Huron-Erie Corridor Steering Committee Meeting

Meeting Update Summaries Package

March 16, 2011

USGS Great Lakes Science Center
Ann Arbor, MI

Huron-Erie Corridor Steering Committee

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RESEARCH UPDATES

GLRI AND OTHER UPDATES

RESEARCH UPDATES

Huron-Erie Corridor Steering Committee

Update Summary

March 16, 2011

Name: Dr. Kurt P. Kowalski

Agency: USGS Great Lakes Science Center

Title: **GLRI Project 71: New Strategies for Restoring Coastal Wetland Function**

Co-Investigators: Dr. Martha L. Carlson[1], Dr. Douglas A. Wilcox[2] and Dr. Michael J. Wiley[3]
[1]USGS – Great Lakes Science Center, Ann Arbor, MI 48105
[2]Dept. of Environmental Science and Biology, SUNY-Brockport, Brockport, NY 14420
[3]University of Michigan, School of Natural Resources and Environment, Ann Arbor, MI 48109

Other Personnel: Susan Doty, Stephen Hoyt, Mike Eggleston, John Molenhouse (Research Assistants, Great Lakes Science Center)

Update: *Restoring Hydrological Connection*

This project has made significant progress toward restoring hydrologic connection and associated wetland functions to a coastal wetland located in the USFWS Ottawa National Wildlife Refuge and Maumee River AOC. Construction on the water-control structure started in the beginning of November and is expected to be completed by February 28, 2011 (Figure 1).

Figure 1. A) Pre-Construction at site B) Progress on water-control structure as of Dec. 15, 2010

Fish, invertebrates, birds, plants, and water quality in the Crane Creek coastal and diked wetland complex (Lake Erie) were sampled quantitatively to characterize spatial and seasonal patterns and prepare for habitat rehabilitation associated with hydrologically reconnecting diked wetlands to Lake Erie. Data collected before, during, and after hydrologic reconnection will allow us to understand changes occurring in response to restoration of wetland habitat. Analysis of the first year of data collection is ongoing, and preparations are being made for a second year of sampling.

Huron-Erie Corridor Steering Committee

Update Summary

March 16, 2011

Name: Scudder D. Mackey, Ph.D.

Agency: Habitat Solutions NA/University of Windsor

IJC International Upper Great Lakes Study – Lake Superior Water Level Regulation
Project Manager – Ecosystems Technical Working Group

Title: Restoration of Lake Michigan-Huron Water Levels – Implications for the St. Clair River

Update:

The International Joint Commission has requested that the International Upper Great Lakes Study perform an exploratory evaluation of potential environmental issues associated with actions to restore Lake Michigan-Huron water levels in response to increased conveyance within the St. Clair River. The IJC has requested an exploratory evaluation of five different scenarios: 0 cm, 10 cm, 25 cm, 40 cm and 50 cm increase in Lake Michigan-Huron water levels. These increases are calculated based on the effects of cumulative hydrogeomorphic alterations to the St. Clair River channel. The IUGLS Study Board is seeking information and guidance on potential environmental issues (impacts and benefits) from researchers, scientists, and managers who have first-hand knowledge of the HEC system. A description of the International Upper Great Lakes Study and the IJC request will be provided along with a synopsis of current project status, ongoing work, and potential restoration opportunities.

Huron-Erie Corridor Steering Committee

Update Summary

March 16, 2011

Name: Bruce Manny

Agency: USGS Great Lakes Science Center

Title: Fish spawning reef construction

Update:

USGS and Michigan Sea Grant will partner this year (2011) in constructing a fish spawning reef in the head of the Middle Channel of the St. Clair River, upstream of the St. Clair delta. Funding for the project is from NOAA/GLRI.

Fishery assessment has been on-going at and near the construction site for the past year and will continue for two years after reef construction to assess to what extent the reef has remediated spawning habitat of native fish species in the St. Clair River Area of Concern. The title of the project is:

Restoring native fish spawning habitat in the St. Clair River Delta (Middle Channel) in the St. Clair River Area of Concern.

Jennifer Read and James Diana at University of Michigan Sea Grant are co-principal investigators on this project.

For further information: jread@umich.edu; 734.936.3622

Huron-Erie Corridor Steering Committee

Update Summary

March 16, 2011

Names: Ed Roseman (PI), Kelsey Lincoln, Stacey Wade, Patricia Thompson, Doug Larson, Scott McNaught, Emily Bouckaert, Nick Arend, Darryl Hondorp, Jim Boase, Mike Thomas, Christina Jovanovic, Chantel Caldwell, Margaret Hutton, Jaqi Craig, Karen Soper, David Bennion, Greg Kennedy.

Agencies: USGS, USFWS, OMNR, CMU, MTU, MDNR

Title: Larval fish sampling summary for 2010.

Objectives: Measure abundance, phenology, and distribution of larval fish to assess production, identify spawning areas, connectivity, and nursery habitats in the HEC.

Update:

Main river channels: Weekly samples collected with paired bongo conical nets; late March through mid August, 2010; 330 samples from DR captured 9,006 larvae; 943 samples from SCR captured 1,492 larvae; unique ecological signatures at tributary mouths (different species, densities, thermal, and secchi); higher densities in DR than SCR; higher diversity in DR than SCR; evidence for transport of Deepwater Sculpins, Cisco, Lake Whitefish larvae from Lake Huron; Larval identifications about 2/3 complete.

SCR Delta: Light trap, seine, conical larval collections in SCR delta from May 1–27 July 2010; 675 samples captured 1,060 larvae; water chemistry and physical limnology samples also collected; localized water movements appear as important as connection to main channel for connectivity and retention in nursery habitats.

Larval Lake Sturgeon: Permit issues prevented us from legally sampling at Fighting Island in 2010, these are resolved for 2011 and 2012. Sampled at "Mazlinkas" reef in north channel of SCR at Algonac, night drift D-frame net sampling captured 12 larvae in one night of experimental sampling; found larvae coming off the spawning reef as well as in the main channel.

Communication: Presented 11 oral presentations/posters about HEC larval fish in 2010.

Conducted two continuing education workshops (31 students) on larval fish sampling and identification.

Submitted one manuscript: Roseman, E.F., J. Boase, G.W. Kennedy, and J. Craig. *In review*. Adaptation of two techniques for sampling fish eggs and larvae in deep rivers. Submitted to J. Applied Ichthyology.

Huron-Erie Corridor Steering Committee

Update Summary

March 16, 2011

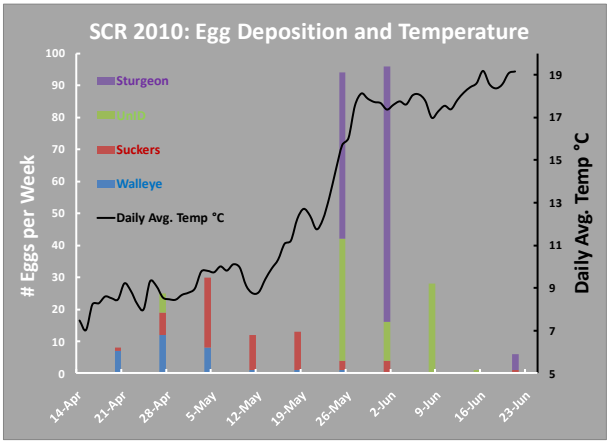
Names: Greg Kennedy, Kelsey Lincoln, Stacey Wade, Patricia Thompson, Emily Bouckaert, Nick Arend, Darryl Hondorp, Jim Boase, Christina Jovanovic, Chantel Caldwell, Margaret Hutton, Jaquie Craig, Karen Soper, David Bennion.

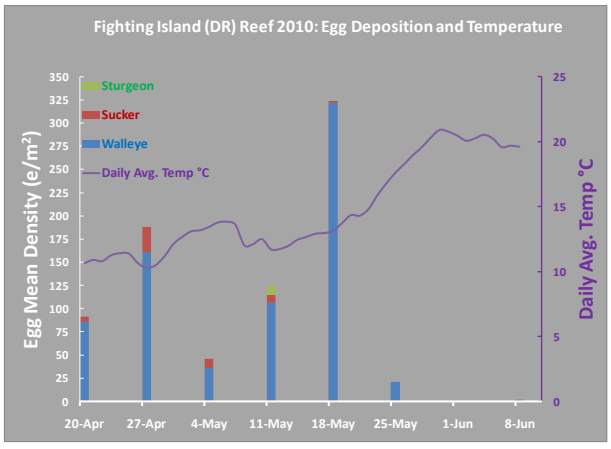
Agencies: USGS, USFWS, OMNR, MTU

Title: Fish spawning and egg deposition sampling summary for 2010.

Objectives: Measure abundance, phenology, and distribution of fish eggs to identify spawning areas and assess extent of fish spawning in the HEC.

Update: Egg mat sampling was conducted at Fighting Island reef in the Detroit River and at various sites in the St. Clair River to assess fish use of these sites for spawning. Egg mat sampling began in early April, 2010 and continued through June. Egg mats were lifted once per week and all eggs removed for incubation at the USGS GLSC. In the Detroit River we collected 3,444 Walleye eggs, 284 Sucker eggs, 40 Lake Sturgeon eggs, and 503 Lake Whitefish eggs. In the St. Clair River we found 30 Walleye eggs, 62 Sucker eggs, and 137 Lake Sturgeon eggs.





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Update Summary

March 16, 2011

Name: Carol A. Stepien, Ph.D. (with graduate students A. Haponski, O. Sepulveda-Villet, and T. Sullivan)

Agency: University of Toledo, Great Lakes Genetics Laboratory at the Lake Erie Research Center

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Title: Genetic Identification of walleye and yellow perch stocks along the HEC

Update:

Walleye *Sander vitreus* and yellow perch *Perca flavescens* are key Great Lakes sport and commercial fishes whose populations have fluctuated historically due to pollution, exploitation, and most importantly - loss of key spawning habitat and nursery grounds. The Huron-Erie Corridor (HEC) connects the upper and lower Great Lakes, providing important fish passage, and once housed rich spawning and nursery habitats. It became a highly degraded system due to channeling, dredging, and concrete, with devastating effects on its fish populations. The recent HEC initiative has focused on restoring fish connectivity and spawning habitat. In order to successfully manage and restore fisheries and habitat along the HEC it is important to understand the underlying genetic stock structure of its spawning groups.

To test for divergence and spatial stock structure, we analyze genetic diversity, divergence, and connectivity patterns among 388 walleye from 10 spawning groups and for 268 yellow perch from 8 spawning sites along the HEC (Lakes Huron-St. Clair-Erie). Genetic patterns are tested using pairwise comparisons, AMOVA partitioning, Bayesian assignment and Monmonier geographic networks.

Results indicate similar genetic diversity for walleye spawning groups in all lakes, which is greater than that discerned for yellow perch. The yellow perch spawning in Lake St. Clair had lower diversity than those spawning in the western basin of Lake Erie, significant genetic divergence among all spawning sites for walleye and yellow perch, and even greater division among the three lakes. Barrier analysis shows strong genetic separations among the lakes, which are similar for walleye and yellow perch. Bayesian assignment results for walleye and yellow perch show strong self-assignment of individuals to each lake. Thus, it is unlikely that there is ongoing genetic exchange among lakes. Overall, evidence supports appreciable genetic diversity and divergence patterns among spawning groups along the HEC, suggesting that some historic stocks have persisted. We are optimistic that continued habitat restoration efforts will have important positive influence on native stocks, enhancing our fisheries.

GLRI

&

OTHER UPDATES

Huron-Erie Corridor Steering Committee

Update Summary

March 16, 2011

Name: Douglas Denison

Agency: JJR LLC

Title: Friends of the Detroit River / GLRI projects; Blue Heron Lagoon, South Fishing Pier and US Steel

HABITAT RESTORATION PROJECT – US STEEL SITE, RIVER ROUGE

The project will transform a significantly degraded industrial riverfront site into viable shoreline habitat for fish, amphibians and waterfowl. It will restore 1,100 feet of shoreline and 750 feet of rock shoal, and create an acre of fish spawning area in the Detroit River. Approximately 4.6 acres of upland habitat will be restored adjacent to the shoreline through removal of invasive species and replanting with Lakeplain Prairie, Great Lakes Marsh and other types of native vegetation. The area currently consists of highly eroded shoreline and upland with barren soil and various types of non-native vegetation. Shoreline erosion is exaggerated due to heavy boat traffic along this section of the Detroit River.

The proposed project will rehabilitate the shoal to create a partially protected embayment in front of the rehabilitated shoreline which would allow for shoreline habitat to be protected and provide for improved marine habitat – including enhanced fish spawning areas. Upland habitat improvements are also included within the proposed project.

SOUTH FISHING PIER, BELLE ISLE PARK, DETROIT

The Detroit River's ecological quality has been diminished over time in part because of the loss of fish and wildlife habitat. Addressing this loss started with the construction of the Belle Isle Sturgeon Spawning Reef in the Detroit River near Belle Isle. The newly constructed reef has been the site of reproduction for 16 species of native where spawning was nonexistent. However, the fate of the fish larvae is largely unknown as little nursery habitat exists along the urban center. This project will create 2.5 acres of protected coastal wetland and shallow water nursery habitats immediately downstream from the spawning reef providing a critical refuge for the fish larvae to grow.

BLUE HERON LAGOON, BELLE ISLE PARK, DETROIT

The Blue Heron Lagoon is a 41-acre lake/wetland on the east end of Belle Isle that discharges to the Detroit River. Direct access for fish from the River to the Lagoon is prohibited by sheet pile walls, grates and drop structures. This project proposes to reconnect and naturalize the mouth of the Lagoon to the Detroit River restoring fish access to 41 acres of wetlands, shallow and deep water habitats. Enhancement of Blue Heron Lagoon will provide critical wildlife and fish nursery habitat that is severely limited along the Detroit River.

Huron-Erie Corridor Steering Committee

Update Summary

March 16, 2011

Name: Terry S. Heatlie

Agency: NOAA Fisheries, Great Lakes Habitat Restoration Program

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Title: GLHRP Grants under the U.S. GLRI in Areas of Concern

Update:

- January 3rd announcement of funding opportunity for habitat restoration in US Great Lakes Areas of Concern. Closing date extended to February 17th.

- NOAA expects to have approximately $5M available for Great Lakes habitat restoration projects. Typical awards: $1-4 M for habitat restoration and $75-350k for engineering and design.

- This funding opportunity is similar to last years with a few specific changes:
    1. All projects must be in an AOC AND contribute to the removal of fish and wildlife related beneficial use impairments
    2. Proposals must be endorsed by the AOC implementation group: state agency responsible for implementing the AOC program (in this case, MDNRE) or the local public stakeholder group working with the state agency on RAP
    3. Limit to one proposal per AOC for habitat restoration implementation and one for engineering and design – requires AOCs to prioritize and submit your BEST proposal.

- A full list of priority considerations can be found in the full announcement below, few highlights:
    - Work towards achieving measurable gains in delisting targets with documentation
    - Are identified as a priority in restoration planning documents (e.g., Stage II RAPs)
    - Propose sufficient, cost effective monitoring appropriate to the scope and scale of the project
    - Are designed to be robust to projected climate change impacts

- The full funding opportunity at grants.gov, reference number NOAA-NMFS-HCPO-2011-2002872

Huron-Erie Corridor Steering Committee

Update Summary

March 16, 2011

Name: Bob Reider

Agency: DTE Energy

Title: Recent Issues Concerning Fish in Thermoelectric Power Plants

Update:

Detroit Edison Company (DECo) power plants along the entire Huron-Erie corridor experienced unusually large accumulations of gizzard shad on their cooling water intake screens starting in mid-December 2010 and lasting several weeks. Some units were forced to derate because of insufficient cooling water to the condensers. A number of other facilities along the HEC also experienced problems with gizzard shad, including the Lambton Generating Station, General Motors Headquarters (fka Renaissance Center) and a steel company. The majority of the gizzard shad observed at DECo plants was young-of-the-year. The "runs" were probably triggered by the rapid decrease in water temperature that occurred at that time. This decrease was caused by the rapid change in wind direction and speed with a shift from the southeast to the north/northwest**.** Because Michigan is on the northern edge of the gizzard's distribution, this species is very sensitive to water temperature changes, particularly rapid decreases.

On a related subject, in November 2010, the U.S. Environmental Protection Agency (EPA) signed a settlement agreement with the Riverkeeper regarding Clean Water Act Section 316(b) rulemaking dates. The EPA originally agreed to issue proposed rule standards by March 14, 2011, but the parties recently agreed to extend the deadline to March 28, 2011. A final rule is scheduled to be issued July 27, 2012. (The Phase II 316(b) rule for large existing facilities published in 2004 had been suspended in 2007 in response to a circuit court decision on several rule provisions.)

Huron-Erie Corridor Steering Committee

Update Summary

March 16, 2011

Name: Chris Vandergoot

Agency: Ohio Department of Natural Resources

Title: Lakes Huron and Erie Walleye Acoustic Tagging Study

Update:

Beginning in 2011, walleye will be captured and tagged with acoustic transmitters from the Tittabawassee River (Lake Huron) and Maumee River (Lake Erie) to assess migration through the Huron-Erie Corridor. This presentation will summarize the study objectives and placement of receivers through the HEC to assess walleye movement between lakes Huron and Erie.