

BRANDI KAMERMANS (CRON)

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EDUCATION

2011-2017

Ph.D., Biogeology, University of Minnesota- Twin Cities Department of Earth Sciences

2008-2011

M.S., Biogeochemistry, University of New Mexico Department of Earth and Planetary Sciences

2004-2008

B.S., Biology, University of New Mexico Department of Biology

PROFESSIONAL APPOINTMENTS

2023-present

- **Postdoctoral fellow, International Arctic Research Center, University of Alaska Fairbanks**
 - For the Arctic-Yukon-Kuskokwim Sustainable Salmon Initiative, I prepare quarterly presentations to update stakeholders about the progress of the project. Develop teaching materials that will effectively communicate the initial goals, objectives, as well as the outcomes of the research project. Correlate fluorescence measurements with both environmental factors and fish catch rate data and prepare quantitative polymerase chain reaction data for professional conferences and publication.

2022-2023

- **Senior researcher, Salish Sea Research Center at Northwest Indian college**
 - Lead-PI on grants for the Salish Sea Research Center has prepared me to spearhead data collection and data analysis. Advised several interns at the Salish Sea Research Center. Facilitated meetings to bring stakeholders and scientists together to discuss research results and implications for tribal communities.

2020-2023

- **Postdoctoral fellow, Salish Sea Research Center at Northwest Indian College**
 - Designed and improved laboratory protocols for environmental DNA research for Lummi Nation. Designed quantitative polymerase chain reaction assay for declining forage fish, Longfin Smelt, and harmful algae, *Alexandrium fundyense*.

2017-2019

- **Postdoctoral fellow, Pennsylvania State University College of Earth and Mineral Sciences**
 - Mastered microscopy, spectroscopy, and electron microscopy techniques to describe the chemical and structural composition of elemental sulfur and organic compounds produced by microbe-mineral interactions in a subsurface system.

2011-2017

- **Ph.D. candidate, University of Minnesota Twin-Cities**
 - Investigated the speciation and distribution of carbon, iron, and sulfur in minerals and particles collected from deep-sea hydrothermal vents.

AWARDS AND RECOGNITION

2017

- Pennsylvania State University College of Earth and Mineral Sciences Distinguished Postdoc Gordon Research Conference Carl Storm Underrepresented Minority Fellowship
- American Indian Science and Engineering Society (AISES) Lighting the Pathway to Faculty Careers for Natives in STEM (LTP) Scholar

2016

- University of Minnesota Doctoral Dissertation Fellow, funding last year of doctoral research

2008

- National Science Foundation (NSF) Graduate Research Fellow, University of Minnesota

2007

- Louis Stokes Alliance for Minority Participation Bridge to the Doctorate Fellowship (LS-AMP), NSF undergraduate research fellowship, advisor: Dr. Laura Crossey at the University of New Mexico, Department of Earth and Planetary Science

2006

- Ronald E. McNair Scholar, undergraduate research experience, advisor: Dr. Laura Crossey at the University of New Mexico, Department of Earth and Planetary Science

GRANTS MANAGED

\$500,000	National Institute for Food and Agriculture Grant Title of grant: "Using molecular methods to determine the role of phytoplankton in WestCoast Shellfish die offs" Principal investigator: Kamermans, 2020-2023
\$250,000	National Institute for Food and Agriculture Grant Title of grant: "DNA of Hoolies in the Nooksack River, WA" Principal investigator: Kamermans, 2020-2023
\$42,310	National Institute of Health Contract Genomics in Tribal Communities Principal investigator: Kamermans, 2020-2023
\$1,114	EESLGreen program Energy and Environmental Sustainability 2017 Laboratories (EESL) postdoc fellowship
\$2,500	Thesis Research Travel Grant University of Minnesota Graduate School 2014-2015

MENTORING EXPERIENCE

- Interns at the Salish Sea Research Center
 - Justice Black-Williams (Fall 2022-Spring 2023)
 - Sandra James (Fall 2021-Spring 2023)
 - Mickki Garrity (Fall 2021-Spring 2023)
- Mentor at ENVISION 2019 (January 26, 2019)
 - Promoted careers in STEM to middle and high school female students
- Undergraduate research thesis for Carleton College
 - Rumya Ravi (July-August 2018)

ONLINE TEACHING EXPERIENCE

- Genomics in Tribal Communities (online course)
 - Developed and managed a Massive Open Online Course (MOOC) with introductory genetics material in collaboration with researchers at Turtle Mountain Community College, the University of Alaska Fairbanks, and the University of Colorado Anschutz Medical Campus.

CLASSROOM TEACHING EXPERIENCE**Northwest Indian College**

- Cell Biology (Bio201)
 - Developed introductory cell biology course for Northwest Indian College, including materials for Canvas, graded papers, lead labs, and sole-taught bi-weekly sections.

University of Alaska Fairbanks

- Guest lecturer for a single sole-taught lecture, Genomics and Bioinformatics Course with Professor Jessica Glass

The Pennsylvania State University

- Guest lecturer for weekly sessions, Geomicrobiology (Geosc 409) under the direction of Professor Jennifer Macalady, graded papers, lead labs, and sole-taught sections

The University of Minnesota

- Guest lecturer, Geomicrobiology (ESCI 4801) under the direction Professor Jake Bailey Teaching assistant, Geology and Cinema (ESCI 1005) Spring 2014, graded papers, lead labs, and sole-taught sections
- Teaching assistant, Oceanography (ESCI 1007) Fall 2014, graded papers, lead labs, and sole-taught sections
- Teaching assistant, Soil Chemistry and Mineralogy (LAAS 5311) Fall 2013, graded papers, lead labs, and tutored

OUTREACH TEACHING EXPERIENCE

- Introduction to the field of biogeochemistry to Millennium Scholars, Penn State University (June 23, 2018)
- Performed fieldwork with high school students as a member of UMN – AISES (Spring 2013)
- Manager and lead science educator at Discovery Space, State College, PA (June -August 2019)
- Developed hands-on activities for students at “Ask a Scientist” (August 2017, April 2018, November 2018)

LEADERSHIP EXPERIENCE

- Co-organizer Pacific Northwest IndigiData (Northwest Indian College July-August 2023)
- Committee for the Penn State 11th Annual Postdoctoral Research Exhibition (May 2019)
- President UMN - AISES (Spring 2014)
- Chair “Finding Your Path Among the Stars” AISES Region V Conference (March 2014)
- Chair for 1st and 2nd Annual Esci Research Symposium Department of Earth Sciences University of Minnesota- Twin Cities (May 2015 and May 2016)

PEER-REVIEWED RESEARCH PUBLICATIONS

- (1) **Cron, B.** Peacock, M.B., Lopez, J.A., (*in prep*) Subsistence harvesting should consider quantitative PCR for monitoring saxitoxin
- (2) **Cron, B.**, Macalady, J. L., & Cosmidis, J. Organic Stabilization of Extracellular Elemental Sulfur in a *Sulfurovum*-Rich Biofilm: A New Role for Extracellular Polymeric Substances? 2021, *Frontiers in Microbiology*, 12.
- (3) **Cron, B.R.**, Cosmidis, J., and Macalady, J., Elemental sulfur formation by *Sulfuricurvum kujiense* is mediated by extracellular organic compounds, *Frontiers in Microbiology*, 2019, doi: 10.3389/fmicb.2019.02710. PMID: 31827465; PMCID: PMC6890823.
- (4) **Cron, B.R.**, Cody, S., Kafantaris, F., Druschel, Seewald, J.S., G., Dick, G.J., Breier, J.A., German, C.R., Toner, B.M., Dynamic biogeochemistry of particulate sulfur in a deep-sea buoyant hydrothermal plume, *ACS Earth and Space Chemistry*, 2020, 4; (2), 168-182, DOI: 10.1021/acsearthspacechem.9b00214
- (5) Nims, C., **Cron, B.,R.**, Wetherington, M., Macalady, J., Cosmidis, J., 2019, Low frequency Raman Spectroscopy for micron-scale and in vivo characterization of elemental sulfur in microbial samples, *Scientific Reports* (9), Article number 7971
- (6) Crossey, L.J., Karlstrom, K., Schmandt, B., Crow, R., Coleman, D., **Cron, B.R.**, Takacs-Vesbach, C., Dahm, C., Northup, D., Hilton, D., Ricketts, J., Continental smokers couple mantle degassing and unique microbiology within continents, 2012, *Earth and Planetary Science Letters*, Vol. 435: 22-30.
- (7) Breier, J. A., Gomez-Ibanez, D., Sayre-McCord, R. T., Rauch, C. G., Coleman, M. L., Bennett, S. A., **Cron, B. R.**, Sheik, C. S., German, C. R., Toner, B. M., and Dick, G. J., 2014, A large volume particulate and water multi-sampler with in situ preservation for microbial and biogeochemical studies. *Deep-Sea Research Part I*, Vol. 94: 195-206.
- (8) Hall, J., Mitchell, K., Jackson-Weaver, O., Kooser, A., **Cron, B.**, Crossey, L., Takacs-Vesbach, C., 2008, Molecular Characterization of the Diversity and Distribution of a Thermal Microbial Community by Using rRNA and Metabolic Genes: Applied and Environmental Microbiology, Vol. 74 No. 15: 4910.

ORAL PRESENTATIONS

Kamermans, B.R., Lopez, J.A., Garrity, M., James, S., Flawd, D., Solomon, J., Peacock, M.B., Arnold, R.A., Understanding *Spirinchus thaleichthys*: local researchers searching for a declining population of a species valued by the Lhaq'temish in Bellingham Bay and the Nooksack River, WA, 2022 Alaska Chapter American Fisheries Meeting

Kamermans, B.R., Mallon, R., Peacock, M.B., Searching for Alexandrium and Hooligans: the Salish Sea Research Center applies molecular methods to inform local communities about microalgae and forage fish, 2022 Whatcom Marine Research Symposium, Bellingham, WA

Kamermans, B.R., Peacock, M.B., Detecting and identifying saxitoxin-producing algae in the Salish Sea, 2021 North Pacific Marine Science Organization (PICES), Session 7: Predictions of extreme events in the North Pacific and their incorporation into management strategies. **Kamermans, B.R., Cosmidis, J., and Macalady, J.,** Evaluation of S₀ as a biosignature through investigation of bio- and organomineralized S₀ in laboratory and field experiments, 2018 Goldschmidt Conference, Boston, MA

Kamermans, B.R., Ravi, R., Cosmidis, J., Macalady, J., Evaluation of S₀ as a biosignature through investigation of bio- and organomineralized S₀ in laboratory and field experiments, 2017 SACNAS National Conference, Salt Lake City, UT

BOOKS CITED

- (1) **Kamermans, B.** Chapter 15 Na'alkali, in *Voices of Ingenuity*, (*in review*) Editor Michelle Montgomery, Ph.D. University Press of Colorado.
- (2) Toner, B. M., **Cron, B. R.**, Huber, J. A., and McDermott, J. M. (*in review*) Sulfur biogeochemistry of deep-sea hydrothermal vents, *Deep-Sea Microbiology*, Editors Vetriani, C. and Giovannelli, D., Springer International Publishing.

INVITED TALKS

Kamermans, B.R., Detecting nucleic acids in Bellingham Bay: studying Hooligans and Alexandrium using eDNA and qPCR, 2021 Banse Seminar Series University of Washington **Kamermans, B.R.,** Speciation of Iron and Sulfur in Mineral Aggregates and Organic Complexes from Hydrothermal Vents in the Mid-Cayman Rise (April 2015) Macalester Seminar

Kamermans, B.R., Exploring the geomicrobiology of hydrothermal vents (October 2013) Annual Society for Advancement of Chicanos and Native Americans in Science (SACNAS) National Conference

POSTER PRESENTATIONS

Kamermans, B.R., Hunter, R.H., Kudela, R., Peacock, M.B., Development of three quantitative polymerase chain reaction assays for Yessotoxin producing dinoflagellates, Alaska American Fisheries Society Meeting (2023)

Kamermans, B.R., Peacock, M.B., Hunter, R.H. Supporting safe shellfish harvests by using genetics to detect and quantify toxic Alexandrium in the Salish Sea, Ocean Sciences Meeting (2022) **Cron, B.R., Cody, S., Kafantaris, F., Druschel, G., Dick, G.J., Breier, J.A., German, C.R., Toner, B.M.,** Sulfur speciation of particles reveals chemical diversity and complexity within the rising plume of the Von Damm

hydrothermal plume, Mid-Cayman Rise plume, 1st Geobiology Society Conference, Banff, Canada (2017)

Cron, B., Toner, B.M., Breier, C.A., Dick, G.J., Jian, H., Sheik, C.S., Organic Carbon and Iron-rich Particles in Deep Ocean Hydrothermal Plumes, Von Damm Vent Field, Mid-Cayman Rise. Goldschmidt Conference, Yokohama, Japan (2016)

Cron, B.R., Toner, B.M., Bennett, S.A., German, C.R., Dick, G.J., and Breier, J.A., Jr. The spatial distribution and speciation of iron in buoyant hydrothermal plumes of the Mid-Cayman Rise. American Geophysical Union, Fall Meeting, San Francisco, CA, OS13B-1741 (Fall 2012)

Cron, B.R., Crossey, L.J., Karlstrom, K.E., and Northup, D.E. Microbial diversity and geochemical cycling of unique carbonate springs in northern New Mexico: the geomicrobiology of Tierra Amarilla anticline. Geological Society of America Annual Meeting, Minneapolis, MN, 242-5 (2011)

Cron, B.R., Crossey, L.J., Northup, D.E., Karlstrom, K.E., Microbial richness and diversity in CO₂-rich mound springs of the Tierra Amarilla anticline, New Mexico. New Mexico Geological Society Annual Spring Meetings, Macey Center, New Mexico Tech (2010).

PROFESSIONAL MEMBERSHIPS AND AFFILIATIONS

- Genomic Data Science Community Network
- American Chemical Society
- Geological Society of America
- American Geophysical Union
- American Fisheries Society

PROFESSIONAL SKILLS AND WORKSHOPS

- Summer Internship for Indigenous peoples in Genomics (SING) July 23-28, 2022
- 2nd National Workshop on Marine eDNA, September 12-13, 2022, Costa Mesa, CA
- U.S. HAB taxonomy Course Bigelow National Center for Marine Algae and Microbiota