IAN W. BISHOP, PhD

ABOUT: Aquatic ecologist with 10+ years of diverse experience researching the ecology and evolution of marine and freshwater algal food bases. Strong focus on method development and monitoring/documenting sensitive, rapidly changing aquatic ecosystems.

EDUCATION:

PhD in Biological Oceanography, 2023
Graduate School of Oceanography, University of Rhode Island

MS in Environmental Studies (Science Core), 2014
Institute for Arctic and Alpine Research, University of Colorado Boulder

BA in Biology (Environmental Studies Concentration), 2010
Grinnell College

RESEARCH EXPERIENCE:

Research Ecologist, *US Geological Survey, Grand Canyon Monitoring and Research Center*, Oct 2023–Sept 2025

- Developed and applied Bayesian metabolism models to assess trends and drivers of ecosystem productivity in the Colorado River below Glen Canyon Dam
- Supported (in coordination with multi-agency research groups) the collection and analysis of water quality data for the Lake Powell Water Quality Program

HPC Support Liaison, *University of Rhode Island,* Sept 2022–Sept 2023

- Taught URI students, faculty and staff how to use institutional high performance computing (HPC) resources required for research involving large datasets

Graduate Research Assistant, *University of Rhode Island,* Jan 2018–Aug 2022

- Researched and published on the adaptive potential of marine algae, including population genomic and functional trait analyses
- Monitored and maintained large algal culture libraries
- Participated in NSF-funded coastal and open ocean fieldwork

Professional Research Assistant, *Institute of Arctic and Alpine Research (INSTAAR), University of Colorado Boulder,* Jul 2015–Dec 2017

- Collected and analyzed algal community data for the USGS National Water Quality Assessment (NAWQA) program
- Published peer-reviewed research related to North American algal systematics
- Contributed taxonomic content and served on the editorial review board for *Diatoms of North America*, a peer-reviewed website with thousands of monthly visitors; helped oversee a full site redesign and content refresh
- Supervised undergraduate employees and collaborated with/mentored multiple graduate students

Graduate Research Assistant, *INSTAAR,* Aug 2012–Aug 2014

- Supported nuisance diatom-related research efforts, including studies on the life history and resource ecology of nuisance species *Didymosphenia geminata*

TECHNICAL SKILLS:

- Fieldwork in remote and/or extreme environments (5 years)

- Scientific coding: R (12+ years); HPC shell scripting (7 years); Stan (2 years)
- Microscopy (LM, SEM; 14+ years)
- Microalgal taxonomic classification (13+ years)
- Flow cytometry (image- and antibody-based; 5 years)
- BSL-2/BSL-3 lab protocol (12+ years)

PEER-REVIEWED PUBLICATIONS:

Bishop, I.W., Deemer, B.R., Kennedy, T.A., Payn, R.A., Hall Jr., R.O., and Yackulic, C.B. 2026. Improving tailwater ecosystem metabolism estimation—Metabolism and associated environmental data from a model comparison exercise for the Colorado River tailwater below Glen Canyon Dam—2008-2014: U.S. Geological Survey data release, https://doi.org/10.5066/P13UHLAB

Bishop, I. W. and Rynearson, T.A. (Submitted). Seascape genomics reveals high genetic diversity and apparent panmixia in endemic Southern Ocean phytoplankton, *Limnology and Oceanography: Letter*.

Bishop, I. W., Deemer, B., Kennedy, T., Payn, R., Hall, R & Yackulic, C. (Accepted). A simplified two-station approach for modeling metabolism in dam tailwaters subject to diel flow variation, *Limnology and Oceanography: Methods*.

Dove, I. A., **Bishop, I. W.**, Crosta, X., Riedinger, N., Kelly, R. P., & Robinson, R. S. (2025). Chaetoceros resting spores do not significantly bias sedimentary diatom‐bound nitrogen isotope records despite distinctly low values. *Paleoceanography and Paleoclimatology*, 40(4), e2024PA005041.

Bishop, I. W., Anderson, S. I., Collins, S., & Rynearson, T. A. (2022). Thermal trait variation may buffer Southern Ocean phytoplankton from anthropogenic warming. *Global Change Biology*, *28*(19), 5755-5767. https://doi.org/10.1111/gcb.16329

Rynearson, T. A., **Bishop, I. W.** & Collins, S. (2022). The Population Genetics and Evolutionary Potential of Diatoms. In A. Falciatore & T. Mock (Eds.), The Molecular Life of Diatoms. Springer International Publishing. https://doi.org/10.1007/978-3-030-92499-7_2

Spaulding, S. A., Potapova, M. G., **Bishop, I. W.**, Lee, S. S., Gasperak, T. M., Jovanoska, E., Furey, P. C., & Edlund, M. B. (2022). Diatoms.org: supporting taxonomists, connecting communities. *Diatom Research*, *36*(4), 1-14. https://doi.org/10.1080/0269249X.2021.2006790

- *NOTE:* See diatoms.org for more than 50 peer-reviewed taxon entries as well

Williams, D. M., Spaulding, S. A., & **Bishop, I.** (2021). Studies on type material from Kützing's diatom collection IV: The basionym, author and type of Tetracyclus rupestre. *Phytotaxa, 498*(1), 44-50.

Lee, S. S., **Bishop, I. W.**, Spaulding, S. A., Mitchell, R. M., & Yuan, L. L. (2019). Taxonomic harmonization may reveal a stronger association between diatom assemblages and total phosphorus in large datasets. *Ecological Indicators, 102*, 166-174. https://doi.org/10.1016/j.ecolind.2019.01.061

Tyree, M. A., **Bishop, I. W.**, Hawkins, C. P., Mitchell, R., & Spaulding, S. A. (2020). Reduction of taxonomic bias in diatom species data. Limnology and Oceanography: Methods, 18(6), 271-279.

Bishop, I. W., Tucker, S. T., Joeckel, R. M., & Spaulding, S. A. (2018). Benthic fossil diatoms from the upper Ogallala Group (late Miocene) near Scotia, NE (USA). Nova Hedwigia, Beihefte, 261-294.

Bishop, I. W., Esposito, R. M., Tyree, M., & Spaulding, S. A. (2017). A diatom voucher flora from selected southeast rivers (USA). Phytotaxa, 332(2), 101-140.

Bishop, I. W., & Spaulding, S. A. (2017). Life cycle size dynamics in Didymosphenia geminata (Bacillariophyceae). Journal of Phycology, 53(3), 652-663.
Bishop, I., & Spaulding, S. A. (2015). Tetracyclus hinziae (Bacillariophyta), a new species from the central Cascade Mountains (WA, USA). Phytotaxa, 205(3), 197-204.

CERTIFICATIONS & MEMBERSHIPS:

- Level 2 Diatom Species Taxonomic Certification - Society for Freshwater Science
- PADI Open Water Diver Certification
- Editorial Review Board Member, Diatoms of North America (diatoms.org)
- Member, Society for Freshwater Science
- Member, International Society for Diatom Research
- Member, Kruckeberg Botanic Garden
- Member, Washington Native Plant Society