

QUINNLAN SMITH

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RESEARCH INTERESTS

I am a fisheries biologist with interests relating to the conservation and management of fish communities, the influence of climate change on the ecology, fisheries, and population dynamics within lake systems, human effects on ecosystems, and water column effects due to changing light conditions. I am currently beginning a Ph.D. program at the University of Wisconsin – Madison examining climate change and the thermal-optical habitat of walleye. My Master’s work focused on sportfish behavioral responses to a coarse woody habitat introduction in northern Wisconsin, a common management option in ecosystems influenced by increased lakeshore residential development. In the past, I have worked on predictive models to help conceptualize future ecological conditions on Lake Superior relating to changing water column light conditions given trends in increased wind over the lake surface and ice cover decline.

EDUCATION

Graduate-

University of Wisconsin Madison (UW) start date August 2022
Freshwater and Marine Sciences, Ph.D.

PIs: Jake Vander Zanden (UW) and Olaf P. Jensen (UW)

University of Minnesota Duluth (UMD)

Integrated BioSciences, M.S., May 2021

PIs: Thomas R. Hrabik (UMD) and Gregory G. Sass (WDNR)

Undergraduate-University of Minnesota Duluth (UMD)

Bachelor of Science in Biology, May 2018

Bachelor of Arts in Hispanic Studies, May 2018

Swenson College of Science and Engineering Dean’s List, Fall 2017

College of Liberal Arts Dean’s List, Fall 2017

PROFESSIONAL EXPERIENCE

Graduate Research Assistant August 2022-Present

University of Wisconsin – Madison

University of Wisconsin LTE May 2022-August 2022

University of Wisconsin – Trout Lake Station

Aquarist and Researcher August 2021-May 2022

Great Lakes Aquarium

Graduate Teaching Assistant August 2018-May 2019, August 2020-May 2021

University of Minnesota Duluth

General Biology II (lecture and laboratory sections)

2020-2021 Outstanding Graduate Teaching Assistant Award

Graduate Research Assistant University of Minnesota Duluth	August 2019-May 2020
Wisconsin Department of Natural Resources LTE Escanaba Research Station	May 2019-August 2019
Wisconsin Department of Natural Resources Volunteer University of Wisconsin - Trout Lake Station	May 2018-August 2018 May 2020-August 2020

RESEARCH EXPERIENCE

- PhD Graduate Studies, University of Wisconsin Madison, “Walleye Fisheries, Bright Spots in a Changing Climate” PIs: Dr. Jake Vander Zanden (UW) and Dr. Olaf P. Jensen (UW), Fall 2022 – Present
- M.S. Graduate Studies, University of Minnesota Duluth, “Sport Fish Behavioral Responses to a Littoral Coarse Woody Habitat Addition in a North-temperate Lake” PIs: Dr. Thomas R. Hrabik (UMD) and Dr. Gregory G. Sass (WDNR), Spring 2018 – May 2021
- Undergraduate Research Opportunities Program, University of Minnesota Duluth, “Assessing the Effect of Climate Change on Surface Ice Cover Regarding Siscowet Lake Trout Feeding Habits in Lake Superior”, Biology Faculty Sponsor: Dr. Thomas Hrabik, Spring 2018
- Undergraduate Research, University of Minnesota Duluth, “Assessing the Effect of Variable Surface Ice Cover Regarding Algal Productivity in Lake Superior”, Biology Faculty Sponsor: Dr. Thomas Hrabik, Spring 2018
- Undergraduate Research, University of Minnesota Duluth, “Assessing the Effect of Waves on Siscowet Lake Trout Feeding Habits”, Biology Faculty Sponsor: Dr. Thomas Hrabik, Fall 2017

FIELD AND LAB EXPERIENCE

PhD Research project work (University of Wisconsin – Madison, May-August 2022)

- Operated boom electrofishing boat
- Assisted in deploying HOBO light and temperature strings
- Collected total phosphorus, total nitrogen, dissolved organic carbon and nitrogenous waste samples

Walleye husbandry and light experiments (University of Minnesota Duluth, October 2019 – Spring 2020)

- Monitored walleye health, water conditions, and feeding habits
- Performed routine water changes to ensure water quality
- Tagged walleye to be used in light experiments
- Adjusted foraging arena to be fit for certain light levels and water clarity

Hydroacoustic/fish technician, DNR Lake Superior cruise (R/V Blue Heron, October 27th – 30th, 2019)

- Assisted with setting up of hydroacoustic sonar unit
- Calibrated hydroacoustic sonar unit
- Performed nightly trawls for fish sampling

- Identified native and invasive species
- Processed Coregonid fish including length/weight, sexes, and otolith extractions

M.S. Research project work (University of Wisconsin Madison – Trout Lake Station and Escanaba Research Station, May-August 2018, 2019, 2020)

- Placed and retrieved mini fyke nets, fyke nets, clover traps, and vertical/horizontal gill nets
- Processed Centrarchidae, Ictalurid and Salvelinus fish including length/weight, diets, flesh samples, and otolith extractions
- Performed boom electrofishing
- Processed invertebrate samples from sediment
- Collected macroinvertebrates using kick nets and Ekman grabs
- Collected water column zooplankton tows
- Processed zooplankton samples
- Collected aquatic macrophyte samples for scientific research while SCUBA diving
- Measured temperature, dissolved oxygen, pH and chlorophyll A using a YSI probe
- Sampled environmental DNA
- Sampled native and invasive crayfish populations
- Sampled fish populations and density using hydroacoustics
- Performed radio telemetry data collection and data analysis
- Performed PIT tag data collection and data analysis
- Surgically implanted fish with radio telemetry tags and PIT tags
- Identified and sampled big tooth aspen, white pine, and red pine leaves
- Trailered, loaded, launched, navigated and removed 18-foot boats
- Carried 30 pound batteries in rugged terrain

Ichthyology (UMD-BIOL 4761, January-May 2019)

- Measured physiologic aspects of fishes
- Classified native Great Lakes region fishes to species level based on physiology
- Studied economic and behavioral aspects of fish
- Applied lecture material during independent field study

Lake Ecology (UMD-BIOL 4861, January-May 2018)

- Measured temperature, dissolved oxygen, pH and chlorophyll A using a YSI probe
- Collected water column light measurements using a light meter and Secchi Disk
- Sampled different portions of the water column using a Van Dorn Bottle
- Performed Winkler titrations in lab
- Sampled zooplankton in the water column and performed lab analysis
- Sampled sediments using a ponar grab and analyzed sediments and invertebrates
- Analyzed phytoplankton samples in lab

PUBLICATIONS

Peer-reviewed Journal Articles

Quinnlan C. Smith, Greg G. Sass, Thomas R. Hrabik, Stephanie L. Shaw, Joshua K. Raabe: Sport fish movement and habitat use responses to a littoral coarse woody habitat addition in a north-temperate lake (in prep)

Quinnlan C. Smith, Greg G. Sass, Thomas R. Hrabik, Stephanie L. Shaw, Joshua K. Raabe (2021): Sport fish home range responses to a littoral coarse woody habitat addition in a north-temperate lake, *Ecology of Freshwater Fish*

Greg G. Sass, Stephanie L. Shaw, Thomas P. Rooney, Andrew L. Rypel, Joshua K. Raabe, Quinnlan C. Smith, Thomas R. Hrabik & Scott T. Toshner (2019): Coarse woody habitat and glacial lake fisheries in the Midwestern United States: knowns, unknowns, and an experiment to advance our knowledge, *Lake and Reservoir Management*

EXTERNAL REVIEWING

Participated as a Reviewer for: North American Journal of Fisheries Management (2020, 2021)

PROFESSIONAL PRESENTATIONS

- “Sport Fish Behavioral Responses to a Littoral Coarse Woody Habitat Addition in a North-temperate Lake” Presented in 45 minute online scientific talk format to undergraduate students, graduate students, and faculty at University of Minnesota, 2022
- “Sport Fish Behavioral Responses to a Littoral Coarse Woody Habitat Addition in a North-temperate Lake” Presented in 45 minute online scientific talk format to undergraduate students, graduate students, and faculty at University of Wisconsin Madison, 2022
- “Fish Evolution: Sturgeons, Sharks, and Their Ancestors” Presented in 1 hour online lecture/discussion format to Great Lakes Aquarium staff 2021
- “Sport Fish Behavioral Responses to a Littoral Coarse Woody Habitat Addition in a North-temperate Lake” Presented in 45 minute online scientific talk format to undergraduate students, graduate students, and faculty at University of Minnesota Duluth, 2021
- “Coarse Woody Habitat Effects on Sport Fish Behavior” Presented in 20 minute online scientific talk format to researchers and managers at Midwest Fish and Wildlife Conference, 2021
- “Coarse Woody Habitat Effects on Sport Fish Behavior” Presented in 20 minute scientific talk format to researchers and DNR staff at Wisconsin American Fisheries Society, 2020

- “Fish Evolution: From Sharks to Sturgeon” Presented in 45 minute lecture format to undergraduate students and Great Lakes Aquarium staff at Great Lakes Aquarium, 2019
- “Multidimensional Sonar in Lake Superior” Presented in 20 minute scientific talk format to researchers and DNR staff at MNDNR Fisheries Research Unit Meeting, 2019
- “Woody Debris as Habitat” Presented in 20 minute scientific talk format to researchers and DNR staff at MNDNR Fisheries Research Unit Meeting, 2019
- “Fish and Oxygen in Winter” Presented in 45 minute lecture format to undergraduate students for the Partners in Education program at University of Minnesota Duluth, 2019
- “Models: From Lab to Field Data” Presented in 45 minute lecture format to undergraduate students, graduate students, and faculty at University of Wisconsin Madison Trout Lake Research Station, 2019
- “Assessing the Effect of Waves and Climate Change on Siscowet Foraging Habitats in Lake Superior” Presented in scientific talk format to researchers at the State of Lake Superior Conference, 2018
- “Diving in Deeper: A Look at Light, Waves, and Climate Change, and Their Effects on Siscowet Lake Trout Feeding Habitats” Presented in 45 minute lecture format to undergraduate students, graduate students, and faculty at University of Wisconsin Madison Trout Lake Research Station, 2018
- “The Hard Science of Ice: Its Effects on Light and Foraging Habitats of Siscowet Lake Trout”, Presented in poster format to undergraduate students, graduate students, and faculty at University of Minnesota Duluth, 2018
- “Assessing the Effect of Variable Surface Ice Cover Regarding Algal Productivity in Lake Superior”, Presented in poster format to undergraduate students, graduate students, and faculty at University of Minnesota Duluth, 2017
- “Assessing the Effect of Climate Change on Surface Waves Regarding Siscowet Lake Trout Feeding Habitats in Lake Superior”, Presented in 20 minute scientific talk format to undergraduate students, graduate students, and faculty at University of Minnesota Duluth, 2017
- “Assessing the Effect of Climate Change on Surface Waves Regarding Siscowet Lake Trout Feeding Habitats in Lake Superior”, Presented in 20 minute poster format to undergraduate students, graduate students, and faculty at University of Minnesota Duluth, 2017

AWARDS & FELLOWSHIPS

- Juday/Lane Family Graduate Fellowship (\$6500) - 2022

MENTORING AND MENTEES

Lane and Juday Co-Mentor Fellow, Center for Limnology (University of Wisconsin – Madison, Summer 2022)

- Graduate Student fellow responsible for mentoring and guiding 5 Undergraduate Fellows during summer 2022 at UW – Trout Lake Station on independent

research projects with a final result of scientific presentations to donors and faculty

- Led and facilitated bi-weekly research meeting with Undergraduate Fellows to develop research skills, communication skills, and foster a collaborative research environment
- Led summer workshop series open to all Undergraduate Students (n=30) living at Trout Lake Station that included workshops on R, Professional Societies, Professional Meetings, and Applying to Graduate School

Graduate Research Mentor of Undergraduate Students (University of Wisconsin – Madison, Summer 2022)

*denotes a mentorship with another graduate student or faculty member through the Lane Graduate Fellowship and Juday Graduate Fellowship

- Max Monfort (2022), Austin Mannigel (2022), *Christina Weatherford (2022), *Elle Krellwitz (2022), *Max Wilkinson (2022), *Mason Polencheck (2022)

Graduate Student Mentor, Undergraduate Research Opportunities Program (University of Minnesota – Duluth, Spring 2020)

- Nathan Kamm, “*Assessing the Foraging Abilities of Juvenile Walleye in Differing Light Intensities*”, Biology Faculty Sponsor: Dr. Thomas Hrabik

MEMBERSHIPS

- Association for the Sciences of Limnology and Oceanography, 2020-present
- American Fisheries Society, 2015-present

ADDITIONAL EXPERIENCE

Aquarist and Researcher, August 2021 – May 2022

Great Lakes Aquarium, Duluth MN

- Perform aquatic animal care for freshwater and saltwater animals
- Establish and maintain life support for small and large aquaria
- Perform regular maintenance of small and large aquaria
- Conduct scientific behavioral research on animals
- Perform outreach within the local community
- Dive in exhibits for maintenance and animal feeding
- Measure and maintain water quality in aquaria

Science Fair Judge, Spring 2018, Spring 2020, Spring 2021

University of Minnesota Duluth, Duluth, MN

- NE MN Regional Science Fair
- Judge and distribute awards for Great Lakes Aquarium
- Judge and distribute awards for American Fisheries Society

Young Professional, Spring 2020

Minnesota DNR Roundtable, Minneapolis, MN

Volunteer Diver, Spring 2018-Present

Great Lakes Aquarium, Duluth, MN

Educator, September 2016-May 2021

Great Lakes Aquarium, Duluth, MN

Customer Service Representative, November 2015-May 2018

Great Lakes Aquarium, Duluth, MN

- Dive in exhibits for maintenance and animal feeding
- Maintain exhibit appearance
- Educate guests about aquarium exhibits
- Communicate with guests from varying backgrounds
- Answer customer questions
- Coordinate team logistics to ensure guest and employee safety
- Assist animal care staff

ACTIVITIES

American Fisheries Society UMD Subunit, Fall 2015-Spring 2021, General Officer
Fall 2016-Spring 2017, President Fall 2017-Spring 2018, Treasurer Fall 2018-Spring
2019, Vice President Fall 2019-Spring 2021