

Travis Seaborn
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EDUCATION

WASHINGTON STATE UNIVERSITY- Pullman, WA

Doctor of Philosophy in Biology – July, 2019

WESTERN CAROLINA UNIVERSITY- Cullowhee, NC

Master's of Science in Biology – May, 2014

UNIVERSITY OF WASHINGTON – Seattle, WA

Bachelor's of Science in Biology, Minor in Philosophy – March, 2010

PROFESSIONAL APPOINTMENTS AND EXPERIENCE

NORTH DAKOTA STATE UNIVERSITY

Assistant Professor, July 2022-Present

School of Natural Resource Sciences

- Demo-genetic agent-based models to assess Redband trout response to climate change
- Comparative landscape genetics of Steelhead and Chinook post-dam removal on the Elwha River
- Understanding Yellowstone-cutthroat trout hybridization within the social-ecological system of the Teton River drainage using RADseq and whole-genome sequencing

Instructor of Record, January 2023-Present

Range Science 791: Fundamentals of R for Ecologists, Spring Semester, 2023

Range Science 791: Applied Ecological Analyses in R, Spring Semester, 2023

Range Science 792: Graduate Teaching Experience for 2 students, Spring Semester, 2023

UNIVERSITY OF IDAHO

National Science Foundation EPSCoR GEM3 Postdoctoral Scholar

Research Associate, July 2019-July 2022

Department of Fish and Wildlife Sciences, College of Natural Resources

Advisors: Christopher Caudill, Lisette Waits, Paul Hohenlohe

Instructor of Record, January 2020-May 2022

Bioinformatics and Computational Biology 503: Data Carpentries Geospatial Workshop, Co-

Instructor: Spring Semester, 2020

Bioinformatics and Computational Biology 503: Unix, Git, Python Workshop, Co-Instructor, Spring Semester 2021

Bioinformatics and Computational Biology 503: Data Visualization in R and Python Workshop, Co-Instructor, Spring Semester 2022

Core Science 231: Fish and Wildlife in a Changing World, Co-Instructor, Fall Semester, 2020

Education Curriculum & Instruction Design / Fishery Resources 504 (cross listed): Teaching Data Analysis and Pedagogy *New Course*, Fall Semester, 2020

Environmental Science 404/504: Distribution and Climate Change Modeling, *New course*, Spring Semester 2021

Wildlife 561: Landscape Genetics, Co-Instructor: Spring Semester, 2020, 2022

International distributed graduate course across many universities and hundreds of students

2020, 2022: International group project leader

2022: Acting as simulation and modeling expert and lecturer, including curriculum development
Wildlife 562: Landscape Genetics Lab: Spring Semester, 2020, 2022

WASHINGTON STATE UNIVERSITY

Teaching Assistant/Lab Instructor, August 2014 - May 2019

Biology 432: Biology of Amphibians and Reptiles: Spring Semesters, 2016 and 2018
Biology 372: General Ecology: Fall Semester, 2015
Biology 106: Introductory Biology: Organismal Biology: Fall Semesters, 2014 and 2016
Science 101: Origins in the Natural World: Fall Semester, 2018
Science 102: Dynamic Systems in the Natural World: Spring Semester, 2019

Research Assistant

Fall Semester, 2017: eDNA assay design for amphibian conservation in montane wetlands. Goldberg lab, collaboration with Piovio-Scott lab, WSU Vancouver.
Spring Semester, 2017: Conservation genomics of the Sonoran tiger salamander. Goldberg lab, collaboration with Arizona Game and Fish Department.
Spring Semester, 2015: Genetically informed metapopulation viability analysis of the northern leopard frog. Goldberg lab, collaboration with Washington State Department of Fish and Wildlife.

WESTERN CAROLINA UNIVERSITY

Teaching Assistant/Lab Instructor, August 2012 - May 2014

Biology 104: Human Biology: Spring Semester, 2014
Biology 141: Principles of Biology II: Fall Semester, 2012; Spring Semester, 2013
Biology 241: Ecology and Evolution: Fall Semester, 2012; Summer Semester, 2013
Biology 140: Principles of Biology I: Fall Semester, 2013
Biology 373: Invertebrate Zoology: Guest lab instructor

Laboratory Preparator/Coordinator, January 2013 - December 2013

Biology 141: Principles of Biology II: Spring Semester, 2013
Biology 140: Principles of Biology I: Fall Semester, 2013

AWARDS AND FUNDING

NORTH DAKOTA STATE UNIVERSITY

Total: \$997,411

Forest Service Research & Development Bipartisan Infrastructure Law Ecosystem Restoration Research Project Proposal. \$974,122. Co-PI with Michael Schwartz, Alexandra Fraik, Rachel Toczydlowski, Taylor Wilcox, and Thomas Franklin.

“Integrated modeling tools to monitor, predict, prevent, and eradicate aquatic invasive species from highly disturbed riverscapes”.

School of Natural Resource Sciences Equipment Grant, 2023, \$5,332

School of Natural Resource Sciences Equipment Grant, 2023, \$7,957

Environmental and Conservation Science Recruiting Stipend Enhancement Award, 2023-2024, \$5,000 per year for 2 years

UNIVERSITY OF IDAHO

Total: \$22,005

Idaho EPSCoR Sequencing Genomics Grant, 2022, \$8,000

“Understanding the social-ecological dynamics of Yellowstone cutthroat trout hybridization and connectivity within the Teton river system”

Nominee, Outstanding Post-Doc Scholar Award for 2020-2021, 2021-2022

Institute for Modeling Collaboration and Innovation Registration Grant, September 2020, \$205

For attending SACNAS 2020 - National Diversity in STEM Conference

EPSCoR Vertically Integrated Program Course Development Grant, June 2020 - June 2021, \$13,400

Funding for 1 new graduate course and 1 new undergraduate course

Science Saturdays Outreach Grant, University of Idaho Arboretum, June 2019, \$400

WASHINGTON STATE UNIVERSITY

Total: \$16,950

Anne and Russ Fuller Fellowship for Interdisciplinary Research Scholarship,

WSU Graduate School, August 2018 - May 2019, \$4,000

McNeil Graduate Scholarship, WSU School of Biological Sciences, May 2018, \$2,000

Gil Pauley Award, Washington Cooperative Fish and Wildlife Research Unit

50th Anniversary, October 2017, \$1,000

WSU Graduate and Professional Student Association Travel Grant, Summer 2017, \$291

Carl. H. Elling Endowment, WSU School of Biological Sciences, Summers 2015-2016, 2018, \$7,159

Graduate Recruitment Fellowship, WSU College of Arts and Sciences, August 2014, \$2,500

WESTERN CAROLINA UNIVERSITY

Total: \$7,275

Teaching Assistant of the Year, Biology, August 2012 - May 2013

Highlands Biological Station Grant in Aid of Research, May - July 2013, \$1,750

Graduate School Study Stipend Grant, August 2013 - May 2014, \$2,000

Poster Competition Runner Up, American Arachnological Society, June 2013, \$250

Graduate Student Association Travel Award, June 2013, \$500

Graduate School Summer Research Assistantship, May - August 2013, \$2,000

Graduate Student Research and Creative Projects Stipend Award, January - May 2013, \$1,000

Residential Living 4.0 Ceremony, August 2012 - May 2013

UNIVERSITY OF WASHINGTON

Friday Harbor Labs Financial Award for Student of the Quarter, Spring Semester 2009, \$250

PUBLICATIONS

IN REVISIONS AND IN REVIEW

+ graduate student mentee, * external to academia and/or stakeholder

Ledger, K⁺, Y. Su, J⁺, Y. Jeon⁺, A. Fullerton^{*}, D. Kuligowski^{*}, T. Bennett^{*}, K. Denton^{*}, R. Peters^{*}, M. McHenry^{*}, J. McMillian^{*}, J. H. Anderson^{*}, T. Seasons^{*}, G. Pess^{*}, K. M. Nichols^{*}, G. McKinney^{*}, **T. Seaborn**, A. Fraik^{*}. Comparative riverscape genetics of Elwha River salmonid species and life-history forms following dam removal. Co-PI on the project. *In Review Frontiers in Ecology and Evolution, Special Issue: Large-Scale Dam Removal and Ecosystem Restoration*

Adams, A. J., C. Kamoroff^{*}, R. L. Grasso^{*}, B. Halstead^{*}, P. Kleeman^{*}, K. Powelson^{*}, **T. Seaborn**, C. Mengelt^{*}, and C. S. Goldberg. From eDNA to Decisions: A multi-method approach

to restoration planning in streams. *In Review Scientific Reports, Special Issue: Ecological Restoration and Rewilding.*

Seaborn, T., C. C. Day, S. J. Galla, T. O. Höök, E. Jossie^x, E. L. Landguth, R. Liu, and R. K. Simmons. Role of individual-based models for informing conservation and management of aquatic systems. Invited Review. *In Revisions, Current Landscape Ecology Reports.*

Seaborn, T., E.J. Crespi, and C.S. Goldberg. Variation in dispersal traits and geography predict loss of ranges due to climate change in cold-adapted amphibians. *In Revisions after Reject.*

PUBLISHED AND IN PRESS

⁺ graduate student mentee, ^x external to academia and/or stakeholder

Jossie⁺, E., **T. Seaborn,** C. Baxter, and M. Burnham. Using social-ecological models to explore stream connectivity outcomes for stakeholders and Yellowstone cutthroat trout. *Accepted, Ecological Applications.*

Seaborn, T., E.L. Landguth, and C.C. Caudill. Simulating plasticity as a framework for understanding habitat selection and its role in adaptive capacity and extinction risk through an expansion of CDMetaPOP. *Molecular Ecology Resources.*

Keating^x, L., L. Randall^x, R. Stanton^x, C. McCormack^x, M. Lucid^x, **T. Seaborn,** S. J. Converse, S. Canessa, and A. Moehrenschrager^x. 2023. Using decision analysis to determine the feasibility of a conservation translocation. *Decision Analysis.*

Andrews, K.R., **T. Seaborn,** J.P. Egan, M.W. Fagnan, D.D. New, Z. Chen, P.A. Hohenlohe, L.P. Waits, C.C. Caudill, and S.R. Narum^x. 2023. Whole genome resequencing identifies local adaptation associated with environmental variation for redband trout. *Molecular Ecology.* 900-919.

Chen, Z., L. Grossfurthner⁺, J.L. Loxterman, J. Masingale⁺, B.A. Richardson^x, **T. Seaborn,** B. Smith⁺, L.P. Waits, and S.R. Narum^x. 2022. Applying genomics in assisted migration under climate change: empirical applications, case studies and guidelines. *Evolutionary Applications.* 15:3-21.

Alshwairikh, Y.A. ⁺, S.L. Kroeze⁺, J. Olsson⁺, S.A. Stephens-Cardenas^x, W.L. Swain⁺, L.P. Waits, R.L. Horn^x, S.R. Narum^x, and **T. Seaborn.** 2021. Influence of Environmental Conditions at Spawning Sites and Migration Routes on Adaptive Variation and Population Connectivity in Chinook Salmon. *Ecology and Evolution.* 11:16890–16908.

Wang, H., **T. Seaborn,** Z. Wang, C.C. Caudill, and T.E. Link. 2021. Modeling tree canopy height using machine learning over mixed vegetation landscapes. *International Journal of Applied Earth Observations and Geoinformation.* 101:102353.

Seaborn, T., K.R. Andrews, C.V. Applestein⁺, T.M. Breech⁺, M.J. Garrett⁺, A. Zaiats⁺, and T.T. Caughlin. 2021. Integrating genomics in population models to forecast translocation success. *Restoration Ecology.* e13395.

Seaborn, T., D. Griffith, A. Kliskey, and C.C. Caudill. 2021. Building a Bridge Between Adaptive Capacity and Adaptive Potential. *Global Change Biology.* 1-13.

Hall, E.M., S.I. Duncan, **T. Seaborn**, J. Cundiff, L.J. Rissler^x, and E.J. Crespi. 2021. Ecological adaptation drives wood frog population divergence in life history traits. *Heredity*. 1-15.

Seaborn, T., C.S. Goldberg, and E.J. Crespi. 2021. Drivers of distributions and niches of North American cold-adapted amphibians: evaluating both climate and land use. *Ecological Applications*. 31: e2236.

Seaborn, T., and C.S. Goldberg. 2020. Population analysis and conservation genetics of the last known northern leopard frog (*Rana pipiens*) population in Washington State. *Journal of Herpetology*. 54: 465-475.

Seaborn, T., C. Goldberg, and E. Crespi. 2020. Integration of dispersal data into distribution modeling in biogeography: What have we done and what have we learned? *Frontiers of Biogeography*. 12: e43130.

Pope^x, K. L., C.S. Goldberg, N. L. Nelson, A. Cummings, **T. Seaborn**, and J. Piovia-Scott. 2020. Designing environmental DNA Surveys in Complex Aquatic Systems: Backpack Sampling for Rare Amphibians in Sierra Nevada Meadows. *Aquatic Conservation: Marine and Freshwater Ecosystems*. 30(10): 1975-87.

Seaborn, T., S. Hauser, L. Konrade, L.P. Waits, and C.S. Goldberg. 2019. Landscape genetic inferences vary with sampling scenario for a pond-breeding amphibian. *Ecology and Evolution*. 9(9): 5063-5078.

Seaborn, T., and K.M. Catley. 2016. Abiotic microhabitat parameters of the spruce-fir moss spider, *Microhexura montivaga* Crosby and Bishop 1925 (Araneae: Dipluridae). *Southeastern Naturalist*. 15(1):61-75.

Crespi, E.J., L. Rissler, N. Mattheus, K. Engbrecht, S. Duncan, **T. Seaborn**, E. Hall, J. Peterson, and J. Brunner. 2015. Geophysiology of wood frogs: landscape patterns of disease prevalence and circulating hormone levels across the eastern range. *Integrative and Comparative Biology*. 55(4): 602-617.

Seaborn, T. 2014. Limpets and their algal epibionts: costs and benefits of *Acrosiphonia* spp and *Ulva lactuca* Growth. *Journal of Marine Biology*. p 7. doi: 10.1155/2014/891943.

Lee, S., **T. Seaborn**, F. Mao, S. Massey, N. Luu, M. Schubert, J. Chien, P. Carpenter, C. Moravec, P. Martin, and M. Flowers. Frequency of Abnormal Findings Detected by Comprehensive Clinical Evaluation at 1 Year after Allogeneic Hematopoietic Cell Transplantation. 2009. *American Society for Blood and Marrow Transplantation*. 15(4):416-420.

TECHNICAL REPORTS

⁺ graduate student mentee, ^x external to academia and/or stakeholder

Caudill, C.C., J. Masingale⁺, **T. Seaborn**, D. Hora^x, and D. Isaak^x. 2021. Sensitivity of Idaho fishes to climate warming. Submitted as component of the Idaho Climate-Economy Impacts Assessment. <https://www.uidaho.edu/president/direct-reports/mcclure-center/iceia>

Goldberg, C.S, and **T. Seaborn**. 2017. "Ancestral lineages and invasive genotypes in southern Arizona tiger salamanders". Arizona Game and Fish.

T. Seaborn, and C.S. Goldberg. 2015. "Population analysis of the last known northern leopard frog (*Rana pipiens*) population in Washington State." Washington Department of Fish and Wildlife.

PEER-REVIEW WORK

Chronological Order, from newest to oldest by year:

Molecular Ecology Resources, 2020-2023

Diversity and Distributions, 2020-2022

Landscape Ecology, 2021-2022

Molecular Ecology, 2019-2021

Hydrobiologia, 2021

Heredity, 2019-2020

Herpetological Review, 2019-2020

U. S. Fish and Wildlife Service 5-Year ESA Reports, 2020

Biodiversity and Conservation, 2019

Ecology and Evolution, 2019

Insect Conservation and Diversity, 2019

OUTREACH AND EXTENSION PUBLICATIONS

CDMetaPop Tutorial Author using GitHub Pages and Markdown, 2021-Present

https://trasea986.github.io/cdmetapop_tutorial.github.io/

CDMetaPop User Manual Co-Author and Programmer

<https://github.com/ComputationalEcologyLab/CDMetaPOP> 2020-Present.

The Researcher: Idaho NSF EPSCoR Newsletter. "Understanding the dynamics of Yellowstone cutthroat trout hybridization and connectivity within the Teton River system. Co-authors: Alexandra Fraik and Paul Hohenlohe. <https://tinyurl.com/mvym4rfd>. Spring, 2023.

University of Idaho News. Idaho Team Develops DNA-Based Forecasting Framework to Assist in Species Recovery. Co-authors: Trevor Caughlin and Leigh Cooper. <https://www.uidaho.edu/news/news-articles/news-releases/2021-spring/040621-redbandtrout> April, 2021.

The Researcher: Idaho NSF EPSCoR Newsletter. "Simulating trout distribution to understand environmental change." Co-author: Christopher Caudill. <https://tinyurl.com/dv3vdczy> Fall, 2020.

South Atlantic Landscape Conservation Cooperative: Indicators update blog.

<http://www.southatlanticlcc.org/profiles/blogs/south-atlantic-indicators-update> (see embedded link in director's post) Spring, 2013.

Educational website on *Acrosiphonia*, an algal species through Friday Harbor Labs

http://depts.washington.edu/fhl/mb/Acrosiphonia_Travis/Acrosiphonia_home.html. 2009.

Conservation/Educational Website on the Snare's Crested Penguin under Dee Boersma <http://mesh.biology.washington.edu/penguinProject/Snares-Crested>. 2008.

PRESENTATIONS

INVITED SYMPOSIA, SEMINARS, AND PANELS

* graduate student mentee, ^x external to academia and/or stakeholder

- Seaborn, T.** December 2022. Understanding cold-adapted species conservation in the face of anthropogenic environmental change. Department of Biology Seminar Series. University of North Dakota. Grand Forks, ND.
- Seaborn, T.** December 2022. Understanding cold-adapted species conservation in the face of anthropogenic environmental change. Environmental and Conservation Sciences Program. North Dakota State University. Fargo, SD.
- Seaborn, T.** December 2022. Understanding cold-adapted species conservation in the face of anthropogenic environmental change. Environmental and Conservation Sciences Program. North Dakota State University. Fargo, SD.
- Seaborn, T.** November 2022. Ask-An-Academic Panel Discussion Series Participant. Society of Conservation Biology - North America. Virtual.
- Seaborn, T.** November 2022. Understanding cold-adapted species conservation in the face of anthropogenic environmental change. Department of Biology Seminar Series. University of South Dakota. Vermillion, SD.
- Seaborn, T.** October 2022. Who do you think you are? Potentially useful advice for graduate school. School of Natural Resource Sciences Symposium. Fargo, ND.
- Seaborn, T.** September 2022. Understanding cold-adapted species conservation in the face of anthropogenic environmental change. Department of Natural Resource Management Seminar Series. South Dakota State University. Brookings, SD.
- Seaborn, T.** December 2021. Idaho ESPCoR Graduate Student Career Panel. Virtual.
- Seaborn, T.** October 2021. Paul Burton Biology Seminar Series, Western Carolina University. Understanding cold-adapted species conservation in the face of anthropogenic environmental change. Virtual.
- Seaborn, T., C. Caudill.** May 2021. Adaptive Capacity of Redband Trout Across Ecotypes. Western Division of the American Fisheries Society. Symposium: Climate Change Effects on Fish and Fisheries in a Changing World. Virtual.
- Alshwairikh*, Y., A. Garretson*, S. Kroeze*, J. Olsson*, S. Stephens ^x, W. Swain*, R. Horn ^x, L. Waits, S. Narum ^x, and **T. Seaborn.** April 2021. Influence of environmental conditions at spawning sites and migration routes on adaptive variation and population connectivity in Chinook Salmon. International Association for Landscape Ecology – North America. Symposium: Landscape genetics distributed graduate seminar connecting the world: innovative products of a blended model of graduate education and remote scientific collaboration. Virtual.
- Seaborn, T.** Canadian Herpetology Society Webinar Panel. November 2020. Strengths, limitations, and practical considerations of using eDNA techniques to detect amphibian pathogens in wild populations. Virtual.
- Seaborn, T., S. Hauser, L. Konrade, L.P. Waits, and C.S. Goldberg.** May 2017. Testing landscape genetic hypotheses for the Columbia Spotted Frog (*Rana luteiventris*) under multiple sample scenarios. U.S. Regional Association of the International Association for Landscape Ecology. Symposium: Applications of landscape genetics. Baltimore, MD.

CONFERENCE PRESENTATIONS AND SEMINARS

* graduate student mentee + undergraduate student mentee, ^x external to academia and/or stakeholder

Caudill, C.C., **T. Seaborn**, Z. Chen, J. Masingale, S. Narum, A. Ringleman, E. Keeley, L. Huang, K. Andrews, T. Link, E. Du, K. Griswold, B. Kline, P. Hohenlohe, L. Waits, D. Pradhan, A. Wooding, and B. Small. 2023. Toward empirical assessment of adaptive capacity in aquatic populations across scales: from genomes to landscapes in native rainbow trout populations in Idaho. Western Division and Idaho Chapter of the American Fisheries Society Joint Annual Meeting. Boise, ID. Talk.

Lutter*, T.J., T.J. Hovick, E. Trumbo, B. Geaumont, **T. Seaborn**, and D. Toledo^x. 2023. Migrant and Breeding Birds Along the Red River Corridor. North Dakota State University Student Research Day. Fargo, ND. Poster.

Lutter*, T.J., T.J. Hovick, E. Trumbo, B. Geaumont, **T. Seaborn**, and D. Toledo. 2023. Preliminary Data on Migrant and Breeding Birds Along the Red River Urban Woods and Prairies Corridor. North Dakota Chapter of The Wildlife Society Annual Meeting. Mandan, ND. Poster.

Galla, S., P.J. Olsoy, **T. Seaborn**, E.M. Holdrige, N. Byer, K.M. Everson, S.B. Tekaya, and J. Forbey. November 2022. The Postdoc Integration Team: Empowering postdoctoral researchers through peer-led community building and professional training. National EPSCoR Annual Meeting. Portland, ME. Poster.

Seaborn, T. October 2022. Upstream flow: simulations of human impacted landscapes and the shifting eco-evo processes of trout. Idaho EPSCoR Annual Meeting. Boise, ID. Talk.

Seaborn, T., E.L. Landguth, and C.C. Caudill. Climate Change, Behavioral Plasticity, and Local Adaptation Impacts on Redband Trout Eco-Evo Dynamics. American Fisheries Society. August 2022. Spokane, WA. Talk.

Andrews, K.R., **T. Seaborn**, J.P. Egan, M.W. Fagnan, D.D. New, Z. Chen, P.A. Hohenlohe, L.P. Waits, C.C. Caudill, and S.R. Narum^x. Whole Genome Resequencing Identifies Local Adaptation for Redband Trout. American Fisheries Society. August 2022. Spokane, WA. Talk.

Crespi, E.J., **T. Seaborn**, E.H. LeSage^x, and D.M. Schock. Health assessment of wood frog (*Rana sylvatica*) populations in the Athabasca Oil Sands Region, Alberta, Canada. Global Amphibian and Reptile Disease Conference. August 2022. Knoxville, TN. Poster.

Youngwirth⁺, M., A. Fraik, P. Hohenlohe, and **T. Seaborn**. "Using RAD Sequencing and Bioinformatics to Quantify the Frequency and Dynamics of Hybridization of Yellowstone Cutthroat and Rainbow Trout in the Teton River Basin." Idaho Conference on Undergraduate Research. July 2022. Poster. Virtual.

Seaborn, T., and C.C. Caudill. "Authentic Climate Change and Genetics Research in the Virtual Classroom through Stakeholder Collaboration." Biennial Conference on University Education in Natural Resources. March 2022. Talk. Virtual.

- Caudill, C.C., A. Harrington⁺, and **T. Seaborn**. “Evaluating the influence of beaver ponds on nonnative brook trout in Idaho streams using species distribution models.” Idaho Chapter of the American Fisheries Society. March 2022. Talk. Virtual.
- Harrington⁺, A., C.C. Caudill, and **T. Seaborn**. “Evaluating the influence of beaver ponds on nonnative brook trout in Idaho streams using species distribution models.” Idaho Conference on Undergraduate Research. July 2021. Poster. Virtual.
- Seaborn, T.**, and C.C. Caudill. “Developing a framework for assessing adaptive capacity in stream networks using agent-based models for redband trout.” Idaho Chapter of the American Fisheries Society. March 2021. Talk. Virtual.
- Jossie*, L., **T. Seaborn**, C. Baxter, and M. Burnham. “Exploring stream connectivity outcomes for stakeholders and Yellowstone Cutthroat Trout in the Teton River Drainage.” March 2021. Idaho Chapter of the American Fisheries Society. Talk. Virtual.
- Jossie*, L., C. Baxter, m. Burnham, **T. Seaborn**. “Integration of mental modeling and agent-based modeling to explore stream connectivity outcomes for stakeholders and Yellowstone cutthroat trout”. 2020. EPSCoR Idaho Annual Meeting. Poster. Virtual.
- Caudill, C.C., and **T. Seaborn**. “Developing a framework for assessing adaptive capacity in Redband Trout using agent-based models.” Pacific Northwest Chapter of the Society for Freshwater Science Annual Meeting. November 2020. Talk. Virtual.
- Seaborn, T.**, E. Landguth, and C. Caudill. “Developing a framework for assessing adaptive capacity in Redband Trout using agent-based models.” International Association for Landscape Ecology – North America, and Idaho Chapter of the American Fisheries Society. March/May 2020. Poster. Virtual.
- Seaborn, T.**, and D. Griffith. “Adaptive capacity in conservation biology, genomics, and social-ecological systems science.” EPSCoR GEM3 Seminar Series. All Idaho Universities via Zoom. February 2020. Talk. Moscow, Idaho.
- Seaborn, T.** “Introduction to agent-based models and future applications.” EPSCoR GEM3 Seminar Series. All Idaho Universities via Zoom. September 2019. Talk. Moscow, Idaho.
- Seaborn, T.** “Range shifts in a warming world: projecting patterns of range dynamics in cold-adapted amphibians.” Seminar Series, School of Biological Sciences. Washington State University. April 2019. Talk. Pullman, Washington.
- Seaborn, T.**, C.S. Goldberg, and E.J. Crespi. “Individual-Based Models Predict Loss Of Range And Genetic Diversity In Cold-Adapted Amphibians With Climate Change Due To Dispersal Constraints.” International Biogeography Society Conference. January 2019. Lightening Talk and Poster. Malaga, Spain.
- Seaborn, T.**, and C.S Goldberg. “Genetically informed metapopulation viability analysis to understand effects of translocation on the last Northern leopard frog (*Rana pipiens*) population.” Washington Cooperative Fish and Wildlife Research Unit 50th Anniversary Symposium. Gil Pauley Award. Poster. October 2017. Seattle, WA.

Seaborn, T., Dawson, K., Schock, D.M., and E.J. Crespi. "Integrative Health Assessment of Early Life Stages of Wood Frogs (*Lithobates sylvaticus*)." International Congress of Comparative Endocrinology and SBS Symposium. July 2017. Poster. Pullman, WA, USA and Banff, AB, CA.

Seaborn, T., S. Hauser, L. Konrade, L.P. Waits, and C.S. Goldberg. "Testing landscape genetic hypotheses for the Columbia Spotted Frog (*Rana luteiventris*) under multiple sampling scenarios." Landscape genetics distributed graduate seminar synthesis meeting. May 2016. Talk. Coeur d'Alene, ID.

Seaborn, T., Goldberg, C.S., and E.J. Crespi. "Designing field techniques to evaluate dispersal distance and variation in juvenile wood frogs (*Lithobates sylvaticus*) to better understand range shifts in response to climate change." SBS Symposium. February 2016. Poster. Pullman, WA.

Seaborn, T., and E.J. Crespi. "Ecological niche model development of the wood frog, *Lithobates sylvaticus*, including historical and future climate prediction." Wiley Research Exposition, SBS Symposium, EARTHs Conference. February 2015. Poster. Pullman, WA.

Seaborn, T., and K.M. Catley. "Abiotic microhabitat parameters of the spruce-fir moss spider, *Microhexura montivaga* Crosby and Bishop 1925 (Araneae: Dipluridae)." American Arachnological Society Conference. June 2014. Talk. Adviser: Kefyn Catley, Ron Davis, Beverly Collins. Newark, OH.

Seaborn, T., and K.M. Catley. "Developing a Predictive Model and Defining the Autecology of the Spruce-Fir Moss Spider, *Microhexura montivaga*, Crosby and Bishop 2010." Western Carolina University Graduate Research Symposium. April 2014. Talk. Cullowhee, NC.

Seaborn, T. "Macro spatial modeling of the habitat requirements of the federally endangered spider *Microhexura montivaga* Crosby and Bishop 1925" American Arachnological Society Conference. June 2013. Student Competition Second Place. Poster. Johnson City, TN.

Seaborn, T., and E. Carrington. "Limpets and their algal epibionts: costs and benefits of hosting *Acrosiphonia* spp and *Ulva lactuca* on your back." Western Society of Naturalists. November 2009. Talk. Adviser: Emily Carrington. Monterrey, CA.

MENTORING AND ADDITIONAL TEACHING

POSTDOCTORAL SCHOLARS AND RESEARCH SPECIALIST MENTORING

NORTH DAKOTA STATE UNIVERSITY

Meggan Alston, *Research Specialist*, 2022-Present

GRADUATE RESEARCH MENTORING

NORTH DAKOTA STATE UNIVERSITY

Carlie Saline, *Committee Member*, Biology

MS Thesis: Genetic basis for differences in *Junco hyemalis carolinensis* individuals' sensitivities to developmental photoperiod as assessed by seasonal hormone changes.

Bailey Coffelt, *Committee Member*, Natural Resources Management

MS Thesis: Snow removal and landscape impacts on invasive species and herpetofauna.

Jacob Yetter, *Committee Member*, Natural Resources Management

MS Thesis: Proposal title TBD. Movement and habitat ecology of pheasants.

Tucker Lutter, *Committee Member*, Natural Resources Management

MS Thesis: A survey of migratory and breeding birds in urban green spaces / Using citizen surveys to understand the value of urban parks and wildlife.

UNIVERSITY OF IDAHO

Anna Chase, *Committee Member*, Fish and Wildlife Sciences

MS Thesis: Top-down modeling of present and future habitat of *Margaritifera falcata* in Idaho streams, based on current habitat and shell growth data.

IDAHO STATE UNIVERSITY

Lizzie Josie, *Committee Member*, Department of Biological Sciences

M.S. Thesis: Using qualitative and quantitative methods to explore stream connectivity outcomes for stakeholders and Yellowstone cutthroat trout. Defended March 2022.

UNDERGRADUATE RESEARCH MENTORING

UNIVERSITY OF IDAHO

Michael Youngwirth, Biological Sciences, 2022

NSF Summer Authentic Research Experience Program: Yellowstone cutthroat trout landscape genetics. Co-advisors: Alexandra Fraik and Paul Hohenlohe. *Overlapped with time at NDSU.*

Autumn Harrington, Fish and Wildlife Sciences, 2021

NSF Summer Authentic Research Experience Program: Beaver and Trout Multispecies Distribution Modeling with Idaho Fish and Game. Co-advisor: Christopher Caudill.

WASHINGTON STATE UNIVERSITY

Corrine Connors, School of the Environment, March 2017 - May 2018

Honor's thesis research, nominated Pass with Distinction

Presented Poster at Showcase for Undergraduate Research and Creative Activities (SURCA) of Columbia spotted frog ecology at Washington State University

Publication in prep.

Ariel Medeiros, School of the Environment, March - August 2017

Ignite Scholar Internship for groups underrepresented in STEM

Columbia spotted frog ecology

Krysta Dawson, School of Biological Sciences, April 2015 - August 2016

Presented Poster at SURCA of Fort McMurray research: wood frog physiology and disease ecology at Washington State University

Kyle Dorosh, School of Biological Sciences, August 2016 - March 2017

Presented Poster at SURCA of Fort McMurray research: wood frog behavior

WESTERN CAROLINA UNIVERSITY

Diana Kuzmich, Molecular Biology, September 2012 - April 2013

Honors project: microclimate measurements of rocky outcrops

SOFTWARE AND DATA CARPENTRY INSTRUCTOR

- University of Idaho: Advanced Geospatial Modeling, Helper, April 2022
Also listed as a course for students
- University of Idaho: Advanced Geospatial Modeling, Helper, April 2021
Also listed as a course for students
- University of Idaho: Unix, Git, Python Workshop, Instructor, January/February 2021
Also listed as a course for student
- Center for Advanced Energy Studies (CAES) / Idaho National Laboratory (INL) / Boise State
University C3 Computational Training: Multiple R and Unix Workshops,
Helper/Moderator/Instructor, June and August 2020
- University of Idaho: Geospatial Modeling, Instructor, April 2020
Also listed as a course for students
- University of Idaho: Reproducible Science in R, Helper, February 2020
Also listed as a course for students

GUEST LECTURES

- North Dakota State University, Range Science 213: Rangeland Sampling Techniques, November 2022, “Molecular Ecology for Land Management”
- Gustavus Adolphus College, Biology 385: Evolution
“Adaptive Potential of Chinook Salmon and Yellowstone Cutthroat Trout”, October 2021.
- University of Idaho, Fish/Wildlife 501: Department Seminar
“Project and Data Management” for new graduate students, March and October 2021.
- University of Idaho, Wildlife 314: Ecology of Terrestrial Vertebrates
“Niche and distribution models of amphibians in North America.” October 2020.
- University of Idaho, Fisheries 526: Climate Effects and Conservation
“Understanding cold-adapted amphibian ranges in the face of climate change.” October 2020.
- Gustavus Adolphus College, Biology 245: Conservation Biology, May 2020, 2022
“Conservation Tools: Understanding distributions and connectivity by using ecological modeling and genetics”, May 2020, included code demonstration in R.
- Gustavus Adolphus College, Biology 101: Principles
“Understanding Amphibian Distributions with Climate Change”, September 2019
- Washington State University, Biology 432: Biology of Amphibians and Reptiles: Spring Semesters 2016, 2018, 2020
“Amphibian and Reptile Niches and Ranges.” included follow-up exam questions and assessment through integrated lab work and report for 2016 and 2018. 2020 included code demonstration in R.
- Washington State University, Science 102: Dynamic Systems in the Natural World, March 2019
“History of Life.” 2-part lecture series with multiple types of active learning.
- Washington State University, Science 101: Origins in the Natural World: October 2018
“Introduction to Rivers and Streams.”
- Western Carolina University, Highlands Biological Station Lecture: Terrestrial Arthropods: July 2013
“Introduction to *Microhexura*.”
- Western Carolina University, Biology 373: Invertebrate Zoology: November 2013
“Moss habitat: the microclimate of an endangered species.”

OTHER VOLUNTEER TEACHING AND WORKSHOPS

UI SACNAS and Randall Women in Science Stop Imposter Syndrome Panel, November 2021
Idaho EPSCoR Omics-Modeling Group: SLiM Population Genetics Workshop, September 2021-
February 2022
University of Idaho EPSCoR Genomics Workshop, October-November 2020
Inchelium High School: Evolution Day and Workshop, November 2019
8th and 10th graders, students associated with Colville Confederated Tribes
WSU's Dr. Universe: Interview-A-Scientist, elementary students, July 2019
Science Saturdays at the University of Idaho Arboretum, elementary students, June 2019
Palouse Clearwater Environmental Institute
STREAM Team 2018, Girls Summer Camp Volunteer: Herps!, 7th-9th grade, August 2018
Animals of the Night: Herpetology Station, pre-K through high school, October 2018
Science After Hours Presenter, high school through adults, February 2017 - May 2018
"Life's a Niche, be Resilient (or Move)"
Best of Series: "How frogger helps us think about real frogs"
Skype-A-Scientist, 3rd and 6th grades, Fall Semester 2017 - Spring 2018
Moscow Public Library "Science-it!" and "Spooky Science" pre-K through 7th grade, February and
October 2018
Palouse Science Discovery Center Developmental Biology Day, November - December 2017
WSU Biology Graduate Student Association:
Annual Biology Graduate Student Association Outdoor Family Funday, pre-K through high
school, April 2015-2019
Annual Biology Graduate Student Association Fall Family Open House, pre-K through high
school, November 2014-2018
Garfield High School Biology Class Volunteer Teacher's Aide, 10th grade, September 2008 - March
2009
Intertidal Natural History: Guest Presenter and Field Trip Leader, 1st-6th grade, Friday Harbor,
March - June, 2009

PUBLIC/SPECIAL CURRICULUM DEVELOPMENT

New EPSCoR GEM3 Vertically Integrated Program: Models and Mapping of Species' Spaces.
1-year program cycle with 1 new graduate course, and 1 cross-listed graduate/undergraduate
course.
Biology of Amphibians and Reptiles: Spring Semesters 2016, 2018
Bottom-Up vs. Top-Down Niche and Range Modeling for an Invasive Amphibian Lab
Morphology of Amphibians and Reptiles Lab

OTHER SYNERGISTIC AND SERVICE ACTIVITIES

NORTH DAKOTA STATE UNIVERSITY

North Dakota Envirothon Volunteer, 2022-Present
School of Natural Resource Sciences Awards Nomination Committee, September 2022-Present
School of Natural Resources Sciences Graduate Student Organization Faculty Co-Advisor, October
2022-Present

UNIVERSITY OF IDAHO

GEM3 Modeling Working Group Workshop, April 2022
Topic: Modeling Integration Across Social-Ecological Systems, Trout, and UAV Products

Northern Leopard frog Boundary Creek Watershed Translocation Feasibility Assessment, 2021
Invited for discussions with Idaho Fish and Game, Wildlife Bureau, and Calgary Zoo
Member of Modeling Working Group
SACNAS: Diversity in STEM Chapter (new chapter)
Interim Co-Advisor / Outreach Chair, 2021-2022
University of Idaho Postdoctoral & Graduate Professional Development Committee Lead Organizer,
2020-2022
GEM3 Modeling Working Group Member and Administrative Coordinator, 2021-2022
GEM3 Data Management Working Group Member, 2021-2022
GEM3 Trout Mechanism Working Group Member, 2021-2022
Administrative Coordinator, 2019-2020
Search Committee Member: NSF GEM3 Postdoctoral Fellow in Scenario Modeling, 2020

WASHINGTON STATE UNIVERSITY

Phoenix Conservancy, Herpetology Survey Consultation, Smoot Hill, September 2017 - October
2018
Palouse Clearwater Environmental Institute
Paradise Creek Clean-Up Volunteer, April 2016
Eastern Washington Regional Science Fair Judge, elementary and secondary ages, March 2017 -
March 2019
WSU Biology Graduate Student Association
Treasurer, August 2017 - May 2019
President, August 2016 - May 2017
Secretary, August 2014 - May 2015
WSU Graduate and Professional Student Association
School of Biological Sciences Senator, August 2015 - May 2016
EARTHs Session Moderator and Volunteer, April 2015
WSU Wiley Research Exposition Volunteer, February 2015

WESTERN CAROLINA UNIVERSITY

Annual Western Regional Science and Engineering Fair Judge, March 2013-2014
South Atlantic Landscape Conservation Cooperative Biological Indicator Consultant, January - June
2013
South Atlantic Landscape Conservation Cooperative Blogger, January - June 2013
Darwin Day Volunteer, February 2013

UNIVERSITY OF WASHINGTON

Research at University of Washington Medical Center / Fred Hutchinson Cancer Research Center,
October 2006 - March 2009
Global Medical Brigades September - December 2008
Children's Hospital Volunteer August 2006 - June 2007

PROFESSIONAL DEVELOPMENT CONFERENCES, WORKSHOPS, AND SEMINARS

Presented in Chronological Order

New Faculty Program: Communicating Science, NDSU, April 2023

NDSU RCA: Pursuing funding from mission agencies, NDSU, March 2023

Advance FORWARD Advocates group: Men Faculty Allies for Gender Equity : Scenario-based Discussions, NDSU, March, 2023

NSF EPSCoR Research Infrastructure Improvement Programs – Track 2 and Track 4 Workshop, NDSU, March, 2023

NSF CAREER Program Workshop, NDSU, March 2023

NSF Research Traineeship (NRT) Program Workshop, NDSU, March, 2023

NSF Graduate Research Fellowship Program Faculty Workshop, NDSU, March, 2023

New Faculty Program: Early Career Funding Programs and Proposal Tips, NDSU, March, 2023

Using Your Strengths To Lead Workshop, SNRS, March, 2023

Virtual Office Hour - Plan for Safe and Inclusive Working Environments, February, 2022

New Faculty Breakfast: Developing an Independent Research Program, Research and Creative Activity, NDSU, November, 2022

New faculty mentors' advice: campus politics and service, Office of the Provost, NDSU, October, 2022

NDSU Faculty and Staff Academic Conference 2022

- Multiple sessions attended on advising and teaching

Biennial Conference on University Education in Natural Resources, March, 2022

- Mentoring students of color for success in natural resources

SACNAS: The National Diversity in STEM Conference, October, 2021

Example sessions attended:

- Ending the Stigma: A Conversation on Mental Health and Wellness and Our Identities as STEM Researchers
- Environmental Health in Indigenous and Latino Communities: Environmental Justice and Climate Change
- Navigating the NSF through Opportunities, Tools, Resources, and Competitive Proposal
- Chapter Advisor Best Practices Session
- Check Yo'self: Identifying institutional and community strategies and barriers to advancing inclusive academic STEM culture using media

PUI Science Slack Book Club: The Chicago Guide to College Science Teaching

Idaho EPSCoR GEM3 PDI Workshops:

- Summer Authentic Research Experience Faculty Mentor Training, Virtual, May 2021, 2022
- Mentoring and Being Mentored, Boise State University, Virtual, April 2021

- Inclusive recruitment practices of undergraduates to support research, Boise State University, Virtual, April 2021

eLearning Consortium of Colorado (eLCC), the Northwest Managers of Educational Technology (NW/MET), and the Northwest eLearning Community (NWeLearn) Virtual Conference, April 2021

Example sessions attended:

- We are Biased: Algorithms and Applications That Are Biasing Modern Education
- Bringing Real-World Purpose into Education
- Digital Wellbeing: Striving to Model a Balance of Our Technology Usage
- How To Recognize and Support Students with Autism Spectrum Disorder across Teaching Modalities
- Engaging Students in the Virtual Classroom
- Online Microaggressions, Chilly Climates and Trolling in Discussions
- Rapid Response to Social Justice Issues

SACNAS 2020: The National Diversity in STEM Conference, October 2020

Example sessions attended:

- We All Rise: The Power of Mutual Mentoring in Forging a Good Life
- Mental health disparities in higher education
- Anti-Racism and Discrimination
- IGEN Bidirectional Mentoring
- Responding to Harassment & Bullying
- Individual Development Plans
- Benefits of Undergraduate Research Involvement

ESRI MOOCs:

- Do-It Yourself Apps, Certificate August 2020
- Cartography, Certificate May 2020
- Spatial Data Science: The New Frontier in Analytics, Certificate April 2020

Carpentries Instructor Training for Data Carpentry, February 2020

University of Idaho Center for Excellence in Teaching and Learning Workshops, August 2019 – Present

- Many workshops related to implementation of Canvas during the transition from Blackboard
- What do I tell my student: unifying faculty and student expectations and compliance
- What do I tell my student: common syllabus language for a flexible fall
- The Modified Tutorial Model: What it is and Why it Might be Right for Me
- Building a One-Stop Shop for Your Class
- Making HyFlex, Online, and Other Classes accessible and inclusive (UDL)
- HyFlex for Engagement
- Flexing your labs and collaborative education
- All-in on Online
- Labs, Studios, and Fieldwork: creative solutions that work
- I am afraid my students will cheat, what can I do?
- HyFlex Teaching: A How-To-Session
- HyFlex Teaching with Zoom

- Show, Don't Tell: Online Portfolios as Assessments
- Expanding Access to Global Learning through Virtual Exchange
- Diffusing the Bias Bomb in Class: Applied Strategies
- Balancing Learning and Growth for Better Educational Outcomes

DataONE Webinar Series

Tidy-ing Your Data: Simple Steps for Reproducible Research, December 2019

Spatial Machine Learning in ArcGIS Workshop, University of Idaho, November 2019

University of Idaho Preparing Future Faculty Course, August - December 2019:

- Teaching and Learning with Technology
- TILT Method for Transparency in assignments and grading
- Teaching for Learning: How to Engage Students and Enrich the Learning Experience
- Working Relationships: collegiality, egos, and imposter syndrome
- Diversity and Inclusion in Teaching and Learning

Broader Impacts 101: Developing, Implementing and Evaluating BI activities, University of Idaho Workshop, November 2019

University of Idaho Randall Women in Science Inclusion Diversity, Equality Alliance
Pronoun Training from University of Idaho LGBTQA Office, October 2019

USGS Climate Adaptation Webinars, Online, May and September 2018:

Connectivity for Climate Change: Assessing threats and identifying conservation actions
Evaluating the effectiveness of seasonally assisted migration through fish rescue programs

Conservation Biology Institute Webinar Series, Online, 2016-2017:

- Climate Mapping in the Northwest Climate Toolbox. September 2017.
- State-and transition simulation models: a framework for forecasting landscape change. January 2017
- Connectivity analyses accounting for stepping stone patches in fragmented landscapes. September 2016

UCLA/La Kretz Center Conservation Genomics Workshop: Malibu, CA, March 2016

RADSeq Weekend Workshop, University of Idaho: Moscow, ID February 2016

Professional Development Initiative, Washington State University: Pullman, WA 2016

Sessions Attended: Modern Job Search and Networking, November
Writing Workshop: Literature Reviews, November
Effective Group Work, October
The Professor Is In: Dr. Karen Kelsky, February

Teaching Assistant Workshop, Washington State University: Pullman, WA September 2015, 2017
Workshop attended both years offered

Sessions Attended: Leadership in Science Instruction
Engaging Students in Class

Block Course Design and Syllabus Construction: Western Carolina University, Cullowhee, NC,
Spring Semester, 2013
Mock syllabus created for “Principles of Evolution and Ecology” course