Lori Nicole Ivan
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Education

PhD	2009	University of Michigan	Natural Resources
MS	2001	University of Michigan	Biology
BS	1999	Eckerd College	Biology & Anthropology

Research Experience

2014-Present   Post-Doctoral Researcher, Quantitative Fisheries Center, Michigan State University, Lansing, MI

- Developing multispecies individual-based model to assess effectiveness of VHS vaccination in Great Lakes fisheries

2012-2014   Post-Doctoral Researcher, Cooperative Institute for Limnology and Ecosystems Research, University of Michigan, Ann Arbor, MI

- Developed multispecies individual-based model in Fortran to assess the likelihood of establishment of Asian carps in the Great Lakes and potential impacts on other fishes
- Developed and submitted external funding proposals NSF
- Wrote and edited manuscripts for academic journals and technical reports for funding agencies
- Supervised 2 summer fellows working on their own projects

2008-2011   Post-Doctoral Researcher, Department of Forestry and Natural Resources Purdue University, West Lafayette, IN

- Developed individual-based model in IDL of Saginaw Bay to assess the impacts of zebra mussels, climate change, and nutrient loads on walleye and yellow perch
- Analyzed using multivariate techniques a long-term trawl data set assembled from multiple MI DNR data sets using multivariate techniques
- Supervised 3 undergraduate and research assistants on their own projects
- Developed growth rate potential (GRP) model in IDL for multiple species for Lake Michigan to assess impacts of climate change on fish and invertebrate growth
- Maintained fishes in laboratory experiment to assess effects of feeding, strain, and size on egg size and fecundity
- Wrote and edited manuscripts for academic journals and technical reports for funding agencies

2001-2008   Research Assistant School of Natural Resources, University of Michigan

- Supervised undergraduate research assistants, coordinated and supervised field research, maintain database of records in Microsoft Access, fish and macroinvertebrate sampling, analyzed water samples for nutrient and chlorophyll a concentrations, aging larval fishes, diet analyses, fish and macroinvertebrate classification, statistical analysis of experiments using a diverse array of statistical techniques (ANOVAs, PCA, DA, correlations), developed cohort model in Visual Basic, used GIS to analyze fish habitat use in rivers
- GIS projects including developing maps, creating shape files, interpolation of data

2000   Research Technician-Genetics, University of Michigan Hospital

- Extracted DNA and performed PCRs and Southern blots to develop genetic lineage of knockouts
- Maintained mice for cancer research

- Led discussion groups on genetic and cancer research

1999   Independent Research in Biology, *Biology of Elasmobranchs*

1995, 1998   Independent Research Projects in Anthropology, *Eastern versus Western Massage*, *Primatology*

Teaching and Mentoring Experience

2013   CILER summer fellow mentor

2011   Instructor, Purdue University, Co-Instructor for FNR 241: Ecology & Systematics of Fishes & Mammals

2011-2012   FIRST (Faculty Institutes for Reforming Science Teaching) IV teaching program to instruct postdoctoral fellows on active learning techniques for undergraduate science programs. Developed curricula for fisheries and ecology courses during this program.

2009-2012   Undergraduate Research Supervisor, Purdue University, DURI and SURF undergraduate research programs

2009-2012   Invited Lecturer, Purdue University (Fisheries Management, Ecology of Fishes)

2002-2008   Graduate Student Instructor, University of Michigan (Introduction to Biology, Animal Diversity, Natural Resources Statistics)

1999   Substitute Teacher, Midland and Meridian Michigan School Districts (Chemistry & Physical science)

1999   Camp Counselor for K-8th natural science camp, Chippewa Nature Center

Technical Skills

Programming languages: Fortran, Interactive Data Language (IDL), Visual Basic
Data management software: MS office, MS Excel, MS Access, ArcGIS
Statistical software and techniques: SigmaPlot, SPSS, Systat; DFA, NMDS, breakpoint analysis, correlations, ANOVAs, PCA, DA
Laboratory techniques: Water nutrient chemistry, chlorophyll a analysis, titrations, PCR, Southern blots, DNA extraction, dissections, aging otoliths, identification and classification
Field collections: Water samples; Fish via electrofishing, seining, trap netting, snorkeling; Aquatic macroinvertebrates via ponars and Hess nets

Research Awards/ Grants

2013-2014   *U.S. – China Planning Visits: Catalyzing Collaboration on Forecasting the Potential Impacts of Invasive Species,* Funded by NSF CNIC

2013.   *Using an ecosystem-based model to study the spatiotemporal impacts of remediation actions on the Lake Erie food web.* PI: **Hongyan Zhang**, Co-PI: Lori Ivan, Ed Rutherford, Doran Mason. CILER summer fellowship program

2010-2013   *Climate-Induced Changes to Fisheries Habitat in Lake Michigan: An Integrated Assessment,* funded by NOAA SARP Coasts

2011-2012   FIRST (Faculty Institutes for Reforming Science Teaching) IV Award, *NSF funded program for instructing postdocs in student-centered undergraduate biology education*

2007   Rackham One-Term Dissertation Grant, University of Michigan

2005   Rackham Research Grant, University of Michigan

2003-2004   SNRE Fellowship, University of Michigan

Publications

Ivan, L.N., D. G. Fielder, M.V. Thomas, and T.O. Höök. (In prep) Factors impacting yellow perch recruitment in Saginaw Bay, Lake Huron.

Ivan, L.N., E.S. Rutherford, M.J. Wiley and J.E. Breck (In prep) Determining the ecological impacts of adfluvial fishes on a small Great Lakes tributary using an individual-based model.

Ivan, L.N. and T.O. Höök. (In Press) Energy allocation strategies of young temperate fish: An eco-genetic modeling approach. Canadian Journal of Fisheries and Aquatic Sciences. 10.1139cjafs-2014-0197.

Ivan, L.N., D. G. Fielder, M.V. Thomas and T.O. Höök. (2014). Changes in the Saginaw Bay, Lake Huron, fish community from 1970-2011. Journal of Great Lakes Research. 40: 922-933.

Ryan, D.J., T.F Nalepa, L.N. **Ivan**, M.S. Sepulveda and T.O. Höök (2013). A comparison of consumptive demand of *Diporeia* spp. and *Dreissena* in Lake Michigan based on bioenergetics models. In Quagga and Zebra Mussels: Biology, Impacts, and Control, 2nd Edition. T. F. Nelapa and D. W. Schlosser, eds. CRC Press.

Blouzdis, C.E., L.N. **Ivan**, S.A Pothoven, C.R. Roswell, C.J. Foley, andT.O. Höök. 2012. A trophic bottleneck?: The ecological role of trout -perch *Percopsis omiscomaycus* in Saginaw Bay, Lake Huron. Journal of Applied Ichthyology. 29:416-424.

Ivan, L.N., E.S. Rutherford, and T.H. Johengen. 2011. Impacts of adfluvial fishes on the ecology of two Great Lakes tributaries. Transactions of the American Fisheries Society 140: 1670-1682.

Ivan, L.N., T.O. Höök, M.V. Thomas, and D.G. Fielder. 2011. Long-term and interannual dynamics of walleye and yellow perch in Saginaw Bay, Lake Huron. Transactions of the American Fisheries Society. 140: 1078-1092.

Ivan, L.N., E.S. Rutherford, C. Riseng, and J.A. Tyler. 2010. Density, production, and survival of walleye (*Sander vitreus*) eggs in the Muskegon River, Michigan. Journal of Great Lakes Research. 36: 328-337.

Jacobus, J. and L.N. **Ivan** (2005). Evaluating the effects of habitat patchiness on small fish assemblages in a Great Lakes Coastal Marsh. Journal of Great Lakes Research. 31(4): 466-481.

Presentations (Presenter-Only)

Ivan, L.N., H. Zhang, D.M. Mason, E.S. Rutherford and M. Hoff. 2013 (Invited). Assessing the risk of Asian carp establishment in the Great Lakes across productivity gradients. International Association for Great Lakes Research.

Ivan, L.N., C. Foley, S. Ahmed, W. Chen, C. Troy, K. Chekauer, and T. Höök. 2013. Climate-change induced impacts on Lake Michigan fish habitat availability. International Association for Great Lakes Research.

Ivan, L.N., H. Zhang, D.M. Mason, E.S. Rutherford and M. Hoff. 2013. Modeling the impacts of Asian carps in the Great Lakes: A case study in nearshore and offshore Lake Huron. Association for the Sciences of Limnology and Oceanography.

Ivan, L.N., H. Zhang, D.M. Mason, E.S. Rutherford and M. Hoff. 2012. Potential impact of Asian carps in the Great Lakes: An IBM community model approach. American Fisheries Society.

Ivan, L.N., Ryan, D., Roswell, C., Foley, C., Rode, R., Brown, P. and Höök, T. 2012. Potential influence of body size, stock, and prey consumption on egg size and fecundity of yellow perch. International Association for Great Lakes Research.

Ivan, L.N, Vehamme, E., Redder, T., DePinto, J. and Höök, T.O. 2011. Potential factors limiting recruitment of walleye and yellow perch in Saginaw Bay, Lake Huron: A modeling exercise. American Fisheries Society.

Ivan, L.N., T.O. Höök, D.G. Fielder and M.V. Thomas. 2011. Factors influencing yellow perch recruitment in Saginaw Bay, Lake Huron. International Association for Great Lakes Research.

Ivan, L.N., T.O. Höök, D.G. Fielder and M.V. Thomas. 2010. The Saginaw Bay fish community (1970-2008). Midwest Fish & Wildlife.

Ivan, L.N. and T.O. Höök. 2010. A spatially-explicit individual-based model of YOY yellow perch and walleye in Saginaw Bay, Lake Huron. International Association for Great Lakes Research.

Ivan, L.N. and T.O. Höök. 2009. An Ecogenetic Model of energy allocation for young-of-year fishes. American Fisheries Society.

Ivan, L.N., T.O. Höök, D.G. Fielder and M.V. Thomas. 2009. Dynamics of the Saginaw Bay fish community (1970-2008). International Association for Great Lakes Research.

Ivan, L.N., M.J. Wiley, C. Riseng and E.S. Rutherford. 2007. Modeling the ecosystem effects of adfluvial spawning on Great Lakes tributaries. American Fisheries Society.

Ivan, L.N., E.S Rutherford, C. Riseng. M.J. Wiley and B. Sparks-Jackson,. 2007. Spatial and temporal patterns in diversity, biomass, and trophic guilds of fishes and macroinvertebrates in the Lower Muskegon River, Michigan. International Association for Great Lakes Research.

Ivan, L.N. and E.S. Rutherford. 2006. Energy and nutrient impacts of adfluvial fish spawners on Great Lakes tributaries. American Fisheries Society.

Ivan, L.N. and E.S. Rutherford. 2006 (Invited). Walleye egg survival and recruitment in the Muskegon River tributary to Lake Michigan. American Fisheries Society.

Ivan, L.N. and E.S. Rutherford. 2006. Ecological impacts of adfluvial fishes spawning on a Lake Michigan tributary. International Association for Great Lakes Research.

Ivan, L.N. and E.S Rutherford. 2005. Modeling the fate of nutrients and energy from salmonid fish spawning in a Lake Michigan tributary. International Association for Great Lakes Research.

Ivan, L.N. and E.S Rutherford. 2004. Role of migrating in nutrient transport in four Lake Michigan tributaries. International Association for Great Lakes Research.

Volunteer/Outreach Activities

Feb 2013	Great Lakes Science Bowl, Grader
2001-2013	Dr. Nicholas Ivan Memorial Scholarship Fund, Treasurer
2012	Presentation to Chinese students on ecological modeling, NOAA-GLERL
2012	Presentation to UM Dearborn Limnology Class, NOAA-GLERL
2008-2012	Aquatic Seminar Series, Presenter, Purdue University
2012	Wabash Sampling Blitz, West Lafayette, IN
2003-2006	Aquatic Seminar Series, Organizer, University of Michigan
1998-1999	Sallie House, St. Petersburg, FL, Volunteer
1998	Boyd Hill Nature Preserve, St. Petersburg, FL, Volunteer
1995-1998	All Children's Hospital, St. Petersburg, FL, Volunteer

Professional Affiliations

American Fisheries Society, International Association for Great Lakes Research, American
Society of Limnology and Oceanography

Reviewing Activities

Transactions of the American Fisheries Society, Journal of Great Lakes Research, Fisheries
and Aquaculture Journal, North American Journal of Fisheries Management

References

Dr. Tomas Höök, Assistant Professor, Department of Forestry and Natural Resources, Purdue
University, 765-496-6799, thook@purdue.edu

Dr. Edward Rutherford; Ph.D. Advisor, Current Supervisor, Research Fishery Biologist,
Great Lakes Environmental Research Laboratory, NOAA and Adjunct Professor,
School of Natural Resources and Environment, University of Michigan, 734-741-
2118, ed.rutherford@noaa.gov

Dr. Thomas Johengen; Ph.D. Committee Member, Associate Director and Associate
Research Scientist, Cooperative Institute for Limnology and Ecosystems
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Dr. James Breck; Ph.D. Committee Member, Fisheries Research Biologist, Michigan
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