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## KATHERINE BIRKETT

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### Education

**University of Michigan** (Ann Arbor, MI)  
**M.S.**, Aquatic Science, School of Natural Resources & Environment, August 2011

Fields: Aquatic ecology, fisheries biology, aquaculture

Thesis: An Analysis of Spatial and Temporal Changes in Fish and Benthic Macroinvertebrate Communities Associated with Zebra Mussel (*Dreissena polymorpha*) Abundance in the Huron River, Southeastern Michigan

**University of Michigan** (Ann Arbor, MI)  
**Non-degree**, Ecology & Evolutionary Biology, 2004-2006

**University of Michigan** (Ann Arbor, MI)  
**B.A.**, English Language and Literature, April 2004

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### Professional Experience

**NOAA Great Lakes Environmental Research Laboratory**, Ann Arbor, MI  
Research Assistant, March 2008 – September 2012

- Oversaw laboratory and field work that contributed to the successful completion of several federally-funded ecological research projects, including the NOAA Mussel Watch Program, the Great Lakes Commission Lakewide Management Plan (LaMP) for Lake Ontario, the NOAA Long-Term Ecological Monitoring Program for Lake Michigan and Lake Huron, and the Great Lakes Restoration Initiative (GLRI) Muskegon Lake restoration project
  - Conducted ecosystems research in conjunction with federal scientists, University of Michigan researchers, and contractors at the Great Lakes Environmental Research Laboratory (Ann Arbor, MI)
  - Ran statistical analyses of benthic macroinvertebrate data, including t-tests, analysis of variance (ANOVA), principal component analyses (PCA); assisted in writing internal technical reports and peer-reviewed literature; presented research findings at professional meetings
  - Collected data and samples of benthic macroinvertebrates using a PONAR grab in Lake Michigan and Muskegon Lake
  - Collected diel zooplankton samples in all thermal strata for ongoing lower food web research in Thunder Bay, Lake Huron
  - Processed preserved sediment samples in the laboratory and identified benthic macroinvertebrates to the lowest possible taxonomic level
  - Successfully conducted acoustic surveys used to identify and classify lake bed sediments in Muskegon Lake
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- Operated fisheries acoustic equipment, CTD, and plankton survey system (optical plankton counter, fluorometer, and oxygen sensor) during research cruises in Thunder Bay, Lake Huron

**USGS Great Lakes Science Center, Ann Arbor, MI**  
Field Technician, April – December 2010

- Responsible for leading teams of field technicians monitoring the progress of wetland restoration efforts in the Ottawa National Wildlife Refuge funded by the Great Lakes Restoration Initiative (GLRI)
- Sampled and identified numerous species of wetland fishes using fyke nets and Smith-Root electrofishing equipment
- Collected pH, conductivity, dissolved oxygen, and turbidity data using a multiparameter sonde; processed water chemistry samples for dissolved organic carbon (DOC), total organic carbon (TOC), Total Kjeldahl nitrogen (TKN), and total phosphorus; calibrated and maintained sonde
- Collected wetland zooplankton using a pump and Wisconsin net, and benthic invertebrates using an Ekman bottom grab
- Tracked fish activity around a newly-constructed wetland reconnection channel using a DIDSON acoustic camera
- Used GPS equipment to locate sampling locations
- Transported and piloted small and medium-sized research boats
- Organized field excursions and coordinated the work of other contractors and volunteers
- Updated and maintained the Oracle database for the project

**University of Michigan Museum of Zoology, Fish Division, Ann Arbor, MI**  
Collection Manager's Assistant, September 2006-September 2008

- Contributed to the successful completion of academic research in ichthyology through the acquisition and management of fish specimens from around the world
  - Preserved freshly-collected fish specimens in 10% formalin and 65% ethanol
  - Enzyme-cleared and double-stained fish specimens for easy visualization of bone and cartilage
  - Handled fragile preserved fish specimens from collections dating back to the late 1800's
  - Identified and catalogued fish specimens in long-term storage, including collections from the Laurentian Great Lakes, the Amazon basin, the Florida Keys, and Atlantic deepwater trawls
  - Assisted in the maintenance of the museum's fish skeleton collection
  - Created radiographic images of fish specimens
  - Updated and maintained the fish collection's database
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- Maintained the experimental fish laboratory, cared for live animals, and kept the space in compliance with the standards developed by The University's Committee on Use and Care of Animals (UCUCA)

**University of Michigan Exhibit Museum of Natural History**, Ann Arbor, MI  
Docent, September 2005-May 2009

- Led tours of museum exhibits for K-12 students spanning the fields of paleontology, ecology, evolution, and anthropology
- Interpreted displays and interacted with the general public at special events

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**Research Experience**

**University of Michigan**, Ann Arbor, MI  
M.S. Research, 2007-2009

- Sampled fishes and benthic macroinvertebrates throughout the Huron River watershed.

**University of Michigan**, Ann Arbor, MI  
Volunteer Research, 2005

- Conducted laboratory analysis of walleye (*Sander vitreus*) stomach contents collected in the Muskegon River watershed.
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**Volunteer Experience**

**Seattle Aquarium**, Seattle, WA

Life sciences and dive program volunteer, 2013-present

- Responsible for providing care for the aquarium's coral reef fishes and invertebrates
- Maintained exhibit spaces, water quality, and life support systems
- Conducted SCUBA dives within larger aquarium exhibits for maintenance and feeding
- Interpreting exhibits and interacting with the general public

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**Teaching Experience**

**University of Michigan**, Ann Arbor, MI

Graduate Student Instructor, Department of Ecology and Evolutionary Biology, September 2008- June 2009

- Developed lesson plans, graded coursework, and led discussions for undergraduate students taking introductory biology and evolutionary biology courses
  - Balanced a full load of graduate courses while working 20 hours per week
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**Field Experience**     **Muskegon Lake, Michigan** : November 2009, June 2011 – September 2012 (research for NOAA Great Lakes Environmental Research Laboratory)  
**Thunder Bay, Lake Huron:** July 2012 (research for NOAA Great Lakes Environmental Research Laboratory)  
**Lake Michigan:** August 2011 (research for NOAA Great Lakes Environmental Research Laboratory)  
**Ottawa National Wildlife Refuge, Ohio:** June – November 2010 (research for USGS Great Lakes Science Center)  
**Detroit River, Michigan:** May 2010 (research for USGS Great Lakes Science Center)  
**Huron River, Michigan:** May – August 2008 (thesis field research)

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**Publications**     Journal Articles:  
**Birkett, K.**, Lozano, S., Rudstam, L.G., 2015. Long-term trends in Lake Ontario's benthic macroinvertebrate community from 1994-2008. *Aquatic Ecosystem Health & Management*, 18(1):1-13.

Internal Reports:

Lozano, S. and **Birkett, K.** "Muskegon Lake Benthic Invertebrate Monitoring", September 2012

Lozano, S. and **Birkett, K.** "Muskegon Lake Sediment Classification", September 2012

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**Conference Presentations**     *The Expansion of Dreissena and Long-Term Shifts in Benthic Macroinvertebrate Community Structure in Lake Ontario, 1998-2008.* Paper presented at the 55<sup>th</sup> Annual Conference on Great Lakes Research, Cornwall, Canada. 15 May 2012.

*Response of Fishes and Benthic Macroinvertebrates to Zebra Mussel-Induced Benthification in a Michigan River.* Paper presented at the 71<sup>st</sup> Midwest Fish and Wildlife Conference, Minneapolis, MN, 2010.

*Response of Fishes to Zebra Mussel Induced Benthification in a Michigan River.* Paper presented at the 2010 Joint Meeting of Ichthyologists and Herpetologists, Providence, RI, 2010.

*Spatial and Temporal Variation in Fish Communities in a Southeastern Michigan River.* Poster presented at the 2009 Joint Meeting of Ichthyologists and Herpetologists, Portland, OR, July 2009.

*Potential Effects of Invasive Mussels on a Lotic Fish Community.* Poster presented at the 69<sup>th</sup> Midwest Fish and Wildlife Conference, Columbus, OH, December 2008.

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**Professional Memberships**

International Association for Great Lakes Research  
American Fisheries Society  
American Society of Ichthyologists and Herpetologists  
American Elasmobranch Society

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**Language & Computer Skills**

Native English-speaker  
Advanced French  
Intermediate Swedish

Proficient with Arc GIS, Statistica, SPSS, Adobe Creative Suite, and Microsoft Office. Experienced with both Windows and Macintosh operating systems.

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**Field Skills**

- Certified PADI Rescue Diver, 2004-2014, 130+ total open water dives, 60+ dives in coldwater conditions
- 20+ dives in confined aquarium exhibits utilizing full face mask equipment
- Skilled in operating and trailering small watercraft
- Experience working aboard large research vessels for prolonged periods
- Certified in the use of electrofishing equipment by the US Department of the Interior