**Professional Interest:** Developing collaborative and technical solutions for freshwater conservation issues and effectively communicating science to diverse parties to promote stewardship and understanding.

**Education**

**Michigan State University** (GPA: 4.0) (August/2020-present)

PhD in Fisheries Science

East Lansing, MI 48823

**Plymouth State University** (GPA: 3.89)(August/2018 – June/2020)

Masters in Environmental Science and Policy

Plymouth, NH 03264

**Oregon State University** (GPA: 3.93)(October/2016 – April/2017)

Post-baccalaureate

Corvallis, OR 97331

**Central Michigan University**  (September/2011 – May/2015)

Bachelor of Science

Majors: Environmental Studies with a Science concentration, and Biology with a Natural Resources option

Mt. Pleasant, MI 48858

GRE Combined Score: 310 GRE Writing Score: 4

**Publications**

Schumann, DA, Graeb, KN, Wagner, MD, Graeb, BDS, Prenosil, E, Hoekwater, J. 2020. Suitability of Surgically Implanted 8-mm Passive Integrated Transponder Tags for Small-Bodied Fish. *Journal of Applied Icthyology*; 36: 682– 692.

https://doi.org/10.1111/jai.14073.

**Professional Presentations**

Hoekwater J, A. Villamagna, B. O’Donnell, and J. Lamy. *Predicting Brook Trout Movement, Growth, and Density Utilizing Fine-Scale Measures of Abiotic and Biotic Condition.* 149th Annual Meeting and Joint Conference with the Wildlife Society; October 2019; Reno, Nevada

Villamagna A, A. Dunlap, J. Hoekwater, J. Lamy, and B. O’Donnell. *Spatial, Temporal, and Hierarchical Integration of Fisheries Data and Researchers.* 149th Annual Meeting and Joint Conference with the Wildlife Society; October 2019; Reno, Nevada

Hoekwater J and J. Lamy. *Movement and Genetics of Eastern Brook Trout Post Restoration in the Beebe River Watershed.* New Hampshire Water & Watershed Conference; March 2019; Plymouth, NH.

Hoekwater J. and J. Lamy. *Beebe River Restoration and its Implications for Eastern Brook Trout.* Pemigewasset Chapter of Trout Unlimited; February 2019; Plymouth, NH.

Hoekwater J, D. Schumann, and K. Bertrand. *Improving Surgical Techniques for Implanting Passive Integrated Transponder (PIT) Tags into Small-Bodied Fishes Using Cyanoacrylate Sutures.* 52nd Annual Conference of the Dakota Chapter of the American Fisheries Society; February 2016; Spearfish, SD.

**Awards**

(2019) Environmental Science and Policy Student Travel Airfare and Research Fund, (2018) Joseph E. ’68 and Gail Heffernan White ’66 Graduate Fellowship, (2018) Student Research and Creativity Fund, (2014) Undergraduate Summer Scholars Award

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6152 Farrington Ct

East Lansing, MI 48823

**Joshua Hoekwater**

**Masters Research Overview**

*“Brook Trout (Salvelinus fontinalis), Wood Additions, and Culvert Removal in Headwater Streams: A Trophic Cascade Perspective”* Advisors: Dr. Amy Villamagna, Dr. Brigid O’Donnell, and Dr. Eric Laflamme (August/2018 – June/2020)

Studying Brook Trout population response to stream restoration efforts in a headwater stream network impacted by a legacy of logging with impassable culverts and reduced habitat quality. Our approach and results are informative to the benefits of stream restoration within context of the larger conservation issues brought on by climate change and land management.

**Masters Highlights**

|  |  |
| --- | --- |
| * Operating as project lead in a multidisciplinary and multiagency restoration monitoring project
* Leading undergraduate technicians and mentoring their independent research interests
* Presenting scientific research to fisheries focused professionals, local community members, and undergraduate students
 | * Adept with data analysis, visualization, and management in R, GIS ArcMap 10.1, Microsoft Excel, and Minitab
* Writing science for different audiences and objectives (Ex. thesis, publication, funding proposals, and field protocols)
* Maintaining collaborative relationships with land trusts, governmental organizations, and local Trout Unlimited volunteers
 |

**Research Assistant**  (August/2018 – June/2020)

Plymouth State University, 17 High St, Plymouth, NH 03264

***Technical Skills***

* Adept with modelling complex integrative data sets
* Adept with data analysis, visualization, and management in R, GIS ArcMap 10.1, Microsoft Excel, and Minitab
* Comfortable presenting research in varying degrees of complexity for broad audiences with different interests
* Proficient with graphic editing in Inkscape for high quality visuals
* Proficient with content analysis for literature review

***Technical Experience***

* Organized students and volunteers to complete field tasks during large sampling events (15+ people)
* Refined detailed habitat sampling protocol and trained students to characterize habitat quality
* Developed standardization for scale age determination and validated historic results
* Managed large HOBO sensor datasets to represent stream hydrodynamics
* Trained students to collect representative benthic and terrestrial invertebrate samples
* Trained students on macroinvertebrate identification and invoked student ownership of data quality
* Assembled and maintained PIT antennae and solar panel arrays for tracking fish movement

***Outcomes***

* Developed two manuscripts for peer review on a before/after study of headwater stream restoration impacts
* Addition of language to conservation easement for 50 ft riparian buffers to protect Brook Trout habitat
* Validation of restoration benefits for increasing macroinvertebrate abundance and Brook Trout growth
* Inspired undergraduate technicians to volunteer and explore independent research questions within the project

**Detailed Professional Experience**

**Professional Highlights**

|  |  |
| --- | --- |
| * Operating as a crew lead and crew member cohesively and effectively in adverse conditions to complete field tasks
* Inputting, managing, and analyzing data for various biological research projects
* Processing and identifying fish utilizing different methods in diverse water conditions and locations
 | * Collecting, processing, and identifying benthic invertebrate samples
* Quantifying stream habitat at various levels of complexity for diverse final products
* Communicating research interests with various stakeholders and land owners to develop trust and understanding
 |

**Environmental Specialist I** (May/2017-November/2017, (40hrs./week)

Minnesota Pollution Control Agency, Baxter, Minnesota

Sampled fish and invertebrate communities in streams and rivers throughout northern Minnesota to biologically monitor water quality. Guided new staff on electrofishing protocols and fish identification to provide standardization in our community assessments. Worked on ArcGis projects defining stream sinuosity, gradient and alteration status for proper classification of streams.

***Technical Experience***

* Collected and identified fish samples utilizing backpack electrofishing, stream shocking, and boom shocking
* Collected habitat data representing habitat quality and composition
* Operated small watercraft for boat electroshocking
* Coordinated field sampling logistics and navigated to sites
* Instructed crew members on fish identification and sampling procedures
* Managed databases for quality assurance
* Utilized ArcGIS to determine historic stream alterations and classify the riverways of Minnesota

**Fisheries Technician III** (June/2016-October/2016, (40 hrs./week)

Columbia River Inter-Tribal Fish Commission, La Grande, Oregon

Utilized total stations to create precise and detailed three-dimensional maps of streams and rivers throughout the Grande Ronde watershed for salmonid habitat assessments. Collected auxiliary habitat data such as velocity, water chemistry, invertebrates and estimated fish cover, and substrate and large woody debris that coincided with mapping. Post processed data in ArcGIS to create detailed three-dimensional maps with various layers that represented auxiliary habitat data and accurate geomorphological features of stream channel and riparian.

***Technical Experience***

* Collected topographical data to accurately represent stream geomorphology
* Collected habitat data reflecting substrate composition, water chemistry, large woody debris and fish cover
* Measured stream discharge using flow meters
* Installed and maintained HOBO temperature loggers
* Operated handheld Solmetric Suneye device to determine year-round shading of stream channel
* Processed topographic data in ArcGIS to create accurate three-dimensional maps of sites for publication
* Produced quality reports for assessing data collection accuracy

**Research Associate** (October/2015-April/2016, (40 hrs./week)

South Dakota State University, Brookings, South Dakota

Sampled streams and rivers throughout South Dakota as a crew lead, working collaboratively with several crew members to collect habitat, water chemistry, and fish abundance data using standardized active/passive gears and electrofishing procedures. Processed and identified benthic macroinvertebrate samples in a laboratory setting. Processed, identified, and aged fish samples utilizing scales, spines, and otoliths in a laboratory setting to estimate structure biases.

***Technical Experience***

• Led backpack electrofishing efforts in turbid conditions

* Obtained private landowner permission for field sampling trips
* Planned field sampling schedule and navigated to sites
* Quantified local habitat availability and quality
* Collected fish using seine nets, modified fyke nets, gill nets, tandem hoop nets, and trot lines
* Identified fish species and recorded total length, weight, and sex
* Organized, repaired, and maintained gear
* Processed and identified benthic macroinvertebrate samples
* Processed fish structures for aging including otolith, fin ray, and spine
* Mounted and prepared structures for aging using isometric saw
* Cleaned and maintained large fish holding tanks and filtration system in the SDSU Fisheries Ecology Research Center

***Research Associate (Project)*** (December/2016 – February/2016)

*“Improving Surgical Techniques for Implanting Passive Integrated Transponder (PIT) Tags into Small-Bodied Fishes Using Cyanoacrylate Sutures”*

***Technical Experience***

* Wrote and presented results on a small laboratory methodology study
* Surgically implanted PIT tags in small bodied fishes
* Maintained fish tanks and evaluated physiological impacts of tag implantation procedures
* Managed databases and conducted statistical analysis

**Fisheries Technician** (June/2015-September/2015, (40 hrs./wk.)

Pacific States Marine Fisheries Commission, Fort Bragg, California

Collected habitat data for salmonid species working collaboratively with crew members, classifying units, measuring and estimating metrics in stream reaches.

***Technical Field Experience***

* + - * Navigated sites using handheld GPS units and topographic maps
* Visually quantified habitat quality for threatened Pacific Salmon species
* Operated off road trucks and ATV’s in rough terrain
* Installed and maintained HOBO temperature loggers
* Conducted backpack electrofishing for threatened species
* Surgically implanted PIT tags in threatened species
* Snorkel surveyed for juvenile salmonid species

**Undergraduate Fisheries Researcher**(February/2014 – May/2015)

The Department of Biology, Central Michigan University, Dr. Kevin Pangle, Aquatic Ecology Lab

***Recipient of Summer Scholars Award****, The College of Science and Technology and the Department of Biology, Central Michigan University*

Formulated project concept and design, wrote scientific proposal, budgeted/managed technical supplies, executed personally developed protocols, instructed volunteers for laboratory processing, and performed preliminary analysis of data to further project development.

***Technical Experience***

* Sampled and identified fish using backpack electrofishing while following strict government protocols
* Sampled and preserved freshwater invertebrates using personally developed protocols
* Collected water chemistry data using YSI sonde equipment
* Collected scales and otoliths for aging
* Performed habitat characterization and vegetation surveys at sites
* Sampled Y.O.Y. yellow perch through net seining while operating motor-powered flat bottom boat on inland lakes
* Performed diet analysis of juvenile steelhead and identified invertebrate drift net and kick net samples
* Data input and management using Excel
* Analyzed data in Microsoft Excel and Minitab

**Certifications**

* ATV safety certified **-** First Aid and CPR certified

* Defensive driving certified **-**  Minnesota boat safety certified