



Great Lakes Fishery Commission Pulse on Science: Deliverables

This bi-annual newsletter lists titles and abstracts for recent research completion reports and links to associated media coverage and publications. Questions about any of the Commission-funded research below? Contact research@glfc.org.

Science Transfer Program:

Accounting for Potential Effects on Fish Production from Barrier Removals to Inform Management Decisions: An Application of Structured Decision Making

Jones, M., Steeves, T.B., Nowicki, S., Robinson, K., Peterson, L., and Jensen, A.

April 2017

Abstract: http://www.glfc.org/pubs/pdfs/research/reports/2016_JON_77008.htm

Using a simulated fish community to evaluate the relative importance of catchability on abundance estimates for acoustic surveys

Warner, D., Adams, J., O'Brien, T., Yule, D., Hrabik, T., and Claramunt, R.

July 2017

Abstract: http://www.glfc.org/pubs/pdfs/research/reports/2013_WAR_77004.htm

Fishery Research Program:

Physical Processes

Development of annual indices of physical processes and relation to annual indices of fish recruitment in Lake Michigan

Troy, C., Höök, T., and Bunnell, D.B.

July 2017

Abstract: http://www.glfc.org/pubs/pdfs/research/reports/2012_TRO_44022.htm

Products:

Zischke, M.T., D.B. Bunnell, C.D. Troy, E.K. Berglund, D.C. Caroffino, M.P. Ebener, S.P. Sitar, and T.O. Höök. 2017. Asynchrony in the inter-annual recruitment of lake whitefish *Coregonus clupeaformis* in the Great Lakes region. *Journal of Great Lakes Research*. 43: 359-369. <https://doi.org/10.1016/j.jglr.2017.01.007>

Bunnell, D.B., T.O. Höök., C.D. Troy, W. Liu, C.P. Madenjian and J.V. Adams. 2017. Testing for synchrony in recruitment among four Lake Michigan fish species. *Canadian Journal of Fisheries and Aquatic Sciences*. 74: 306-315. <https://doi.org/10.1139/cjfas-2015-0534>

Honsey, A., D.B. Bunnell, C.D. Troy, D.G. Fielder, M.V. Thomas, C.T. Knight, S.C. Chong and T.O. Höök. 2016. Recruitment synchrony of yellow perch (*Perca flavescens*, Percidae) in the Great Lakes region, 1966–2008. *Fisheries Research*. 181: 214-221. <https://doi.org/10.1016/j.fishres.2016.04.021>

Native Fishes

Delineation of natural boundaries of muskellunge in the Great Lakes and the effects of supplementation on genetic integrity of remnant stocks

Sloss, B., Hanchin, P., Farrell, J., Kapuscinski, K., Miller, L., Scribner, K., and Wilson, C.

November 2017

Abstract: http://www.glf.org/pubs/pdfs/research/reports/2013_SLO_44031.htm

Products:

Turnquist, K., W. Larson, J. Farrell, P. Hanchin, K. Kapuscinski, L. Miller, K. Scribner, C. Wilson, and B. Sloss. 2017. Genetic structure of muskellunge in the Great Lakes region and the effects of supplementation on genetic integrity of wild populations. *Journal of Great Lakes Research*. 43:6 1141-1152. <https://doi.org/10.1016/j.jglr.2017.09.005>

Effects of dietary thiaminase on reproduction in three strains of atlantic salmon
Neff, B.

August 2017

Abstract: http://www.glf.org/pubs/pdfs/research/reports/2016_NEF_44062.htm

Behavioral and genetic diversity among ecotypes of Lake Superior brook trout

Hale, M., Nichols, K., McLaughlin, R., Wilson, C., and Mackereth, R.

June 2017

Abstract: http://www.glf.org/pubs/pdfs/research/reports/2010_NIC_44011.htm

Trophic ecology and isotopic niche of humper lake trout (*Salvelinus namaycush*) in Lake Superior: comparison with other morphotypes

Swanson, H., Hoffman, J., Muir, A., Vinson, M., Krueger, C., Bronte, C., Loseto, L., Hansen, M., and Sitar, S.

October 2017

Abstract: http://www.glf.org/pubs/pdfs/research/reports/2014_SWA_44038.htm

Comparative genetic and phenotypic analysis of lake trout morphs in representative North American lakes: Genetic aspects of phenotypic variation in Lake Superior lake trout morphs

Baillie, S., and Bentzen, P.

August 2017

Completion Report: http://www.glf.org/pubs/pdfs/research/reports/2005_BEN_44001.pdf

Mortality influences on maturation scheduling in lake whitefish and effects on Great Lakes fisheries management

Morbey, Y., Zhao, Y., and Dunlop, E.

April 2017

Abstract: http://www.glf.org/pubs/pdfs/research/reports/2010_ZHA_44012.htm

Products:

Dunlop, E., A. Eikeset, and N. Stenseth. 2015. From genes to populations: how fisheries-induced evolution alters stock productivity. *Ecological Applications*. 25: 1860-1866. <http://dx.doi.org/10.1890/14-1862.1>

- Gobin, J., N. Lester, A. Cottrill, M. Fox, and E. Dunlop. 2015. Trends in growth and recruitment of Lake Huron lake whitefish during a period of ecosystem change, 1985 to 2012. *Journal of Great Lakes Research*. 41: 405-414.
<https://doi.org/10.1016/j.jglr.2015.03.003>
- Gobin, J., N. Lester, M. Fox, and E. Dunlop. 2016. Effects of changes in density-dependent growth and recruitment on sustainable harvest of lake whitefish. *Journal of Great Lakes Research*. 42: 871-882.
<https://doi.org/10.1016/j.jglr.2016.05.003>
- Zhao, Y., and Y. Morbey. 2017. Estimating the size selectivity of trap nets using a gill-net selectivity experiment: method development and application to lake whitefish in Lake Huron. *North American Journal of Fisheries Management*. 37: 1341-1349. <https://doi.org/10.1080/02755947.2017.1381206>

CLC

Evaluating short-term survival of walleye implanted with acoustic transmitters at elevated temperatures

Faust, M., Vandergoot, C., and Kraus, R.

May 2017

Abstract: http://www.glf.org/pubs/pdfs/research/reports/2015_FAU_44049.htm

Non-Theme

A gliding robotic fish-based mobile receiver platform for acoustic telemetry in fishery research

Tan, X., Holbrook, C., Hondorp, D., and Krueger, C.

May 2017

Abstract: http://www.glf.org/pubs/pdfs/research/reports/2014_TAN_44058.htm

Products:

Video:

“Gliding robotic fish GRACE 2.0 hitting Higgins Lake,” <https://youtu.be/UjJqCjUskwI>

Press releases:

“Great Lakes scientists team up to track fish with GLATOS”, published in *Great Lakes Echo*, by Max Johnston, May 3, 2017.

<http://greatlakesecho.org/2017/05/03/great-lakes-scientists-team-up-to-track-fish-with-glatos/>

“To track down bloodsucking lampreys, this robot swims like a fish”, published in *Motherboard*, by Andrew D. Thaler, October 26, 2016.

https://motherboard.vice.com/en_us/article/to-track-down-bloodsucking-lampreys-this-robot-swims-like-a-fish

Sea Lamprey Research Program:

Assessment

Sea lamprey quantitative environmental DNA surveillance

Schloesser, N., Merkes, Rees, R., C., Amberg, J., Steeves, M., Docker, M., and Li, W.

September 2017

Abstract: http://www.glf.org/pubs/pdfs/research/reports/2015_REE_54033.htm

Products:

Newspaper Article: http://lacrossetribune.com/news/local/uw-la-crosse-graduate-usgs-scientist-takes-aim-at-great/article_a7660883-10a5-588d-af39-61fde5e20293.html

Evaluating trade-offs for sea lamprey management using an operating model of the control program

Jones, M., Jensen, A., Dawson, H., and Infante, D.

November 2017

Abstract: http://www.glfrc.org/pubs/pdfs/research/reports/2015_JON_54029.htm

Products:

Jensen, A.J., and Jones, M.L. 2017. Forecasting the response of Great Lakes sea lamprey (*Petromyzon marinus*) to barrier removals. *Canadian Journal of Fisheries and Aquatic Sciences*. <https://doi.org/10.1139/cjfas-2017-0243>

Proof of Concept: Use of DIDSON cameras to estimate adult sea lamprey abundance in streams

Johnson, N., Hrodey, P., McCann, E., Eickholt, J., and Pangle, K.

December 2017

Abstract: http://www.glfrc.org/pubs/pdfs/research/reports/2013_JOH_54046.htm

Products:

McCann, E.L., Johnson, N.S., and Pangle, K.L. 2017. Corresponding long-term shifts in stream temperature and invasive fish migration. *Canadian Journal of Fisheries and Aquatic Sciences*: 1-7.
<http://www.nrcresearchpress.com/doi/abs/10.1139/cjfas-2017-0195#.WmdoS6inGHs>

Barriers and Trapping

Effects of trap funnel and finger design on sea lamprey entrance and retention

Hrodey, P., Bravener, G., and Miehl, S.

August 2017

Abstract: http://www.glfrc.org/pubs/pdfs/research/reports/2015_HRO_76002.htm

Proof-of-concept test of a differential pressure system to transport Great Lakes fishes

Miehl, S., Zielinski, D., Hrodey, P., Dearden, S., and Johnson, N.

December 2017

Abstract: http://www.glfrc.org/pubs/pdfs/research/reports/2017_MIE_44068.htm

Non-theme

Evaluating the risks and potential of genetic technologies for managing the impacts of sea lampreys in the Great Lakes

Jones, M., Thresher, R., and Drake, A.

December 2017

Abstract: http://www.glfrc.org/pubs/pdfs/research/reports/2016_JON_54054.htm

Other

A Preliminary Study on the Roles of Chemical Cues in American Eel Life History

Schmucker, A., Johnson, N., Galbraith, H., and Li, W.

September 2017

Abstract: http://www.glfrc.org/pubs/pdfs/research/reports/2014_LIW_54043.htm

Products:

- Schmucker, A.K., Johnson, N.S., Galbraith, H.S., and Li, W. 2016. Glass-Eel-Stage American Eels Respond to Conspecific Odor as a Function of Concentration. *Transactions of the American Fisheries Society* 145(4): 712-722.
<https://doi.org/10.1080/00028487.2016.1146164>
- Schmucker, A.K., Johnson, N.S., Galbraith, H.S., and Li, W. 2017. An evaluation of silver-stage American Eel conspecific chemical cueing during outmigration. *Environmental Biology of Fishes* 100(7): 851-864.
<https://link.springer.com/article/10.1007/s10641-017-0611-4>
- Galbraith, H.S., Blakeslee, C.J., Schmucker, A.K., Johnson, N.S., Hansen, M.J., and Li, W. 2017. Donor life stage influences juvenile American eel *Anguilla rostrata* attraction to conspecific chemical cues. *Journal of Fish Biology* 90(1): 384-395.
<http://onlinelibrary.wiley.com/doi/10.1111/jfb.13190/abstract>