

IAN W. BISHOP

Southwest Biological Science Center
U.S. Geological Survey
Email: ibishop@usgs.gov

EDUCATION:

2018-2023: Ph.D., Biological Oceanography

Graduate School of Oceanography, University of Rhode Island

- Dissertation: “Investigations into the adaptive potential of Southern Ocean phytoplankton”
- Advisor: Dr. Tatiana Rynearson

2012-2014: M.S., Environmental Studies (Science Core)

University of Colorado Boulder

- Thesis: “Life cycle size dynamics in *Didymosphenia geminata*”
- Advisor: Dr. Sarah Spaulding

2006-2010: B.A., Biology (Environmental Studies Concentration)

Grinnell College

RESEARCH INTERESTS: Algal genomics and adaptation to ecosystem change; aquatic ecosystem assessment and restoration; algal biodiversity and biogeography; diatom taxonomy

RESEARCH EXPERIENCE:

Research Ecologist, U.S. Geological Survey Oct 2023–Present

- My work focuses on the estimation and analysis of reach-scale algal diversity and metabolism dynamics in the Glen Canyon Dam tailwaters.

High Performance Computing Support Liaison, University of Rhode Island

Sept 2022–Aug 2023

- Supported students, faculty and staff in their efforts to use institutional high performance computing (HPC) resources in their research, facilitating researchers’ use of big datasets.

Graduate Research Assistant

University of Rhode Island, Jan 2018–Aug 2022

- Researched and published on the population genomics and thermal trait variation of Southern Ocean diatoms. This includes 2nd and 3rd generation sequencing of non-model cold-adapted diatom species, as well as genotyping and high throughput thermal phenotyping of genetically diverse conspecific strains.
- Maintained large diatom culture libraries and participates in NSF-funded coastal and open ocean field sampling projects.

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

- Collected and analyzed freshwater 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 to the peer-reviewed Diatoms of North America website.

- Supervised multiple undergraduate employees and collaborated with/mentored multiple graduate students.

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

- Researched and published on the temporal cell size patterns in the nuisance diatom *Didymosphenia geminata*.
- Collected and analyzed *D. geminata* populations for an Army Corps of Engineers-funded stream mesocosm experiment of Libby Dam outflow (Kootenai River, MT).

Research Assistant (Preclinical Research)

Infectious Disease Research Institute (IDRI), Seattle, WA, May 2011–Jul 2012

Research Intern (Experimental Therapeutics)

Seattle Genetics, Inc., Seattle, WA, Jun–Sept 2010

Student Research Assistant

Grinnell College Biology Department, May – Sept 2009

PUBLICATIONS:

Bishop, I. W., Anderson, S. I., Collins, S., & Ryneerson, 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>

Ryneerson, 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>

Williams, D. M., Spaulding, S. A., & **Bishop, I. W.** (2021). Studies on type material from Kützing's diatom collection IV: The basionym, author and type of *Tetracyclus rupestre*. *Phytotaxa*, 498(1), 44–50. <https://doi.org/10.11646/PHYTOTAXA.498.1.5>

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. <https://doi.org/10.1002/lom3.10350>

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>

Bishop, I. W., Tucker, S. T., Joeckel, R. M., & Spaulding, S. (2018). Benthic fossil diatoms from the upper Ogallala Group (late Miocene) near Scotia, NE (USA). *Nova Hedwigia, Beiheft*, 147, 261–294. <https://doi.org/10.1127/nova-suppl/2018/021>

Bishop, I. W., Esposito, R., Tyree, M., & Spaulding, S. (2017). A diatom voucher flora from selected southeast rivers (USA). *Phytotaxa*, 332(2), 101–140. <https://doi.org/10.11646/PHYTOTAXA.332.2.1>

Bishop, I. W., Minerovic, A. D., & Kociolek, J. P. (2017). Validation of *Prestauroneis protracta* (Grunow) I.W.Bishop, Minerovic, Q.Liu & Kociolek comb. nov. et stat. nov. (Bacillariophyceae). *Notulae Algarum*, No. 27, 1–2.

Bishop, I. W., and Spaulding, S. (2017). Life cycle size dynamics in *Didymosphenia geminata* (Bacillariophyceae). *Journal of Phycology*, 53(3), 652-663.
<https://doi.org/10.1111/jpy.12528>

Bishop, I.W., & Spaulding, S. (2015). *Tetracyclus hinzii* (Bacillariophyta), a new species from the central Cascade Mountains (WA, USA). *Phytotaxa*, 205(3), 197-204.
<http://dx.doi.org/10.11646/phytotaxa.205.3.7>

WEB PUBLICATIONS (peer-reviewed):

At the online resource Diatoms of North America (diatoms.org), I have published 50+ peer-reviewed taxonomic webpages. A complete list of pages I have individually or jointly published is listed here: <https://diatoms.org/contributor/IanBishop>

PRESENTATIONS:

Bishop (2022, talk). Genetic diversity and population structure of polar diatoms. Polar Microbes Symposium, Tvärminne, Finland

Bishop, Anderson, Collins & Rynearson (2020, talk). Intraspecific variability in thermal tolerance buffers Southern Ocean diatoms from biogeographic range contraction in a warming ocean. Ocean Sciences Conference, San Diego, CA

Bishop, Samuels, Collins & Rynearson. (2019, poster). Who can beat the heat? Thermal tolerance and growth rate variability in cold-adapted diatoms. ASLO Aquatic Sciences Meeting, San Juan, Puerto Rico.

Spaulding & **Bishop** (2016, poster). Experimental determination of the role of iron on the growth of *Didymosphenia geminata*. International Diatom Symposium, Quebec City, Canada. Aug 2016

Bishop & Spaulding (2015, talk). Population-level patterns of size distribution, reduction and restoration in the nuisance diatom *Didymosphenia geminata*. North American Diatom Symposium (NADS), Beaver Island, MI. Sept 2015.

Bishop (2015, talk). Improving NAWQA Diatom Counting and Voucher Documentation. NAWQA Taxonomic Consistency Workshop in *Fragilaria*, Philadelphia, PA. Nov 2015.

AWARDS, GRANTS AND CERTIFICATION:

- 2022: PADI Open Water Diver Certification
- 2022: Pacifico A. Colicci Award (URI Foundation)
- 2019: Lance A. Ricci Fellowship Fund (URI Foundation)
- 2015: Eugene F. Stoermer Diatom Scholarship (Friends of Lakeside Laboratory)
- 2014: John C. Kingston Teaching Fellowship (Friends of Lakeside Laboratory)

BOARD MEMBERSHIP & PROFESSIONAL SOCIETIES:

- Diatoms of North America website, Editorial Review Board, Member
- Association for the Sciences of Limnology and Oceanography, Member
- Association for Computing Machinery, ACM SIGHPC Member