-going evaluations of the effectiveness of barriers and gears used in keeping Asian carp from establishing in the CAWS and Lake Michigan.

"The 2014 Monitoring and Response Plan, continues to build off past efforts to protect the Great Lakes by using past data and results to focus attention on actions that achieve the greatest results," said Kevin Irons, Co-Chair of the ACRCC Monitoring Workgroup.

Separate from the MRP, the U.S. Fish and Wildlife Service's Great Lakes eDNA Monitoring Program examines waters of the CAWS and also across the Great Lakes basin, for early warning signs of Asian carp.

"The Great Lakes eDNA Monitoring Program highlights our partnership with Great Lakes states," said USFWS Midwest Deputy Director, Charlie Wooley. "We're excited to share with the public how we are working side-by-side with our state counterparts to collect information that will shape our understanding and response of the potential threat of Asian carp in waters throughout the Midwest."

In addition to several reoccurring actions from last year, new actions to monitor populations of Asian carp in the upper Illinois Waterway and the Chicago Area Waterway System in 2014 include:

• Increased sampling for Asian carp downstream of the Electric Barriers to better focus on the leading edge of the Asian carp population in the CAWS.
• Contract commercial fishing crews will expend more effort in the target areas of the Marseilles and Dresden Island pools of the upper Illinois Waterway.
• A heightened Asian carp telemetry monitoring program around the Electric Dispersal Barriers.
• Monitoring for adult and juvenile bighead carp and silver carp in the upper Des Plaines River focused in four new target areas, and the river upstream of the former Hofmann Dam will be examined for potential Asian carp habitat.
• Testing the effects of water gun seismic pressure waves on in-water structures will be conducted before this technology is employed in critical navigational waters.

For more information and to read the MRP: **www.asiancarp.us/monitoring.htm** ✧

NY regulations target aquatic invasive species

Boaters Now Required To Clean and Drain Boats Prior to Launch

As part of an aggressive effort to prevent invasive species from entering and damaging New York water bodies, the State Department of Environmental Conservation (DEC) adopted new regulations that require boaters to remove all visible plant and animal materials from boats, trailers and associated equipment, and to drain boats prior to launching.

The regulations, already in effect, pertain to all DEC boat launches, fishing access sites and other DEC lands where watercraft such as boats, kayak or canoes, can be launched.

"New York continues to work with its state, local, federal and environmental partners to protect water bodies from destructive invasive species," DEC Commissioner Joe Martens said. "Boats, trailers and associated equipment are common pathways for spreading aquatic invasive species. These new regulations will help reinforce the message that boaters need to clean their equipment of any clinging plant and animal materials and drain their boats prior to launching at lands administered by DEC."

Boaters should take the following steps to ensure that their boat, trailer and equipment are free of aquatic invasive species:

►Visually inspect the boat, trailer and other fishing and boating equipment and remove all mud, plants and other organisms that might be clinging to it. Materials should be disposed of in one of the Nuisance Invasive Species Disposal Stations installed at many DEC boat launches, in the trash or at an upland location away from the launch ramp.

►Drain the boat's bilge and any other water holding compartments such as live wells, bait wells and bilge tanks. This does not apply to water associated with sanitary systems or drinking water supplies.

Drying boats is also highly recommended but is not required under the new regulations. Boaters who are unable to dry their boats between uses should flush the bilge and other water holding compartments with water, at a temperature of 140°F. Microscopic larval forms of aquatic invasive species, such as zebra mussels and spiny waterflea, can live in as much as a drop of water. To ensure that these organisms are not accidentally spread, anything holding water should be dried, flushed or disinfected with hot water to ensure that these invasive species are not spread. Additional information on AIS and disinfection recommendations can be found **www.dec.ny.gov/animals/48221.html.**

www.dec.ny.gov/regulations/proprregulations.html. ✧

MI DNR reports progress on removal, repair of dams

Six projects that received $2.35 million in 2013 as part of the Minn. DNR Dam Management Grant Program are steadily making progress in an effort to remove or repair local dams.

Projects are moving smoothly for the six recipients," said Chris Freiburger, coordinator of the Dam Management Grant Program. "The recipients all are working hard to complete their projects and to meet the goals of the program."

The six recipients include:

- The Conservation Resources Alliance in Grand Traverse County was awarded $357,725 to fund the Boardman Dam removal – phase II project. This project is actively completing all the needed planning, and removal is set to begin in 2015.
- The DNR's Wildlife Division in Allegan County was awarded $725,000 to fund the Kalamazoo River – Otsego Township Dam repair project. This DNR-owned site has legacy chemical contamination issues, which will be remedied by building another structure in the summer of 2015.
- The Ionia Conservation District in Ionia County was awarded $994,975 to fund the Lyons Dam removal project. This project has been slowed by discovery below the dam site of the snuffbox mussel, a federally endangered species. The district used a portion of its Dam Management Grant Program funds to complete a mussel survey to better understand locations of the endangered mussel, determine habitat needs, and ultimately improve habitat for not only the snuffbox mussel but also fish found in the Grand River. The project is now focused on completing the needed planning for removal of the dam.
- Friends of the Shiawassee River in Shiawassee County was awarded $162,700 to fund the Shiawassee Town Dam removal project. Removal is slated to begin later this summer with completion by this fall.
- The city of Vassar in Tuscola County was awarded $40,300 to fund the Vassar Dam removal project. This project is nearing completion as the dam structure has been removed, and the site landscaping should be completed by this summer.

The city of Wakefield in Gogebic County was awarded $69,300 to fund the Sunday Lake Dam spillway gate replacement project. This project was completed in March. ✧

NY proposes rule changes to implement new crossbow hunting law

Public comments accepted through July 21

With new state legislation authorizing the Department of Environmental Conservation (DEC) to allow taking of big game (deer and bear) or small game by the use of a crossbow at certain times and places in New York, DEC is now accepting public comment on proposed regulation changes so crossbows may be a legal implement for the fall 2014 hunting seasons. DEC will accept written public comment on the proposed hunting rule changes through July 21, 2014.

"Crossbow hunting is growing across the country and Governor Cuomo's commitment to increase hunting opportunities here in New York State is demonstrated by the signing of the new law to authorize the use of crossbows for hunting under certain circumstances," said DEC Commissioner Joe Martens.

Specifically, the law changes authorize DEC to:

1. Allow the take of deer and bear by the use of a crossbow during a limited portion of the early bowhunting seasons (14 days at the end of the existing bowhunting season in the Southern Zone, and 10 days in the Northern Zone) and during any big game hunting season in which use of a firearm (shotgun, rifle or muzzleloader) is allowed, except for the Youth Deer Hunting weekend and the January firearms deer season on Long Island.
2. Allow the take of small game mammals, wild turkey and other upland game birds by the use of a crossbow during their respective hunting seasons.

DEC's proposed rule changes also clarify the technical descriptions of a legal crossbow and the license privilege and training requirements for any person hunting with a crossbow, as specified in legislation. The new law prohibits all hunting with crossbows in Suffolk, Nassau and Westchester counties or in the archery-only portions of Albany and Monroe counties, and DEC's proposed rule reflects these restrictions.

Details of the proposed rule can be viewed in the June 4, 2014 publication of the New York State Register and on DEC's website at www.dec.ny.gov/regulations/34113.html#Part1Part2p. For a general summary of the law, see DEC's information on crossbow hunting at www.dec.ny.gov/outdoor/68802.html. DEC's position on crossbow use for deer hunting is provided in Appendix 5 of the NYS Deer Management Plan (www.dec.ny.gov/docs/wildlife_pdf/deerplan2012.pdf).

Citizens who wish to make formal public comments through July 21 may do so by sending an email to: wildliferegs@gw.dec.state.ny.us (include "crossbow regulations" in the subject line) or by writing to: Mr. Bryan L. Swift, New York State Department of Environmental Conservation, Bureau of Wildlife, 625 Broadway, Albany, NY 12233-4754. ✧

Sturgeon fishing expands under proposed rules

A statewide catch-and-release season for sturgeon is among several rule changes proposed by the Minnesota DNR. Now, there are only a few waters in the state where anglers can legally fish for sturgeon. New rules would also affect those who fish for trout and bass, among other species.

"This is the first time in a long time that seasons for major angling species have been changed," said Linda Erickson-Eastwood, DNR fisheries program manager. "We made the changes based on sound data analysis. They will continue to provide high-quality fishing and additional fishing opportunities."

Proposed rulemaking changes include:

- New statewide catch-and-release seasons for bass and sturgeon.
- Close the taking of flathead catfish during the winter.
- Open trout lakes in Becker, Beltrami, Cass, Crow Wing and Hubbard counties to winter trout fishing.
- Little Andrus (Snowshoe Lake) in Cass County; Allen and Pleasant lakes in Crow Wing County; and Bad Medicine Lake in Becker County will remain closed to winter fishing.
- Require a barb on arrows used for bowfishing.
- Open Spring Lake in Itasca County to whitefish netting.
- Restrictions placed on where nets can be placed for smelting on Grindstone Lake.
- For border waters, changes simplify, provide additional opportunities, make rules consistent with the Minnesota inland regulations, or make consistent with bordering government regulations, as well as clarify the no-culling rule.

For input on the proposed rules & rulemaking documents: **www.mndnr.gov/input/rules/fisheries/statewide.html**. ✧

New MI website shows fish population trends

The Michigan DNR announced that a new Web application designed to educate anglers and fisheries professionals on local and regional trends in abundance, growth and survival of important fish populations in selected streams across Michigan is available for public use. The application was developed by the DNR's Fisheries Division and incorporates data collected from a network of fish population survey sites, with data for some sites going back to 1947.

"The new Stream Fish Population Trend Viewer features more than 40 streams that represent a range of conditions in terms of stream size, temperature and Great Lakes access," said Troy Zorn, DNR fisheries research biologist. "The focus is on streams with long-term data and naturally reproducing populations of trout, Great Lakes salmonids or smallmouth bass to provide users with information on self-sustaining fish populations around the state."

Since trends in stream fish populations are largely influenced by regional climate and flow conditions, repeatedly going back to the same locations annually provides a clear understanding of trends in a stream. Users will be able to see what the population trends are in different areas of the state by comparing trends for key sites in each region. For fishery managers, understanding regional trends is critical to determine the best course of management on these streams, as well as interpreting survey data on streams that are surveyed less frequently. Understanding these trends is equally important to anglers, watershed or conservation groups, and the public.

Anglers, fisheries professionals and the public will be able to look up a river and see what the most recent trends are in terms of abundance, growth and annual survival of selected fish species. Information can be viewed in map, graph or table formats. Approximately half of the sites are sampled each year, and the new data will be added annually to the Trend Viewer app prior to spring.

The app was developed in collaboration with the Michigan Department of Technology, Management and Budget and Michigan State University and funded by the Great Lakes Fishery Trust.

The Stream Fish Population Trend Viewer app can be found at: **http://www.mcgi.state.mi.us/fishpop/**.✧

NY Open for Fishing and Hunting Initiative

The NY Open for Fishing and Hunting Initiative is an effort to improve recreational opportunities for sportsmen and women and to boost tourism activities throughout the state. This initiative includes streamlining fishing and hunting licenses, reducing license fees, improving access for fishing and increasing hunting opportunities in New York State.

In support of this initiative, this year's budget includes $6 million in NY Works funding to support creating 50 new land and water access projects to connect hunters, anglers, bird watchers and others who enjoy the outdoors to more than 380,000 acres of existing state and easement lands that have not reached their full potential. These 50 new access projects include building new boat launches, installing new hunting blinds and building new trails and parking areas. In addition, the 2014-15 budget includes $4 million to repair the state's fish hatcheries; and renews and allows expanded use of crossbows for hunting in New York State.

This year's budget also reduces short-term fishing licenses fees; increases the number of authorized statewide free fishing days to eight from two; authorizes DEC to offer 10 days of promotional prices for hunting, fishing and trapping licenses; and authorizes free Adventure Plates for new lifetime license holders, discounted Adventure Plates for existing lifetime license holders and regular fee Adventure Plates for annual license holders. ✧

Mohawk River Study kicks off

The New York State Department of Environmental Conservation (DEC) and the USGS will undertake a three-year cooperative study of Mohawk River fish species which commenced last month. This is the first comprehensive study of Mohawk River fish species in more than 30 years."

This study will help implement the Action Agenda of Governor Cuomo's Mighty Waters cabinet-level work group which seeks to promote environmental sustainability and reduce the hazards of flooding in the Mohawk River Basin. The nearly $200,000 project will be funded by DEC and the USGS and is intended to improve knowledge and understanding of contemporary fisheries in the main stem of the Mohawk River, which extends from Lake Delta Dam near the city of Rome downstream to its confluence with the Hudson River near the city of Cohoes. The study areas will encompass representative segments of the natural river, the river canal, lock sections with removable dams, and power pool segments with permanent dams.

DEC and USGS will sample fish species at multiple sites this summer utilizing a number of collection methods such as electrofishing and beach net fishing. Most of the fish collected will be returned to the river after data collection is complete. All fish collected will have their species, size, abundance and distribution documented. DEC will continue to monitor and collect samples of blueback herring, a species of concern that is declining in the Mohawk River.

In addition, the study will identify management practices that could lessen anticipated effects of invasive species, climate change or other factors that could impact fish in the main stem of the Mohawk River.

Preliminary results available this fall at: **http://ny.cf.er.usgs.gov/nyprojectsearch/projects/LK00-FKZ14.html.** ✧

Researchers identify new burbot spawning behavior

It's a winter's night on Lake Michigan. Underwater in the shallows, the eel-like and lowly burbot gather in a brown writhing mass to spawn. With their serpentine bodies and dangly chin barbels, it's not a pretty picture, but the activity ensures the species' survival as one of the top predators in the food chain, along with lake trout.

Wisconsin Sea Grant scientists have discovered that burbot also spawn in deep reefs later in the season than previously known. Their findings, recently published in Transactions of the American Fisheries Society, add a fifth spawning behavior to those already identified for burbot.

Burbot, known in Latin as Lota lota from the French word for codfish, are the only species of cod that live entirely in fresh water. Also known as eelpout, lawyer and lingcod, the burbot is prized for its delicate white meat. A popular restaurant on Washington Island off the Door Peninsula, KK Fiske, draws patrons from as far away as Chicago by offering "fresh lawyers" throughout the year prepared fried, boiled, broiled and shish kebabed. However, just as many anglers are put off by the burbot's eel-like appearance and penchant for wrapping its tail around their arms as they try to unhook it.

For the study, conducted in 2007 and 2008, researchers collected burbot larvae in lakes Superior, Michigan and Huron during spring and summer. While burbot are known to spawn in landlocked lakes and Great Lakes tributaries in winter (January to March), and in rocky shallow waters of the Great Lakes, researchers found burbot larvae at deep reefs in the middle of Lake Michigan and offshore areas of Lake Huron in June through August, signifying that some populations of burbot spawn later and deeper than previously understood.

John Janssen, professor of fisheries ecology at UW-Milwaukee, said the finding was accidental. "We were working on collecting bloater larvae, and we were surprised by the number of burbot we collected on the midlake reef. We were also surprised that we were seeing them in late June. They were really tiny, which means they were just born. This implies there's a concentration of burbot on those mid-lake reefs."

Janssen explained that although midlake reefs are deep in the water and away from sunlight, they offer plenty of food for young fish due to their topography and the currents that collect around them. "The abrupt topography concentrates zooplankton. They swim against the current and get deflected upward. Or larger zooplankton, like Mysis, will try to migrate down to their preferred depth and the reef stops them." This concentrates the food that young fish need to survive.

Janssen said these findings will help fisheries managers in their quest to manage on an ecosystem basis. "Burbot interact with many other fish. They like to eat a lot of sculpins, which are eaten by lake trout, and sculpins eat lake trout eggs. Knowing more about when and how burbot spawn adds more information to figure out the interactions between species."

The findings could also help with efforts to count burbot. Janssen said that current census efforts rely on trawl nets over soft-bottomed areas of Lake Michigan. "We know now that burbot live on rocky bottoms, which can't be reached with traditional trawl methods. In terms of understanding how the Lake Michigan ecosystem works, we could go down with a submersible to ground-truth what's happening with the burbot population," Janssen said.

Another question Janssen would like to explore is from where the burbot that spawn midlake originate. "Are they born in streams and then drift out midlake and eventually spawn? Or were they born on the reef, or somewhere in between? That's a big question that we could probably answer." For more information on Burbot: **www.eatwisconsinfish.org**. and scroll down to "burbot." ✧

MI elk license drawing posted on DNR website

Results of the drawing for the 2014 elk hunting seasons have been posted on the DNR website at **www.michigan.gov/huntdrawings.**

Two elk seasons will be held in 2014. The first season will run August 26-29, September 12-15 and September 26-29. The second season will run December 6-14. An additional season may be held January 14-18, 2015, if the DNR determines the harvest insufficient to meet management goals. A total of 30 any-elk and 70 antlerless-only elk licenses have been issued through the drawing.

Hunters can increase their odds of getting an elk license by applying for the 2015 Pure Michigan Hunt drawing. Each application is $5, and applicants can purchase as many chances as they like. Three lucky hunters will win a package of licenses to hunt elk, bear, turkey, antlerless deer and waterfowl, plus a 2015 base license. Only Michigan residents may hunt elk. Winning the Pure Michigan Hunt will not affect a hunter's eligibility for future elk drawings and will not negate any weighted elk chances or bear preference points hunters have earned. Apply for the Pure Michigan Hunt at www.michigan.gov/puremichiganhunt or at a license agent. ✧

Lake Michigan Cash Raffle

The cash raffle profits go back to Salmon Unlimited Wisconsin, which are then used for funding for the next year of Salmon-A-Rama, or for the betterment of Lake Michigan, as their by-laws read.

1st place is $1500.00.

$5 for 6 tickets.

Thanks for your help. Greg Seitz from SU can be contacted at 262-620-9670, **prez@kenoshasportfishing.com** Salmon A Rama/ Kenosha Sportfishing and Conservation Association ✧

Ohio continues Dam Safety improvements across Ohio

The state of Ohio owns and maintains 179 dams statewide, which include 56 Class I, high-hazard dams. ODNR also regulates more than 1,500 publicly and privately-owned dams through its Ohio Dam Safety Program.

The majority of these dams are either privately owned (68%) or are owned by local governments (23%) and are typically used for water supply, flood control and recreation. There are approximately 30 federally-owned dams in Ohio that are owned, operated and regulated by the federal government through the U.S. Army Corps of Engineers.

Existing and newly approved state capital appropriations earmarked specifically for dam risk-reduction projects statewide include :

► Assessments of existing conditions at state-owned dams

► Design and construction to reduce risk and bring state-owned dams into compliance with dam safety standards

► Improving dam emergency response preparedness by ensuring Emergency Action Plans are updated. ✧

MI Bear license drawing results posted; leftover licenses on sale in July

The Department of Natural Resources announced that results of the 2014 bear hunting license drawing have been posted at www.michigan.gov/huntdrawings. A total of 7,831 bear licenses were available during the bear application period (May 1 - June 1).

A total of 267 leftover bear licenses are available in the Bergland Management Unit (Sept. 25 - Oct. 26) and will be sold on a first-come, first-served basis as follows:

- Holders of Lifetime Comprehensive Licenses, who were not selected in the drawing, may purchase a leftover license beginning at 10 a.m. (EDT) Monday, July 7.
- Unsuccessful applicants may purchase a leftover license beginning at 10 a.m. (EDT) Monday, July 14.
- Any hunter, including those who did not apply, may purchase a leftover license beginning at 10 a.m. (EDT) Monday, July 21. ✧

In God We Trust

Quote from a Founding Father:

"I've lived, sir, a long time, and the longer I liv, the more convincing proofs I see of this truth: That God governs in the affairs of men. If a sparrow cannot fall to the ground without His notice, is it probable that an empire can rise without His aid? We've been assured in the sacred writings that unless the Lord builds the house, they labor in vain who build it. I firmly believe this, and I also believe that without His concurring aid, we shall succeed in this political building no better than the builders of Babel."

Benjamin Franklin

North American Duck Populations Remain Strong, Wetland Pond Conditions Good, FWS

Duck populations have increased in overall abundance over last year, and their habitat conditions have improved, according to the USFWS' *Trends in Duck Breeding Populations 2014* report released recently. These conclusions are based on the 2014 Waterfowl Breeding Population and Habitat Survey conducted by the USFWS and Canadian Wildlife Service. The annual duck survey encompasses more than 2 million square miles of waterfowl habitat across Alaska, north-central and northeastern U.S. states, and south-central, eastern and northern Canada.

The preliminary estimate for the total duck population is 49.2 million birds, an 8% increase over last year's estimate of 45.6 million birds, and 43% above the long-term average.

The report also provides abundance estimates for individual duck species, including mallard, blue-winged teal, northern pintail, American wigeon, lesser and greater scaup, and canvasback, all of which are similar to or slightly above last year's totals. Most species' populations, such as mallard and blue-winged teal, remain significantly above the long-term average.

Habitat conditions assessed during the survey were mostly improved or similar to last year as a result of average to above-average annual precipitation. The total pond estimate (prairie Canada and U.S. combined) was 7.2 million ponds, 40 percent above the long-term average. The majority of Canadian prairies had below to well below average winter temperatures and average precipitation. Southern Manitoba benefitted from last year's higher summer and fall precipitation, whereas southern Saskatchewan and most of Alberta were aided by higher spring 2014 precipitation. In the U.S. prairies, habitat conditions improved in the western Dakotas and Montana from 2013, but remained similar in the eastern Dakotas.

The annual Waterfowl Breeding Population and Habitat Survey guides the Service's waterfowl conservation programs under authority of the 1918 Migratory Bird Treaty Act. Waterfowl population surveys and monitoring programs are critical components of successful waterfowl management, and a reflection of the Service's commitment to generating high quality scientific data to inform conservation planning.

More info: **www.fws.gov/migratorybirds.** and **www.flyways.us/status-of-waterfowl/pilot-reports.** ✧

IN DNR seeks qualified candidates for Conservation Officers

The Indiana DNR is seeking qualified applicants to become Indiana Conservation Officers.

Founded in 1911, it is Indiana's oldest state law enforcement agency. Conservation Officers enforce all state laws but concentrate their efforts on laws affecting natural resources, state properties, and recreational activities such as boating, snowmobiles, and all-terrain vehicles.

The recruiting phase ends November 30, and only those registered by that date will be considered for the recruit school that begins June 2015. To be considered, applicants must successfully complete an on-line prerequisite test at **dnrlaw.IN.gov/2760.htm.**

Indiana Conservation Officers are conducting recruiting events in various locations to explain the steps of the hiring process and how to prepare to be a successful candidate. Anyone interested in attending must register through the "Stay in Touch" form at the website listed.

Previously, applicants have been required to have an associate's degree or 60 credit hours toward a bachelor's degree. The application process is now open to individuals who do not meet the college requirement but have four years of continuous military service and have earned an honorable discharge.

Contact Information:
Name: William Browne
Phone: (765) 509-0207
Email: **wbrowne@dnr.in.gov** ✧

Genetic analysis

Continued from page 1

seriousness of the Asian carp spread northward, USGS scientists alerted partners and the general public about that potential in March and decided to pursue genetic testing to confirm the visual findings.

Scientists emphasized that the recent genetic data will modify their application of visual identification methods to distinguish fish eggs and larvae collected in the Upper Mississippi River. The difficulty USGS scientists had in genetically testing the eggs suggests that researchers and managers studying or monitoring Asian carp reproduction in North America should consider separately preserving, for genetic analysis, a subset of collected embryos to confirm visual identification.

USGS researchers will continue efforts to gain a better understanding of how egg size, location of eggs within the river and flow conditions may help to identify those habitats important to reproduction of native and non-native cyprinids including Asian carp. Understanding habitat requirements will assist in the development of methods to control invasive Asian carp. ✧

Obama approves closure

Continued from page 1

Landwehr said closing the lock will allow the DNR to reallocate its resources to other ongoing invasive carp prevention priorities. Those efforts include: creating several barrier projects in southwestern Minnesota to keep invasive carp from coming in through the Missouri River system; and working with the University of Minnesota Invasive Species Research Center to limit or slow the carps' spread through the lower locks and dams to protect other parts of the Mississippi River and important tributaries like the St. Croix and Minnesota rivers. ✧

Other Breaking News Items:

(Click on title or URL to read full article)

2014 Asian Carp Control Strategy Framework
The Asian Carp Regional Coordinating Committee announced a coordinated strategy to protect the Great Lakes from silver and bighead carp, building on previous Obama Administration efforts to prevent self-sustaining populations from becoming established in the Great Lakes

Warning of 'disaster,' two Cayuga County state reps seek rejection of Lake Ontario plan
Two of Cayuga County's state representatives want Congress to reject a plan developed by the International Joint Commission that recommends allowing water levels to vary naturally in order to restore Lake Ontario's wetlands.

High Lake Superior level prompts Soo gate opening
The brimming water level on Lake Superior has led a Canadian-U.S. regulatory board to increase the outflow through gates on the St. Marys River at Sault Ste. Marie.

Not as bad as the '70s, but alewives are piling up on the beaches again
Looking like eyeless zombies strewn across the sandy landscape, alewives are dying in droves and washing ashore on some Lake Michigan beaches in the Milwaukee area. Depending on weather conditions and wind direction, the odor has ranged from a slight fishy

Lake Guardian on patrol this summer to help fight the sliming of Lake Erie
The Lake Guardian is on the water at a crucial time: The push is on in Washington, D.C., and Columbus to add millions of dollars to the anti-algae effort, sewage treatment plant upgrades are being put in place and there are indications that this summer's algal bloom may be

Annoying mayflies a bad sign for us, good sign for Lake Erie
The plague of mayflies might actually mean Lake Erie is getting healthier, and the mayflies helped it to get that way.

Neglected fishing nets lurking in Lake Michigan create headaches for boaters
Boaters' propellers are becoming entangled in floating polypropylene fishing nets used for catching Great Lakes whitefish.

Wolves aren't the biggest threat to deer
Wisconsin DNR research into deer predation and fawn survival showed wolves were not linked to any fawn deaths in the Northern Forest study area near Winter, and starvation was the top fawn-killer in the Eastern farmlands study area near Shawano.

Wisconsin researchers want to test bacteria to kill-zebra mussels
State agricultural officials are reviewing a request from the U.S. Geological Survey to experiment with bacteria to kill zebra mussels in a northern Wisconsin lake. Researchers want to apply the biological pesticide in Keyes Lake in Florence County next month.

Researchers study how to keep lures on the line
Researchers are searching for ways to reduce the harm from soft plastic fishing lures that expand inside fishes' stomach and make digestion difficult.

Michigan lawmakers ask Canada to scrap plans for nuclear waste dump on Lake Huron
Calling a nuclear waste dump proposed for Kincardine, Ontario, less than a mile from Lake Huron, "not safe" and "not acceptable," a contingent of state legislators asked last week for President Barack Obama and the U.S. Congress to intervene and stop the so-called Deep

Avid angler wants to be able to fish in Gary
In the 1960s little Silas Sconiers would go fishing with his father on the Buffington Harbor Pier every Sunday. Unfortunately, the last time he was able to fish on Buffington Harbor was in 1967 because the Lake Michigan piers are not open to sports fishermen. There are piers

Summary report does not point out risk of Asian carp in Canadian waters
The summary of public comments on the Great Lakes Mississippi Interbasin Study report says that more than 1,600 comments were submitted from more than 1,800 individuals, organizations, government agencies from 43 states, and Canadian provinces. It does not include input that

Legislation reclassifying Great Lakes as unified likely to ease dredging backlog
Congress passed bipartisan water legislation this week that will change how the Great Lakes are classified, which backers say will help shorten the dredging backlog in Michigan harbors.

America's Oldest Gun Maker thumbs its nose at a two-faced Senator/
Forbes magazine reports Senator Charles Schumer lost his "assault weapons" jobs. Remington announced it's moving its Bushmaster rifle and Remington Model 1911 pistol production lines from its 200-year-old plant in Ilion, NY, to its new facility in much more gun-rights-friendly

Invasive carp: Agreement to close St. Anthony lock
On Tuesday, members of Minnesota's congressional delegation in announced that Senate and House conferees had agreed to the closure of the Upper St. Anthony Falls Lock in Minneapolis within a year to keep invasive carp from running up the Mississippi River
End