

ERIN BERTRAND

Associate Professor and Tier II Canada Research Chair
for Marine Microbial Proteomics

Department of Biology, Dalhousie University

1355 Oxford St. PO Box 15000

Halifax, NS Canada B3H 4R2

Office ph: 001-902-494-1853

Cell ph +whatsapp: 001-902-499-3582

erin.bertrand@dal.ca

[Lab Website](#)

EDUCATION

Scripps Institution of Oceanography and J. Craig Venter Institute, USA

Post-doctorate, Marine and Environmental Genomics

2015

Supervisor, Andrew E. Allen

Massachusetts Institute of Technology

Woods Hole Oceanographic Institution Joint Program, Massachusetts USA

PhD in Chemical Oceanography

2012

Dissertation: "Insights into vitamin B₁₂ production, use and acquisition
in marine microbes"

Supervisor: Mak A. Saito

Bates College, Lewiston Maine USA

B.Sc. In Chemistry and Environmental Studies Magna Cum Laude

2005

Honours Thesis: "Substrate-based mechanistic inquiries into alkane
hydroxylation by AlkB in *Pseudomonas putida* GPo1 and uncharacterized
alkane hydroxylases from bacteria from deep sea hydrothermal vents"

Supervisor: Rachel N. Austin

RESEARCH AND PROFESSIONAL EXPERIENCE

Department of Biology Dalhousie University, Halifax NS Canada

Associate Professor with Tenure, Tier II Canada Research Chair

2020- Current

Department of Biology Dalhousie University, Halifax NS Canada

Assistant Professor, Tier II Canada Research Chair

2015 –2020

Institute for Comparative Genomics, formerly the Centre for
Comparative Genomics and Evolutionary Bioinformatics (CGEB),
Dalhousie University, Halifax NS Canada

Member

2015 – Current

J. Craig Venter Institute and Scripps Institution of Oceanography Postdoctoral Fellow	2012 – 2015
Marine Chemistry and Geochemistry Dept. Woods Hole Oceanographic Institution Graduate Student Research Assistant	2006 – 2011
Marine Chemistry and Geochemistry Dept. Woods Hole Oceanographic Institution Research Assistant II	2005 – 2006
Department of Chemistry, Bates College and Dept. of Environmental Engineering, Cornell University Research Assistant	2003 – 2005

LEAVES

Maternity and Parental Leave	July 2021- June 2022
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FELLOWSHIPS AND AWARDS SINCE 2006

CNC-SCOR Early Career Ocean Scientist Award	2023
Dalhousie President's Research Excellence Award for Emerging Investigators	2022
Killam Prize, Dalhousie University Faculty of Science	2020
Nova Scotia Discovery Awards, Emerging Professional	2018
Simons Foundation Early Career Investigator Award	2017
NSERC Tier II Canada Research Chair, Marine Microbial Proteomics	2015 – 2025
US National Science Foundation Polar Programs Postdoctoral Fellowship	2012 – 2015
Ruth and Paul Fye Award for Excellence in Oceanographic Research	2010 – 2015
US National Science Foundation Graduate Research Fellowship	2009 – 2012
US Environmental Protection Agency STAR Graduate Research Fellowship	2006 – 2009

RESEARCH SUPPORT (SINCE 2015; GIVEN IN \$CAD)

NSERC Discovery Ship Time Program	\$ 300,000	2022-2024
BELAS: Biological Carbon Export in the Labrador Sea Principal Investigator and Co-Chief Scientist, with 9-co PIs		
Simons Foundation CBIOMES Collaboration	\$1,200,000	2022-2027
Proteomic insights into cellular foundations of marine ecosystems CBIOMES Collaboration lead: Mick Follows		
Fisheries and Oceans (Canada) Ecosystems and Ocean Science Contribution Framework	\$ 623,533	2022-2025
Collaborative Proposal: Understanding the bio-physical processes impacting the evolution of Tallurutiup Imanga and Pikialasorsuaq in a warming climate. Principal applicant: Paul Myers		
US NSF Biological Oceanography	\$786,000	2021-2024

Collaborative Proposal: Vitamin B1 Limitation and Advantageous use of B1-related compounds by marine bacterioplankton. Co-investigators, R. Paerl, S. Gifford		
NSERC Discovery Ship Time Program	\$118,000	2022-2023
Glacier-ocean interactions and sea ice retreat and in the Canadian Arctic Archipelago - Past, present and future With five co-investigators; PI M. Bhatia		
POLAR Knowledge Canada	\$450,000	2020-2023
Glacier2Ocean Watch: Community-led environmental monitoring in Ausuittuq (Grise Fiord) 12 co-applicants; L. Copeland as Principal Applicant		
NSERC Discovery Ship Time Program	\$85,000	2021-2022
Glacier-ocean interactions and in the Canadian Arctic Archipelago With four co-investigators PI M. Bhatia		
OFI (Ocean Frontier Institute)- Phase 2 consortium		
The North Atlantic as a Climate Ocean: Projecting Future Changes in Productivity and the Biological Carbon Pump 16 co-investigators; Z. Finkel as Principal Applicant		
	\$4,000,000	2020-2024
New Frontiers in Research Fund- Exploration		
Principle Investigator- Glaciers and marine productivity in the Canadian Arctic		
	\$250,000	2019-2023
OFI (Ocean Frontier Institute) Opportunities Fund		
Principal Investigator- Enabling Leadership in Canadian BioGeoSCAPES		
	\$50,000	2019-2023
OFI (Ocean Frontier Institute)		
North West Atlantic Microbial Observatory co-investigator with 3 others		
	\$1,262,499	2017-2022
Simons Foundation- Early Career Investigator in		
Quantitative Marine Microbial Ecology		
	\$720,000	2017-2021
Netherlands Organization for Scientific Research (NWO)		
Collaborative project: Temperature and iron interactions in the Southern Ocean Research expedition support		
	2 cruises, in full	2017-2019
CFI/NSRIT Canada Foundation for Innovation		
John Evans Leadership Fund		
	\$312,000	2015-2016
NSERC (Canadian National Science and Engineering Research Council)		
Principal Investigator- Discovery Grant		
	\$192,000	2015-2023

CITATION METRICS

[Google Scholar](#): 3057 citations; h-index 24 7 May 2024

PUBLICATIONS (N =53) (*STUDENT AND POST-DOC CO-AUTHORS)

In Press. J. Young, S. Rundell, Z. Cooper, H. Dawson, S. Carpenter, T. Ryan-Keogh, E. Rowland*, **E. M. Bertrand**, J. Deming. Controls on carbon fixation during the spring melt of sea ice in the Western Antarctic Peninsula. **Limnology and Oceanography**

In Press M. J. Bittner, C. Bannon*, E. Rowland*, J. Sundh, **E. M. Bertrand**, A. F. Andersson, R. W. Paerl, L. Riemann. New chemical and microbial perspectives on vitamin B1 and vitamer dynamics of a coastal system. **ISME Communications**.

In Press. M.A. Saito, J. K. Saunders, M. R. McIlvin, **E.M. Bertrand**, J. A. Breier, M. M. Brisbin, S. M. Colston, J. R. Compton, T. J. Griffin, W. Hervey, R. L. Hettich, P. D. Jagtap, M. Janech, R. Johnson, R. Keil, H. Kleikamp, D. Leary, L. Martens, J. S. P. McCain*, E. Moore, S. Mehta, D. M. Moran, J. Neibauer, B. A. Neely, M. V. Jakuba, J. Johnson, M. Duffy, G.J. Hernd, R. Giannone, R. Mueller, B. L. Nunn, M. Pabst, S. Peters, A. Rajczewski, E. Rowland*, B. Searle, T. Van Den Bossche, G. J. Vora, J. R. Waldbauer, H. Zheng, Z. Zhao. Results from a Multi-Laboratory Ocean Metaproteomic Intercomparison: Effects of LC-MS Acquisition and Data Analysis Procedures. **Biogeosciences**.

2024. M. Roberts*, M. Bhatia, E. Rowland*, P. White*, S. Waterman, M. Cavaco, P. Williams, J. Young, J. Spence, J. C. Montero Serrano, J. E. Tremblay, **E. M. Bertrand**. Rubisco in High Arctic tidewater glacier-marine systems: A new window into phytoplankton dynamics. **Limnology and Oceanography**

2024. C. Bannon*, E. Mudge, **E.M. Bertrand**. Shedding light on cobalamin photodegradation in the ocean. **Limnology and Oceanography Letters**.

2023. R.W. Paerl, N.P. Curtis, M.J. Bittner, M.R. Cohn, S.M. Gifford, C.C. Bannon*, E. Rowland*, **E.M. Bertrand**. Use and detection of a vitamin B1 degradation product yields new views of the marine B1 cycle and plankton metabolite exchange. **Mbio**, e00061-23

2023 RH Lampe, TH Coale, KO Forsch, LJ Jabre*, S Kekuewa, EM Bertrand, ... Short-term acidification promotes diverse iron acquisition and conservation mechanisms in upwelling-associated phytoplankton **Nature Communications 14 (1), 7215**

2023. B.M. Robicheau, J. Tolman, **E.M. Bertrand**, J. LaRoche. Highly-resolved interannual phytoplankton community dynamics of the coastal Northwest Atlantic. **ISME Communications 2 (1), 1-12**

2023. M. A. Soto*, D. Desai, C. Bannon*, J. LaRoche, **E. M. Bertrand**. Cobalamin producers and prokaryotic consumers in the Northwest Atlantic. [Environmental Microbiology](#). **22,7**, 1300-1313

2022. C. Bannon*, I. Rapp*, **E. M. Bertrand**. Community Interaction Co-Limitation: Nutrient Limitation in a Marine Microbial Community Context. **Frontiers in Microbiology** 10.3389/fmicb.2022.846890

2022 M. Moran, E. B. Kujawinski, W. F. Schroer, S. A. Amin, N.R. Bates, **E.M. Bertrand**, R. Braakman, C. T. Brown, M. W Covert, S. C Doney, S. T Dyhrman, A. S Edison, A.M. Eren, N. M. Levine, L. Li, A. C. Ross, M. A. Saito, A. E. Santoro, D. Segrè, A. Shade, M. B Sullivan, A. Vardi. Microbial metabolites in the marine carbon cycle. **Nature Microbiology** 7, 508-523

2022 B. Robicheau, J. Tolman, **E.M. Bertrand**, J. LaRoche. Highly resolved interannual phytoplankton community dynamics of the coastal Northwest Atlantic **ISME Communications** 2, 38

2022 H.L. Joy-Warren, A.C. Alderkamp, G.L. van Dijken, L.J. Jabre*, **E.M. Bertrand**, E.N. Baldonado, M.W. Glickman, K.M. Lewis, R. Middag, K. Seyitmuhammedov, K.E. Lowry, W. van de Poll, K.R. Arrigo. Springtime phytoplankton responses to light and iron availability along the western Antarctic Peninsula. **Limnology and Oceanography** [Feb 2022](#)

2022 J.S.P. McCain*, A.E. Allen, **E.M. Bertrand**. Proteomic traits vary across taxa in a coastal Antarctic phytoplankton bloom. **ISME Journal** 16, 569–579.

2021 J.S.P. McCain* and **E.M. Bertrand**. Phytoplankton antioxidant systems and their contributions to cellular elemental stoichiometry. **Limnology and Oceanography Letters**. [23 Dec 2021](#)

2021 J.S.P. McCain*, A. Tagliabue, E. Susko, E.P. Achterberg, A.E. Allen, **E.M. Bertrand**. Cellular costs underpin micronutrient limitation in phytoplankton **Science Advances** 7 (32), [eabg6501](#)

2021. L. Jabre*, A. E. Allen, J. S. P. McCain*, J. P. McCrow, N. Tenenbaum, J. L. Spackeen, R. E. Sipler, B. R. Green, D. A. Bronk, D. A. Hutchins, **E. M. Bertrand**. Molecular underpinnings and biogeochemical consequences of enhanced diatom growth in a warming Southern Ocean. **PNAS** 118 (30) [e2107238118](#)

2021 MP Bhatia, S Waterman, DO Burgess, PL Williams, RM Bundy, T Mellett, M Roberts*, **EM Bertrand**. Glaciers and Nutrients in the Canadian Arctic Archipelago Marine System **Global Biogeochemical Cycles**, [e2021GB006976](#)

2021 PL Williams, D Burgess, SN Waterman, M Roberts, **EM Bertrand**, M Bhatia Nutrient and Carbon Export from a Tidewater Glacier to the Coastal Ocean in the Canadian Arctic Archipelago **Journal of Geophysical Research-Biogeosciences** [10.1029/2021JG006289](#)

2020. L. Jabre* and **E. M. Bertrand**. Interactive effects of iron and temperature on the growth of *Fragilariopsis cylindrus*. **Limnology and Oceanography Letters**. [LOL2-19-0069](#).

- 2020 J. Zhao, M. B. Azad, **E. M. Bertrand** and many others. Canadian Science Meets Parliament: Building relationships between scientists and policymakers. *Science and Public Policy*. [10.1093/scipol/scz062](https://doi.org/10.1093/scipol/scz062)
- 2019 J. S. McCain*, **E. M. Bertrand**. *Prediction and consequences of cofragmentation in metaproteomics*. **Journal of Proteome Research**. doi/10.1021/acs.jproteome.9b00144
- 2019 M. Wu*, J. S. McCain*, E. Rowland*, R. Middag, M. Sandgren, A.E. Allen, **E.M. Bertrand**. *Manganese and iron deficiency in Southern Ocean Phaeocystis antarctica populations revealed through taxon-specific protein indicators*. **Nature Communications**. [10:3582](https://doi.org/10.1038/s41467-019-13582-2)
- 2019 M. A. Saito, **E. M. Bertrand** and many others. *Progress and Challenges in Ocean Metaproteomics and Proposed Best Practices for Data Sharing*. **Journal of Proteome Research** <https://doi.org/10.1021/acs.jproteome.8b00761>
- 2018 G. Lax, Y. Eglit, L. Eme, **E.M. Bertrand**, A. J. Roger, A.G. B. Simpson. *Hemimastigophora is a 'novel' supra-kingdom-level lineage of Eukaryotes*. **Nature**. [564](https://doi.org/10.1038/s41586-018-0410-4), pages410–414 (2018)
- 2018 J. K. Brunson, S. M. K. McKinnie, J. R. Chekan, J. P. McCrow, Z. D. Miles, **E. M. Bertrand**, V. A. Bielinski, H. Luhavaya, M.Oborník, G. Smith, D. A. Hutchins, A. E. Allen, B. S. Moore. *Biosynthesis of the amnesic shellfish poison domoic acid in a bloom forming diatom*. **Science**. 361: 1356-1358. <https://doi.org/10.1126/science.aau0382>
- 2018 J. Spackeen, **E. M. Bertrand**, R. Sipler, D. A. Hutchins, A. E. Allen, D. Bronk. *Impact of temperature, CO₂, and iron on nutrient uptake by a late-season microbial community from the Ross Sea, Antarctica*. **Aquatic Microbial Ecology** 82:145-159 DOI: <https://doi.org/10.3354/ame01886>
- 2018 J. Spackeen, D. Bronk, R. Sipler, **E. M. Bertrand**, D. A. Hutchins, A. E. Allen. Stoichiometric N:P ratios, temperature, and iron impact carbon and nitrogen uptake by Ross Sea microbial communities. **J. Geophysical Research: Biogeosciences** <https://doi.org/10.1029/2017JG004316>
- 2018 **E. M. Bertrand**. *Quantification of vitamin B12-related proteins in marine microbial systems using selected reaction monitoring mass spectrometry*. MiMB Microbime Analysis: Methods and Protocols ([Springer, Book Chapter](#)).
- 2018 R. Paerl, **E. M. Bertrand**, E. Rowland*, P. Chatt, M. Mehiri, T. D. Niehaus, L. Riemman, A.D. Hanson, F. Yves-Bouget. *Carboxythiazole is a key microbial nutrient currency and critical component of thiamin biosynthesis*. **Scientific Reports**. [8\(1\) 5940](https://doi.org/10.1038/s41598-018-25940-2).

2018 A. O. Tatters, A. Schnetzer, K. Xu, N. G. Walworth, F. Fu, J. L. Spackeen, R. E. Sipler, **E. M. Bertrand**, J. B. McQuaid, A. E. Allen, D. A. Bronk, K. Gao, J. Sun, D. A. Caron, D. A. Hutchins. *Interactive effects of temperature, CO₂ and nitrogen source on a coastal California diatom assemblage*. **J. Plankton Research** 40(2) <https://doi.org/10.1093/plankt/fbx074>

2017 J. L. Spackeen, R. E. Sipler, K. Xu, A. O. Tatters, N. G. Walworth, **E. M. Bertrand**, J. B. McQuaid, D. A. Hutchins, A. E. Allen, D. A. Bronk. *Interactive effects of elevated temperature and CO₂ on nitrate, urea, and dissolved inorganic carbon uptake by a coastal California, USA, microbial community*. **Marine Ecol. Progress Series** 577(49-65) doi.org/10.3354/meps12243

2017 T. J. Browning, E. P. Achterberg, I. Rapp, A. Engel, **E. M. Bertrand**, A. Tagliabue, C. M. Moore *Nutrient co-limitation at the boundary of an oceanic gyre*. **Nature**. 551, 242–246. [doi:10.1038/nature24063](https://doi.org/10.1038/nature24063)

2017 Spackeen, R. Sipler, K. Xu, A. Tatters A, N. Walworth, **E. M. Bertrand**, J. McQuaid, D. A. Hutchins, A. E. Allen, D. Bronk. *Interactive effects of elevated temperature and CO₂ on nitrate, urea, and DIC uptake by a coastal California microbial community*. **Marine Ecology Progress Series**. doi.org/10.3354/meps12243.

2016 P.A. Lee, **E. M. Bertrand**, M.A. Saito, G. R. DiTullio. *Influence of vitamin B12 availability on oceanic dimethylsulfide and dimethylsulfoniopropionate*. **Environmental Chemistry** 13(2) 293-301 [doi: 10.1071/EN15043](https://doi.org/10.1071/EN15043)

2015 **E. M. Bertrand**, J. P. McCrow, A. Moustafa, H. Zheng, Jeff. McQuaid, T. O. Delmont, A. F. Post, R. Sipler, J. Spackeen, K. Xu, D. A. Bronk, D. A. Hutchins, A. E. Allen. *Phytoplankton-bacterial interactions mediate micronutrient colimitation at the coastal Antarctic sea ice edge* **Proceedings of the National Academy of Sciences, USA**. 112 (32).9938–9943, [doi: 10.1073/pnas.1501615112](https://doi.org/10.1073/pnas.1501615112)

2015 R. W. Paerl, **E. M. Bertrand**, A. E. Allen, B. Palenik, F. Azam. *Vitamin B12 ecophysiology of marine picoeukaryotic algae: Strain-specific differences and a new role for bacteria in vitamin cycling*. **Limnology and Oceanography**. 60, 215-228. [doi: 10.1002/lno.10009](https://doi.org/10.1002/lno.10009)

2013 **E.M. Bertrand**, D.M. Moran, M.R. McIlvin, J.M. Hoffman, A.E. Allen, M. A. Saito. *Methionine synthase interreplacement in diatom cultures and communities: Implications for the persistence of B12 use by marine eukaryotic phytoplankton*. **Limnology and Oceanography**. 4: 1431-1450 [doi: 10.4319/lno.2013.58.4.1431](https://doi.org/10.4319/lno.2013.58.4.1431)

2013 **E.M. Bertrand**, R. Keddiss, J.T. Groves, C. Vetriani, R.N. Austin. *Identity and mechanisms of alkane-oxidizing metalloenzymes from deep-sea hydrothermal vents*. **Frontiers in Microbiology**. 4:109. [doi: 10.3389/fmicb.2013.00109](https://doi.org/10.3389/fmicb.2013.00109)

2012 **E.M. Bertrand** and A.E. Allen. Influence of vitamin B auxotrophy on nitrogen metabolism in eukaryotic phytoplankton. *Frontiers in Microbiology*. 3(375). [doi: 10.3389/fmicb.2012.00375](https://doi.org/10.3389/fmicb.2012.00375)

2012 **E.M. Bertrand**, A. E. Allen., C.L. Dupont, T. Norden-Kirchmar, J. Bai, R. E. Valas, M.A. Saito. *Influence of cobalamin starvation on diatom molecular physiology and the identification of a novel cobalamin acquisition protein*. **Proceedings of the National Academy of Sciences, USA**. 109(26) E1762-E1771 [doi: 10.1073/pnas.1201731109](https://doi.org/10.1073/pnas.1201731109) (* Faculty of 1000 Biology “Recommended” article)

2012 S. Dyhrman, B. Jenkins, T. Rynearson, M. Saito, M. Mercier, H. Alexander, L. Whitney, A. Drzewianowski, V. Bulygin, **E. Bertrand**, Z. Wu, C. Benitez-Nelson, and A. Heithoff. *The Transcriptome and Proteome of the Diatom Thalassiosira pseudonana Reveal a Diverse Phosphorus Stress Response*. **PLoS ONE**. 7(3) e33768. [doi: 10.1371/journal.pone.0033768](https://doi.org/10.1371/journal.pone.0033768)

2012 L.L. Wurch, **E.M. Bertrand**, M.A. Saito, B. Van Mooy, S. Dyhrman. *Proteome changes driven by phosphorus deficiency and recovery in the brown tide forming alga Aureococcus anophagefferens*. **PLoS ONE**. 6(12) e28949. [doi: 10.1371/journal.pone.0028949](https://doi.org/10.1371/journal.pone.0028949)

2011 **E.M. Bertrand**, M.A. Saito, P.A. Lee, P.N. Sedwick, R.B. Dunbar, G. R. DiTullio. *Iron limitation of a springtime bacterial and phytoplankton community in the Ross Sea: implications for vitamin B12 nutrition*. **Frontiers in Microbiology** 2(160).[doi: 10.3389/fmicb.2011.00160](https://doi.org/10.3389/fmicb.2011.00160)

2011 M. A. Saito, **E. M. Bertrand**, S. Dutkiewicz , V. V. Bulygin, D. M. Moran, F. M. Monteiro, M. J. Follows, F. W. Valois, J. B. Waterbury. *Iron conservation by reduction of metalloenzyme inventories in the marine diazotroph Crocosphaera watsonii*. **Proceedings of the National Academy of Sciences, USA**. 108 (6) 2184-2189. [doi: 10.1073/pnas.1006943108](https://doi.org/10.1073/pnas.1006943108) (*Featured in the podcasts: “This Week in Microbiology” and “Nature Microbiology”)

2011 **E.M Bertrand**, M.A. Saito, Y.J. Jeon, B.A. Neilan. *Profiling vitamin B12 biosynthesis gene diversity in the Ross Sea: the identification of a new group of putative polar B12-biosynthesizers*. **Environmental Microbiology**. 13(5) 1285–1298. [doi:10.1111/j.1462-2920.2011.02428.x](https://doi.org/10.1111/j.1462-2920.2011.02428.x)

2011 C. J. Gobler, many others, **E. M. Bertrand**, M. A. Saito, I.V. Grigoriev. *Niche of harmful alga Aureococcus anophagefferens revealed through ecogenomics*. **Proceedings of the National Academy of Sciences, USA**. 108(11) 4352-7. [doi: 10.1073/pnas.1016106108](https://doi.org/10.1073/pnas.1016106108)

2010 M.A. Saito, T.J. Goepfert, A.E. Noble, **E.M. Bertrand**, P.N. Sedwick, and G.R. DiTullio. *A Seasonal study of dissolved cobalt in the Ross Sea, Antarctica: micronutrient behavior, absence of scavenging, and relationships with Zn, Cd, and P.* **Biogeosciences**. 7, 4059-4082. [doi: 10.5194/bg-7-4059-2010](https://doi.org/10.5194/bg-7-4059-2010)

2008 R.N. Austin, K. Luddy, K. Erikson, M. Pender-Cudlip, **E. M. Bertrand**, D. Deng, R. S.Buzdygon, J.B. van Beilen, J. T. Groves. *Cage escape competes with geminate recombination during alkane hydroxylation by the diiron oxygenase AlkB.* **Angewandte Chemie**, 120, 28, 5310–5312. [doi: 10.1002/anie.200801184](https://doi.org/10.1002/anie.200801184)

2007 E. M. Bertrand, M.A. Saito, J.M. Rose, C. R. Riesselman, M.C. Lohan, A. E. Noble, P.A. Lee, G. R. DiTullio. *Vitamin B12 and iron co-limitation of phytoplankton growth in the Ross Sea.* **Limnology and Oceanography**. 52 (3) 1079-1093 [doi: 10.4319/lo.2007.52.3.1079](https://doi.org/10.4319/lo.2007.52.3.1079)
(*Faculty of 1000 Biology “Recommended” article)

2007 E.A. Rozhkova-Novosad, J.C. Chae, G.J. Zylstra, **E.M. Bertrand**, M. Alexander-Ozinskas, D. Deng, L.A. Moe, J.T. Groves, R.N. Austin. *Profiling mechanisms of alkane hydroxylase activity in vivo using the diagnostic substrate norcarane.* **Chemistry and Biology**. 14: 165-172 [doi: 10.1016/j.chembiol.2006.12.007](https://doi.org/10.1016/j.chembiol.2006.12.007)

2005 **E. Bertrand**, R. Sakai, E. Rozhkova-Novosad, L. Moe, B. G. Fox, J.T. Groves, R. N. Austin. *Reaction mechanisms of non-heme diiron hydroxylases characterized in whole cells.* **Journal of Inorganic Biochemistry**. 99: 1998–2006 [doi: 10.1016/j.jinorgbio.2005.06.020](https://doi.org/10.1016/j.jinorgbio.2005.06.020)

PATENTS

2016 M. Saito, **E. Bertrand**. Cobalamin Acquisition Protein and Use Thereof. US Patent [9,234,012](https://patents.google.com/patent/9,234,012)

OUTREACH PUBLICATIONS

2011 **E. M. Bertrand**. *Psychotherapy for Plankton: life can be stressful out there in the microscopic marine world* [Oceanus Magazine](https://www.oceanusmagazine.com/issue-49-1). 49(1).

INVITED TALKS AND PRESENTATIONS (SINCE 2015) *NATIONAL OR INTERNATIONAL MEETING INVITATIONS

*Marine Microbes Gordon Research Conference, <i>Invited Talk</i>	2024
*International BioGeoSCAPES Science Planning meeting, <i>Invited Talk</i>	2023
*Canadian Meteorological and Oceanographic Society, <i>Plenary Invited talk</i>	2021
Canadian National Proteomics Network National Seminar Series, <i>Invited talk</i>	2021
University of New Brunswick, Fredericton, Dept of Biology, <i>Invited talk</i>	2020
Nova Scotian Institute of Science, <i>Invited Talk</i>	2020
*Molecular Life of Diatoms Symposium, Norwich UK, <i>Invited talk</i>	2019

National Research Council, Halifax NS, <i>Invited talk</i>	2019
University of British Columbia Oceanography Seminar, <i>Invited talk</i>	2019
University of Alberta, Earth and Atmospheric Sciences Seminar, <i>Invited talk</i>	2018
Montreal Microbial Ecology Seminar, Montreal Quebec, <i>Invited talk</i>	2018
St. Francis Xavier University, Dept. Biology, Antigonish, NS, <i>Invited talk</i>	2018
*Ocean Carbon Biogeochemistry Meeting, Woods Hole, <i>Plenary Invited talk</i>	2018
Acadia University Department of Biology Seminar Series, <i>Invited Talk</i>	2018
*Chemical Oceanography Gordon Research Conference, <i>Invited talk</i>	2017
*Canadian Society of Microbiologists, Annual Meeting, <i>Plenary Invited talk</i>	2017
*ASM Microbe Annual Meeting, New Orleans LA, <i>Plenary Invited talk</i>	2017
Marine Microbial Proteomics Working Group, Woods Hole MA, <i>Invited talk</i>	2017
Scripps Institution of Oceanography, Biological Oceanography Seminar, <i>Invited talk</i>	2017
St. Mary's University, Dept. of Biology, Halifax NS, <i>Invited talk</i>	2017
Princeton University EGGs Seminar, <i>Invited talk</i>	2016
Columbia University and Barnard College, <i>Invited talk</i>	2016
Dalhousie University, Chemistry Department, <i>Invited talk</i>	2016
Dalhousie University, Biochemistry and Molecular Biol. Dept, <i>Invited talk</i>	2015
Dalhousie University, Oceanography Department, <i>Invited talk</i>	2015
Mt. Allison University, Biochemistry Department, <i>Invited talk</i>	2015
Bedford Institute of Oceanography, <i>Invited talk</i>	2015
CIFAR Microbial Biodiversity Meeting, <i>Invited talk</i>	2015
Concordia University Biology Department, <i>Invited talk</i>	2015

INVITED PRESENTATIONS FOR NON-SCIENTISTS

Conference of the Association for Canadian Science Centers, <i>Invited Plenary Talk</i>	2019
“The Ocean Microbiome” panel for Science Literacy Week, <i>Invited Panelist</i>	2019

INVITED WORKSHOP PARTICIPATION

Biogeosciences International Science Planning Workshop, Woods Hole, MA	2023
Marine Metabolites in the Global Carbon Cycle Workshop, Athens GA	2022
Biogeosciences International Planning Workshop, Woods Hole, MA	2018
<i>One of 24 invited participants, planning for future large-scale international program</i>	
<i>Seeking to map global ocean metabolism www.biogeosciences.org</i>	
Atlantic Canadian Cyanobacterial Workshop	2018
<i>National Research Council, Halifax NS</i>	
Science Meets Parliament	2018
<i>One of 29 Tier II Canada Research Chairs invited to Parliament</i>	
CIFAR Microbial Metabolites in the Global Ocean Carbon Cycle	2018
<i>Invited participant, ‘Global Call for Ideas’ program finalist workshop</i>	
17th Annual Systems Biology Workshop, Bellairs Research Station, Barbados	2018
Marine Microbial Proteomics Working Group, Woods Hole MA, USA	2017
<i>Best Practices meeting for Data Sharing of Ocean and Environmental Metaproteomics</i>	

CIFAR Global Women in Science Leadership Workshop; Banff Centre, Alberta 2016

MEETING, WORKSHOP AND SESSION LEADERSHIP

- Canadian Biogeosciences Planning Workshop, co-organizer 2023
Co-convenor, planning for Canadian contribution to future large-scale International program seeking to map global ocean metabolism
- Session Organizer: *Towards Biogeosciences: Exploring molecular drivers of ocean metabolism and biogeochemistry. With Ben Twining, Martha Gledhill, Naomi Levine. Ocean Sciences Meeting* 2020
- Canadian Biogeosciences Planning Workshop, co-organizer
Co-convenor, planning for future large-scale international program Seeking to map global ocean metabolism www.biogeosciences.org 2019
- Session Organizer: *Microbial growth factors in the sea: Characterizing their importance at the molecular and ecosystem level. With Ryan Paerl. Ocean Sciences Meeting* 2014

RESEARCH CRUISE PARTICIPATION AND FIELD WORK

- CCGS Amundsen 2023 Leg 3 Sept-Oct 2023
 (one Bertrand lab members)
- Jones Sound Glacier-Ocean interface; RV Vagabond and Polar Continental Shelf-supported helicopter surveys and sampling July-Aug 2023
 (two Bertrand Lab members)
- NWA-BCP Cruise, Labrador Sea (**co-chief scientist, not sailing due to maternity leave**) RV Celtic Explorer May-June 2022
- Atlantic Zone Offshore Monitoring Program Cruise; RV Atlantis (two Bertrand lab members) May-June 2022
- Jones Sound Glacier-Ocean interface; RV Vagabond and Polar Continental Shelf-supported helicopter surveys and sampling July-Aug 2022
 (two Bertrand Lab members)
- Metalgate Cruise, Irminger and Iceland Basins; RV Pelagia July-Aug 2021
 (two Bertrand lab members)
- Jones Sound Glacier-Ocean interface; RV Vagabond and Polar Continental Shelf-supported helicopter surveys and sampling July-Aug 2021
 (two Bertrand Lab members)
- Jones Sound Glacier-Ocean interface; RV Vagabond and Polar Continental Shelf-supported helicopter surveys and sampling July-Aug 2019
 (Bertrand and collaborators)
- 2019 ArcticNet cruise, leg 2B; CCGS Amundsen July-Aug 2019
 (two Bertrand lab members)
- Atlantic Zone Offshore Monitoring Program Cruise; CCGS Amundsen June 2019
 (two Bertrand lab members)
- Atlantic Zone Monitoring Program Cruise; R/V Coriolis II Spring 2019
 (two Bertrand lab members)
- PS117 Weddell Sea Expedition, R/V IB Polarstern Jan 2019

(Bertrand and one lab member)	
Atlantic Zone Monitoring Program Cruise; CCGS Hudson (two Bertrand lab members)	Fall 2018
Atlantic Zone Monitoring Program Cruise; CCGS Hudson (two Bertrand lab members)	Spring 2018
ANA08A- Amundsen Sea Research Cruise, R/V IB Araon (two Bertrand Lab members)	Jan- Feb 2018
Atlantic Zone Monitoring Program Cruise; R/V Coriolis II (two Bertrand lab members)	Spring 2017
Atlantic Zone Monitoring Program Cruise; CCGS Hudson (two Bertrand lab members)	Fall 2016
Atlantic Zone Monitoring Program Cruise; CCGS Hudson (Bertrand and one lab member)	Spring 2016
McMurdo Sound, Antarctica; Postdoctoral Research	2014-2015
West Antarctic Peninsula, Phantastic II Cruise, R/VIB N.B. Palmer; Postdoctoral Research	2014
McMurdo Sound, Antarctica; Postdoctoral Research	2013
Metzyme Cruise, Equatorial Pacific, R/V Kilo Moana; Postdoctoral Research	2011
Station Aloha, CMORE photoperiod cruise, R/V Kilo Moana; PhD research	2009
McMurdo Sound, Antarctica; PhD research	2009
Ross Sea, CORSACS II Cruise R/VIB N.B. Palmer; PhD research	2006
Ross Sea, CORSACS I Cruise R/VIB N.B. Palmer; research assistant	2005
Costa Rica Dome, R/V Knorr; summer student fellow	2005

SUPERVISORY EXPERIENCE

PhD Students

Isaiah Baldwin, Dalhousie Biology	Sept 2022- current
Scott Pollara, Dalhousie Biology	Jan 2021-current
Catherine Bannon, Dalhousie Biology	Sept 2019-current
Loay Jabre, Dalhousie Biology	Jan 2018- 2023
J. Scott McCain, Dalhousie Biology	Jan 2017- Dec 2021

Co-supervised PhD students

Jenifer Spence, University of Alberta	May 2022-current
Sonja Rose, Dalhousie Biology	Sept 2019-current
Charlotte Eich, University of Amsterdam	Sept 2017-current
Wanxuan Yao, GEOMAR	Sept 2017-Dec 2021

Postdoctoral Fellows and Research Associates

Dr. Elden Rowland, Research Associate	Sept 2017-current
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Dr. Insa Rapp, Postdoctoral Fellow	Sept 2019-Sept 2021
Dr. Miao Wu, Postdoctoral Fellow	Sept 2017-2019
MSc Students	
Lena Beckley, Dalhousie Biology	Jan 2021-2023
Megan Roberts, Dalhousie Biology	Sept 2019-2022
Catalina Albury, Dalhousie Biology	Sept 2019-April 2021
Maria Soto, Dalhousie Biology	Sept 2017-May 2020
Co-supervised MSc students	
Patrick White, University of Alberta	Sept 2020-current
Patrick Williams, University of Alberta	Sept 2018-Jan 2020
Charvanaa Dhoonmoon, University of Alberta	Sept 2019- Jan 2022
Research Assistants	
Megan Roberts	2022-current
Tor Kitching	2016-2018
Kiran More	2017-2018
Honours Students	
Anna Gleason	2023-2024
Julia Cantelo, Dalhousie Biology	2021-2022
Julia Dugandzic, Dalhousie Biology	2020-2021
Lena Beckley, Dalhousie Biology	2019-2020
Mackenzie Valentine, Dalhousie Biology	2019-2020
Catalina Albury, Dalhousie Biology	2018-2019
Tor Kitching, Dalhousie Marine Biology	2018-2019
Megan Roberts, Dalhousie Biology and Chemistry	2016-2017
Hugo Arriojas, Dalhousie Marine Biology	2016-2017
Rebecca Aucoin, Dalhousie Biology and Sustainability	2015-2016
Meghan Chen, Dalhousie Biology and Sustainability	2015-2016
Visiting Graduate Student Fellows	
Esther Barber, University of Vigo	2017-2018

STUDENT SCHOLARSHIPS AND AWARDS

Catherine Bannon

MacRae Award for Best Graduate Student Paper, Dalhousie Biology Dept, 2023
 NSERC Alexander Graham Bell Canada Graduate Scholarship (CGS-Doctoral; 2019)

Loay Jabre

MacRae Award for Best Graduate Student Paper, Dalhousie Biology Dept, 2021
 Hugh Morris Fellowship ([2020](#))
 Nova Scotia Graduate Scholarship (2018 – 2022)
 12th Annual Lett Symposium, Best Session Talk 2018
 Nova Scotia Institute of Science, Graduate Student Writing Competition, 2018

Maria Soto

Dalhousie Faculty of Graduate Studies A- Scholarship (2017 – 2021)

J. Scott McCain

Dalhousie University Doctoral Thesis Award ([2022](#))
 Transatlantic Ocean System Science and Technology (TOSST) Student of the Year (2018)
 Dalhousie President's Award (2017)
 Izaak Walton Killam Predoctoral Scholarship (Level 2, 2017)
 NSERC Alexander Graham Bell Canada Graduate Scholarship (CGS-Doctoral; 2017),
 Transatlantic Ocean System Science and Technology (TOSST) Doctoral Scholarship
 (2016 - 2020)
 Nova Scotia Graduate Scholarship (2016 – 2020; Honourary)

Dr. Insa Rapp

Ocean Frontier Institute Postdoctoral Fellowship 2019-2021

Dr. Miao Wu

Swedish Formas Mobility Fellowship

Tor Kitching

NSERC Undergraduate Student Research Award 2017
 NSERC Undergraduate Student Research Award 2018
 Sarah Lawson Undergraduate Student Research Award 2018

Catalina Albury

Sarah Lawson Undergraduate Student Research Award 2018
 Nova Scotia Graduate Scholarship (2019 – 2021)

Anna Gleason

Nancy Witherspoon Memorial Summer Research Scholarship 2022, 2023
 Sarah Lawson Undergraduate Student Research Award 2021

Julia Dugandzic

Nancy Witherspoon Memorial Summer Research Scholarship 2020
 Dalhousie Faculty of Science Undergraduate Summer Research Contest, top three

SERVICE**Manuscript Reviewer**

Oceanography, Marine Chemistry, Limnology and Oceanography, Limnology and
 Oceanography Methods, Journal of Plankton Research, Environmental Microbiology,
 Proteomics, Journal of Proteome Research, ISME Journal, Biogeosciences, Rapid
 Communications in Mass Spectrometry, Metallomics, Frontiers in Microbiology,
 Proceedings of the National Academy of Sciences, Plant Physiology, Current Biology,
 Nature Microbiology, Nature Geoscience, Protist, Science

National and International Committee Membership

US Geotraces Scientific Steering Committee, member	2022- current
Canadian National Committee for SCOR, member	2023-current

Editorial Service

Associate Editor, Nature Communications, Earth and Environment	2022- current
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Award Committee Participation

A.G. Huntsman Award for Excellence in Marine Science, member	2022- current
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Nova Scotia Discovery Awards Judging committee	2019-2022
Proposal reviewer	
Canadian National Science and Engineering Council	2016-current
U.S. National Science Foundation	2015-current
European Research Council	2015-current

Panel Participant

Roundtable for Canada's Fundamental Science Review (Naylor report), Sept 2016
 Roundtable for Canada's Athena Swan Initiative, Nov 2018

Departmental Service

Biology Department, Associate Graduate Coordinator	2023- current
Search Committee, Black Scholar Cluster Hire, member	2023
Search Committee, Cell Biologist, member	2020
Biology Department Graduate Admissions Committee, member	2017-2021
Dalhousie Biology Department Representative, Science Atlantic	2016-2021
Biology Department Seminar Committee, Chair	2015-2018
Search Committee, CRC Tier II in Marine Quantitative Ecology- Member	2016

University Service

Dalhousie Undergraduate Research Committee	2019-2021
Steering Committee, Centre for Comparative Genomics and Evolutionary Bioinformatics (CGEB)	2019-present
CGEB Equity Diversity and Inclusion Working Group	2019-present
Member, Dalhousie Women in Research Caucus (WiRC)	2018-present
Member, Dalhousie Biological Mass Spectrometry CORE Facility	
Advisory Committee member	2018-present
Search committee for Associate Vice President and Scientific Director of the Ocean Frontier Institute- member	2017-2018
Search Committee for Chair, Department of Chemistry- Member	2016

SOCIETY MEMBERSHIPS

Association for the Sciences of Limnology and Oceanography
 Canadian Society of Microbiologists
 Canadian National Proteomics Network
 American Society for Mass Spectrometry

CERTIFICATIONS

Advanced Wilderness and Remote First Aid, Canadian Red Cross
 STCW, WHMIS, Dalhousie Biosafety Certification

POPULAR PRESS COVERAGE (HIGHLIGHTS SINCE 2017)

August 2019 [Radio Interview](#)- PhD student J. Scott McCain re: Wu, McCain et al 2019

Summer 2019 Canadian National Film Board Instagram campaign for young women in STEM

Fall 2017 [Dalhousie Magazine](#)

Spring 2017 [Dalhousie News](#)

