Joseph T. Mrnak

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**Education**

Ph.D. (Expected 2023) Freshwater and Marine Sciences

University of Wisconsin-Madison, Madison, WI

Dissertation: Role of food web configuration in the restoration of native pelagic systems

Advisors: Dr. M. Jake Vander Zanden & Dr. Gregory Sass

M.Sc. (2019) Wildlife and Fisheries Sciences (Fisheries Specialization)

South Dakota State University, Brookings, SD

Thesis: Effect of water velocity and temperature on energy use, behavior, and mortality of pallid sturgeon (*Scaphirhynchus albus*) larvae

Advisor: Dr. Steven Chipps

B.Sc. (2016) Fisheries and Wildlife Ecology

Minor: Geographic Information Systems

Northland College, Ashland, WI

Thesis: Rainbow smelt (*Osmerus mordax*) age and growth in Whitefish Bay, Lake Superior, with an analysis of age estimation effort

Advisor: Dr. Derek Ogle

**Work Experience**

Graduate Research Assistant (June 2019 – Present)

Center for Limnology, University of Wisconsin-Madison, Madison, WI.

Graduate Research Assistant (June 2017 – May 2019)

U.S. Geological Survey, South Dakota Cooperative Fish and Wildlife Research Unit, South Dakota State University, Brookings, SD.

Fisheries Research Technician (June 2016 – May 2017)

Wisconsin Department of Natural Resources, Escanaba Lake Research Station, Boulder Junction, WI.

Biological Science Technician (May 2015 – December 2015)

U.S. Geological Survey, Lake Superior Biological Station, Ashland, WI.

GIS Technician, volunteer (September 2014 – April 2015)

U.S. Fish and Wildlife Service, Whittlesey Creek National Wildlife Refuge, Ashland, WI.

Biological Science Technician, volunteer (May 2014 – August 2014)

U.S. Fish and Wildlife Service, Anchorage Field Office, Anchorage, AK.

Assistant Manager (March – October; 2006 – 2013)

Barnacle Bob’s Marina, Antioch, IL.

**Teaching Experience**

Instructor (2020), *Ecology of Fishes*

University of Wisconin-Madison, Madison, WI

Instructor (2019), *Introductory Fisheries Analyses with R* (workshop)

American Fisheries Society Student Subunit, South Dakota State University, Brookings, SD

Teaching Assistant (2018), *Natural Resource Management Biometry*

South Dakota State University, Brookings, SD

Supervisor: Dr. Michael L. Brown

Teaching Assistant (2018), *Introductory Fisheries Analyses with R* (workshop)

78th Midwest Fish & Wildlife Conference, Milwaukee, WI

Supervisor: Dr. Derek Ogle

Teaching Assistant (2017), *Fisheries Bootcamp* (field course)

Escanaba Lake Research Station, Boulder Junction, WI

Supervisor: Dr. Gregory Sass

Teaching Assistant (2016), *Fisheries Techniques* (field course)

Northland College, Ashland, WI

Supervisor: Dr. Derek Ogle

**Peer Reviewed Publications**

**Mrnak, J.T**., S.L. Shaw, L.D. Eslinger*,* T.A. Cichosz, and G.G. Sass. 2018*.* Characterizing the angling and tribal spearing walleye fisheries in the Ceded Territory of Wisconsin, 1990-2015. North American Journal of Fisheries Management 38(6):1381-1393.

**Manuscripts in Preparation**

**Mrnak, J.T**., L.B. Heironimus, D.A. James, and S.R. Chipps. *Submitted*. Effect of water velocity and temperature on energy use, behavior, and mortality of pallid sturgeon (*Scaphirhynchus albus*) larvae.

Heironimus, L.B., **J.T. Mrnak**, S.R. Chipps, and D.L. Galat. James. *In internal (USGS) review*. Application of a larval pallid sturgeon (*Scaphirhynchus albus*) bioenergetics model using long-term Missouri River temperature data.

**Mrnak, J.T**., M.J. Vander Zanden, and G.G. Sass. *In prep*. Ecosystem effects of invasive rainbow smelt (*Osmerus mordax*) in inland lakes: a review.

**Grey Literature**

Sass, G., D. Dreikosen, S. Shaw, M. Lorenzoni, A. Noring, **J. Mrnak**, J. Dobosenski, T. Keyler, and A. Koblings. 2017. Northern Highland Fishery Research Area Population and Harvest Monitoring-Annual Report.

**Professional Presentations**

*Invited talks*

Rushlow, C.A. and **J.T. Mrnak**. 2019. Diet analysis of two north temperate fishes occupying different habitat types within the same lake. [poster] Juday Fellows Luncheon, Trout Lake Station, Boulder Junction, WI.

**Mrnak, J.T**., S.R. Chipps, and D.A. James. 2019. Effects of water velocity and temperature on energy allocation and survival of endogenous pallid sturgeon (*Scaphirhynchus albus*) larvae. Upper Basin Pallid Sturgeon Work Group, Billings, MT.

**Mrnak, J.T**., S.R. Chipps, and D.A. James. 2018. Influence of water velocity on rheotactic behavior, growth, and energy reserves of pallid sturgeon (*Scaphirhynchus albus*) larvae during endogenous development. Missouri River Institute Research Symposium, University of South Dakota, Vermillion, SD.

**Mrnak, J.T**., S.R. Chipps, and D.A. James. 2018. Effect of water velocity on growth, survival, and energy reserves of endogenous pallid sturgeon (*Scaphirhynchus albus*) larvae. Upper Basin Pallid Sturgeon Work Group, Bozeman, MT.

**Mrnak, J.T.** 2017. Characterizing the joint tribal spearing and angling walleye (*Sander vitreus*) fisheries in the Ceded Territory of Wisconsin. Northland College, Ashland, WI.

**Mrnak, J.T**., D.H. Ogle, and M.R. Vinson. 2016. Rainbow smelt (*Osmerus mordax*) age and growth in Whitefish Bay, Lake Superior, with an analysis of age estimation effort. [poster] Honors Day, Northland College, Ashland, WI.

**Mrnak, J.T**., and J. Ashline. 2014. Cold water inputs effect on juvenile coho salmon (*Oncorhynchus kisutch*) seasonal relative abundance. [poster] Honors Day, Alaska Pacific University, Anchorage, AK.

*Conference presentations*

**Mrnak, J.T**., M.J. Vander Zanden, N.R. Lottig, and G.G. Sass. 2020. Competition for pelagic niche space: food web manipulation to control invasive rainbow smelt. 48th Annual Meeting of the Wisconsin Chapter of the American Fisheries Society, Eau Claire, WI.

**Mrnak, J.T**., M.J. Vander Zanden, N.R. Lottig, and G.G. Sass. 2019. Competition for pelagic niche space: the reintroduction of native cisco to control invasive rainbow smelt. 4th Annual Science in the Northwoods, Woodruff, WI.

**Mrnak, J.T**., S.R. Chipps, and D.A. James. 2019. Influence of water temperature on energy allocation, rheotaxis behavior, and survival of endogenous pallid sturgeon (*Scaphirhynchus albus*) larvae. [poster] Missouri River Natural Resource Conference, Pierre, SD

**Mrnak, J.T**., S.R. Chipps, and D.A. James. 2019. Effect of water temperature on growth, energy reserves, settling time, and survival of endogenous pallid sturgeon (*Scaphirhynchus albus*) larvae. Minnesota and Dakota American Fisheries Society Joint Annual Meeting, Fargo, ND.

L.D. Eslinger, **J.T. Mrnak**, S.L. Shaw, T.A. Cichosz, and G.G. Sass. 2019*.* Characterizing the angling and tribal spearing walleye fisheries in the Ceded Territory of Wisconsin, 1990-2015. 47th Annual Meeting of the Wisconsin Chapter of the American Fisheries Society, Green Bay, WI.

**Mrnak, J.T**., S.R. Chipps, and D.A. James. 2019. Effect of water temperature on growth, energy reserves, rheotaxis, and mortality of endogenous pallid sturgeon (*Scaphirhynchus albus*) larvae. 79th Midwest Fish and Wildlife Conference, Cleveland, OH.

**Mrnak, J.T**., S.R. Chipps, and D.A. James. 2018. Influence of water velocity on rheotactic behavior and energy reserves of endogenous pallid sturgeon (*Scaphirhynchus albus*) larvae. 148th Annual Meeting of the American Fisheries Society, Atlantic City, NJ.

**Mrnak, J.T**., S.R. Chipps, and D.A. James. 2018. Effect of water velocity on growth, survival, and energy reserves of endogenous pallid sturgeon (*Scaphirhynchus albus*) larvae. Missouri River Natural Resource Conference, Nebraska City, NE.

**Mrnak, J.T**., S.R. Chipps, and D.A. James. 2018. Influence of water velocity on growth and energy reserves of endogenous pallid sturgeon (*Scaphirhynchus albus*) larvae. 54th Annual Meeting of the Dakota Chapter of the American Fisheries Society, Brookings, SD.

**Mrnak, J.T**., G.G. Sass, S.L. Shaw, L.D. Eslinger*,* and T.A. Cichosz*.* 2017. Characterizing the joint tribal spearing and angling walleye (*Sander vitreus*) fisheries in the Ceded Territory of Wisconsin. 46th Annual Meeting of the Wisconsin Chapter of the American Fisheries Society, Milwaukee, WI.

**Mrnak, J.T**., D.H. Ogle, and L.S. Tate. 2017. Prototype R function for computing the Lyons et al. (2001) Wisconsin large-river IBI. [poster] 46th Annual Meeting of the Wisconsin Chapter of the American Fisheries Society, Milwaukee WI.

**Mrnak, J.T**., D.H. Ogle, and M.R. Vinson. 2016. Rainbow smelt (*Osmerus mordax*) age and growth in Whitefish Bay, Lake Superior, with an analysis of age estimation effort. [poster] 45th Annual Meeting of the Wisconsin Chapter of the American Fisheries Society, La Crosse, WI.

**Released Software Packages or Functions**

**LRIBI()**: Function for R statistical environment to rapidly produce an index of biotic integrity (IBI) for Wisconsin’s large-rivers in accordance with Lyons et al. (2001; Transactions of the American Fisheries Society 130:1077-1094). Implemented and released in the fishWiDNR package in December, 2016.

**Awards**

* Tim Kroeff Fisheries Scholarship, Wisconsin Chapter of the American Fisheries Society (2020)
* Great Plains Fishery Workers Association Scholarship Award, Department of Natural Resource Management, South Dakota State University (2019)
* Janice Lee Fenske Memorial Award (Finalist), 79th Midwest Fish and Wildlife Conference (2019)
* John E. Skinner Memorial Award, 148th Annual Meeting of the American Fisheries Society (2018)
* Robert A. Klumb HAMMS (Habitat, Aquatics, and Management of the Missouri River System) Award, Department of Natural Resource Management, South Dakota State University (2018)
* Robert A. Klumb Memorial Student Travel Grant, Missouri River Natural Resource Conference (2018)
* Robert A. Klumb Memorial Scholarship, Dakota Chapter of the American Fisheries Society (2018)

**Active Certifications**

* Principles and Techniques of Electrofishing, U.S. Department of the Interior
* Motorboat Operator Certification Course, U.S. Department of the Interior

**Professional Society Affiliations**

* University of Wisconsin-Madison, American Fisheries Society Student Subunit (2019 – Present)
* Minnesota Chapter of the American Fisheries Society (2019 – Present)
* Dakota Chapter of the American Fisheries Society (2017 – Present)
* South Dakota State University, American Fisheries Society Student Subunit (2017 – 2019)
* American Fisheries Society (2017 – Present)
* Wisconsin Chapter of the American Fisheries Society (2012 – Present)
* Northland College, American Fisheries Society Student Subunit (2012 – 2016)
* Northland College, Wildlife Society Student Subunit (2012 – 2016)

**Positions Held**

* Member, Center for Limnology, Trout Lake Research Station Use and Climate Committee (2019 – Present)
* Member, Center for Limnology, Library Committee (2019 – Present)
* Member, American Fisheries Society, Fish Habitat Section (2019 – Present)
* Member, American Fisheries Society, Fisheries Management Section (2019 – Present)
* Vice-President, South Dakota State University, AFS Student Subunit (2018 – 2019)
* Member, American Fisheries Society, North Central Division Walleye Technical Committee (2018 – Present)
* Member, American Fisheries Society, North Central Division Rivers and Streams Technical Committee (2018 – Present)
* Member, American Fisheries Society, Education Section (2017 – Present)
* Member, American Fisheries Society, Student Subsection of the Education Section (2017 – Present)

**References**

Dr. Gregory Sass, Fisheries Research Supervisor, Wisconsin Department of Natural Resources, Escanaba Lake Research Station, Boulder Junction, Wisconsin

(715) 891-1875, [Gregory.Sass@wisconsin.gov](mailto:Gregory.Sass@wisconsin.gov)

Dr. Steven Chipps, Unit Leader, U.S. Geological Survey, South Dakota Cooperative Fish & Wildlife Research Unit, South Dakota State University, Brookings, South Dakota

(605) 688-5467, [Steven.Chipps@sdstate.edu](mailto:Steven.Chipps@sdstate.edu)

Dr. Derek Ogle, Professor, Department of Natural Resources and Mathematical Sciences, Northland College, Ashland, Wisconsin

(715) 682-1300, [DOgle@northland.edu](mailto:DOgle@northland.edu)