

Joshua B. Zimmt

Postdoctoral Fellow

Earth and Planetary Sciences Department
McGill University

josh_zimmt@berkeley.edu

Education

Ph.D. in Integrative Biology

Advisors: Seth Finnegan and Charles Marshall

Thesis: The sequence-stratigraphic expression of the Late Ordovician mass extinction

University of California, Berkeley

August 2017–May 2023

B.S. Geology with Highest Honors

Advisor: Rowan Lockwood

Thesis: Estimating the duration of condensed shell beds of the Calvert Cliffs (Maryland)

College of William & Mary

August 2013–May 2017

Awards and Honors

FRQ-Anticosti Postdoctoral Fellowship, Government du Québec	2023
Wares Postdoctoral Fellowship, McGill University	2023 (declined)
Best Paper Prize 2021, The Palaeontological Association	2021
Sigma Xi, Scientific Research Honor Society	2018
Berkeley Fellowship for Graduate Study, University of California Berkeley	2017–2022
Alumni Association Award, College of William & Mary	2017
Honorable Mention: GSA GBGM Student Presentation Awards	2016
Phi Beta Kappa	2016
Bruce Davidson Memorial Scholarship, College of William & Mary	2016
Omicron Delta Kappa, National Leadership Honors Society	2016
Provost Award, College of William & Mary	2014–2017

Current Funding and Grants

UNESCO Research Grant	2022
Geoscience Opportunities for Leadership in Diversity: NSF #2134775	2021
Edward Hildebrand Graduate Fellowship	2021
Lewis and Clark Fund for Exploration and Field Research	2021
ExxonMobil/ Geological Society of America Student Research Grant	2019
Evolving Earth Student Grant Award	2019

Past Funding and Grants

David B. Jones Foundation Grant	2021
UNESCO Research Grant	2021
SEPM Foundation Student Research Grant	2020
University of California Museum of Paleontology Research Grant	2018–2023
Lerner–Gray Memorial Fund	2019
Department of Integrative Biology Student Research Award	2019
Dry Dredgers Research Grant	2019
Paleontological Society Student Research Grant	2018, 2019
National Sigma Xi Grant in Aid of Research	2018, 2019

Sigma Xi Grant in Aid of Research, Berkeley Chapter	2018, 2019
Honors Fellowship, College of William & Mary	2016
Undergraduate Research Grant, Southeastern Section of GSA	2016
Monroe Scholarship, College of William & Mary	2013

Publications

- Zimmt, J.B.**, Kidwell, S.M., Lockwood, R., and Thirlwall, M., 2022, Strontium isotope stratigraphy reveals 100 ky-scale condensation, beveling, and internal shingling of transgressive shell beds in the Maryland Miocene: *Palaios*, v. 37, p. 553–573, <https://doi.org/10.2110/palo.2022.004>.
- Zimmt, J.B.** and Jin, J., 2022, A new species of *Hirnantia* (Orthida, Brachiopoda) and its implications for the Hirnantian age of the Ellis Bay Formation, Anticosti Island, eastern Canada: *Journal of Paleontology*, v. 97, p. 47–62, <https://doi.org/10.1017/jpa.2022.83>.
- Monarrez, P.M., **Zimmt, J.B.**, Clement, A.M., Gearty, W., Kusnerik, K.M., Jacisin III, J.J., Jenkins, K.M., Poust, A.W., Robson, S.V., Sclafani, J.A., Stilson, K.T., Tennakoon, S.D., and Thompson, C.M., 2021, Our past creates our present: A brief history of racism in North American paleontology: *Paleobiology*, v. 48, p. 173–185, <https://doi.org/10.1017/pab.2021.28>.
- Marshall, C.R., Latorre, D.V., Wilson, C.J., Frank, T.M., Magoulick, K.M, **Zimmt, J.B.**, and Poust, A.W., 2021, With what precision can the population size of *Tyrannosaurus rex* be estimated? A reply to Meiri: *Frontiers of Biogeography*, v.14, <https://doi.org/10.21425/F5FBG55042>.
- Marshall, C.R., Latorre, D.V., Wilson, C.J., Frank, T.M., Magoulick, K.M, **Zimmt, J.B.**, and Poust, A.W., 2021, Absolute Abundance and Preservation Rate of *Tyrannosaurus rex*. *Science*, v. 372, p. 284–287, <https://doi.org/10.1126/science.abc8300>.
- Zimmt, J.B.**, Holland, S.M., Finnegan, S., and Marshall, C.R, 2021, Recognizing pulses of extinction from clusters of last occurrences: *Palaeontology*, v. 64, p. 1–20, <https://doi.org/10.1111/pala.12505>.
- Zimmt, J.B.**, Lockwood, R., Andrus, C.F.T., and Herbert, G.S., 2019, Sclerochronological basis for growth increment counting: A reliable technique for life–span determination of *Crassostrea virginica* from the Mid–Atlantic United States: *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 516, p. 54–63, <https://doi.org/10.1016/j.palaeo.2018.11.029>.

Manuscripts in Preparation

- Zimmt, J.B.**, Holland, S.M, Finnegan, S., and Desrochers, A., *in prep*, A high-resolution sequence stratigraphic framework for the eastern Ellis Bay Formation, Canada: A record of Hirnantian sea-level change: *For submission to Sedimentology*.
- Zimmt, J.B.**, Bergmann, K., Jost, A.B., Present, T., and Finnegan, S., *in prep*, Carbonate clumped isotope paleothermometry of the Ordovician/Silurian boundary on Anticosti Island.

Current Research Projects

A stratigraphic paleobiological assessment of the pattern and drivers of the Late Ordovician mass extinction on Anticosti Island

Understanding local redox conditions on Anticosti Island during the late Hirnantian warming period

A Katian brachiopod fauna in the Hirnantian Ellis Bay Formation: Implications for understanding the Late Ordovician mass extinction

A comparison of global and regional perspectives of mass extinction events

Conference Abstracts

- Zimmt, J.B.**, Holland, S.M., Cappello, M., Jones, D.S., Jin, J., Husson, J.M., Schoene, B., Mitchell, C., Melchin, M., Finnegan, S., and Desrochers, A., 2023, Revised biostratigraphic, chemostratigraphic, and sequence stratigraphic frameworks for the Ellis Bay Formation: *14th International Symposium on the Ordovician System 2023*.
- Zimmt, J.B.**, Holland, S.M., Finnegan, S., Jones, D.S., and Desrochers, A., 2023, A new framework for reinterpreting the Late Ordovician mass extinction on Anticosti Island (Québec, Canada): Sequence stratigraphic correlation within the eastern Ellis Bay Formation: *Strati2023 Conf. Prog.*
- Zimmt, J.B.**, Cappello, M., Holland, S.M., Jones, D.S., Jin, J., Husson, J.M., Schoene, B., Mitchell, C., Melchin, M., Finnegan, S., and Desrochers, A., 2022, New constraints on the age of the Ellis Bay Formation, Anticosti Island, Canada: A revised framework for understanding the Late Ordovician Mass Extinction: *Geological Society of America Abstracts with Prog.*
- Chupongstimun, S., **Zimmt, J.B.**, and Finnegan, S., 2022, Modes of Phanerozoic marine paleocommunity turnover: A model-selection approach: *Geological Society of America Abstracts with Prog.*
- Trudgill, M., Jurikova, H., Present, T., Bergmann, K.D., Finnegan, S., Hints, H., Lepland, A., Prave, T., **Zimmt, J.B.**, and Rae, J.W.B., 2022, Fluctuations in ocean pH across the Ordovician-Silurian boundary: *2022 Goldschmidt Conf.*
- Zimmt, J.B.**, Bergmann, K.D., Present, T.M., Desrochers, A., and Finnegan, S., 2021, New clumped isotope constraints on the tempo and magnitude of Hirnantian (Late Ordovician) glaciation from Anticosti Island, Québec, Canada: *Geological Society of America Abstracts with Prog.*
- Samuels-Fair, Maya, **Zimmt, J.B.**, Holland, S.M., and Finnegan, S., 2021, A simulation framework for understanding the influence of sampling on apparent diversity partitioning patterns within depositional basins: *Geological Society of America Abstracts with Prog.*
- Marshall, C.R., Latorre, D.V., Wilson, C.J., Frank, T.M., Magoulick, K.M., **Zimmt, J.B.**, and Poust, A.W., 2021, On the standing population size of *Tyrannosaurus rex*, the total number that ever lived, and its absolute preservation rate: *Society of Vertebrate Paleontology Conf. Prog.*
- Zimmt, J.B.**, Taylor, L., and White, L., 2021, Broadening participation in the digital age: Designing online geoscience labs to engage community college programs: *Earth Educator's Rendezvous Conf. Prog.*
- Gauga, A., McGoran, H., Wang, A., Monarrez, P.M., Pimentel-Galvan, M., **Zimmt, J.B.**, Payne, J.L., and Heim, N.A., 2020, Testing the relationship of Brachiopoda generic richness, origination, and body size during the Great Ordovician Biodiversification Event: *AGU Abstracts with Prog.*
- Zimmt, J.B.**, Lee, J., Taylor, L.D., and White, L.D., 2020, Designing labs in the digital age: utilizing online paleobiology collections to engage community college students: *Geological Society of America Abstracts with Prog.*

- Zimmt, J.B., Holland, S.M., Finnegan, S., and Marshall, C.R., 2020, A method for determining which clusters of last occurrences in the stratigraphic record likely represent pulses of extinction: *Geological Society of America Abstracts with Prog.*
- Zimmt, J.B., Holland, S.M., Finnegan, S., and Marshall, C.R., 2020, Recognizing pulses of extinction from clusters of last occurrences: A Late Ordovician case study: *IGCP 653 Virtual Conf.*
- Zimmt, J.B., Holland, S.M., Finnegan, S., and Marshall, C.R., 2019, Exploring the impact of stratigraphic architecture on the pattern and timing of Late Ordovician extinction events: *North American Paleontological Convention Abstracts with Prog.*
- Zimmt, J.B., Holland, S.M., Finnegan, S., and Marshall, C.R., 2018, One pulse or two? Combining simulations of sequence–stratigraphic architecture and diversification processes to model the expression of the LOME: *Geological Society of America Abstracts with Prog.*
- Zimmt, J.B., Kidwell, S.M., Lockwood, R., and Thirlwall, M., 2017, Estimating the duration of stratigraphically condensed Miocene marine shell beds using strontium isotope stratigraphy (Calvert Cliffs, MD): Implications for paleoecological analysis: *Geological Society of America Abstracts with Prog.*
- Zimmt, J.B., Lockwood, R., Andrus, C.F.T., and Herbert, G.S., 2016, Revisiting growth increment counting as a method for biologically aging *Crassostrea virginica* from the U.S. Mid–Atlantic: *Geological Society of America Abstracts with Prog.*
- Zimmt, J.B., Kosnik, M.A., and Lockwood, R., 2015, Taphonomic condition as a proxy for molluscan time averaging in Sydney Harbour (NSW, Australia): *Geological Society of America Abstracts with Prog.*

Invited Presentations

Hildebrand Panel, UC Berkeley (Departmental seminar)	2023
PaleoPERCS Early Career Seminar (Online seminar; recording linked here)	2023
Earth and Planetary Sciences, Yale University (Course lecture)	2021
GeoCenter Northern Bavaria, University of Erlangen-Nuremberg (Course lecture)	2020
Florida Museum of Natural History, University of Florida (Lab group presentation)	2020

Science Communication and Community Engagement

Bay Area Scientists in Schools	2018–Present
Developed and taught lessons for elementary (K-5) school audiences.	
Radio Interview: The Graduates	2023
Participated in an interview for a public radio program at UC Berkeley.	
California Academy of Sciences Nightlife	2018–2023
Provided short paleobiology demonstrations geared towards adult audiences in a casual setting.	
Interview for Journal de Montreal	July 2022
Participated in an interview for a francophone newspaper about the UNESCO bid for world heritage status; led writer on tour of Anticosti.	

Soirée Causerie Scientifique, Municipality of Anticosti Island July 2022
Presented an hour-long research showcase for the community at Port-Menier (Anticosti) accessible for a francophone audience.

Stanford Earth Young Investigators Summer 2020
Presented research to high school students and helped them develop independent research projects.

UCMP Cal Day April 2018, 2019
Engaged incoming UC Berkeley students about on-campus museums.

James Madison Elementary, “What Killed the Dinosaurs” February 2018
Developed and led a multi-class lesson for elementary school students.

Geology on Wheels April 2017
Presented locally relevant paleobiology lessons to Virginian elementary schools.

Teaching Experience

[ACCESS](#) (Advancing Community College Education and Student Success) 2021–Present
Lead on community-engagement program, coordinating and teaching paleobiology- and geology-themed lessons at community colleges nationwide.

ACCESS Professional Learning Community 2022–Present
Senior personnel on professional development program for community college and graduate student instructors learning about equitable teaching practices.

Paleobiological Perspectives on Ecology and Evolution (IB 113L) Spring 2018, 2023
Teaching assistant and lab instructor for undergraduate upper-division biology course.

General Biology Laboratory (IB 1L) Fall 2017, Spring 2020
Teaching assistant and lab instructor for lower-division biology course.

Research Mentorship

Stephanie Yang (City College of San Francisco) Summer 2021
Mentored as field assistant for seven weeks on Anticosti Island.

Sapon Chupongstimun (UC Berkeley) 2019–2022
Mentored for undergraduate research projects on geochemistry, computer modelling, and evolutionary dynamics.

Max Titcomb (UC Berkeley) 2019–2020
Mentored for undergraduate geochemistry research project.

Ryan Caspary (UC Berkeley) Summer 2018, 2019
Mentored as field assistant for two field seasons (12 weeks) on Anticosti Island.

Maddie Gaetano (College of William & Mary) 2016–2017
Mentored for undergraduate paleoecology research project.

Service

Session Chair, Geological Society of America Meeting “Integrative Perspectives on Morphological Change: Shaping Our Understanding of the Fossil Record”	Fall 2022
Session Chair ,Geological Society of America Meeting “The Evolution of Early Phanerozoic Oceans: A Geobiological Perspective”	Fall 2021
UCMP Diversity, Equity, and Inclusion Committee	2020–2022
Corona Health Isolation Paleo Reading Group	2020
Session Chair, Geological Society of America Meeting “The Ordovician Earth”	Fall 2019, 2020
University Advancement, College of William & Mary	2015–2017
Speaker at the Alumni Scholarship Luncheon, College of William & Mary	2015

Field Experience

Devonian of Cape Breton, Nova Scotia, Canada (2 weeks)	2022
Late Ordovician of Anticosti Island, Québec, Canada (18 weeks)	2018, 2019, 2021, 2022
Late Cambrian–Early Ordovician of Utah and Nevada with IGCP 653 (1 week)	2018
Early Permian reef complex of Western Texas and New Mexico (1 week)	2018
Late Cretaceous of Montana (1 week)	2017
Late Devonian of Montana (1 week)	2017
Modern and Pleistocene reefs of San Salvador Island, Bahamas (1 week)	2017
Neogene of the US Mid–Atlantic Coastal Plain (3 weeks)	2014–2017

Additional Research Experiences

Project Title: Pleistocene temperatures in the southern Pacific Ocean Advisors: Tim Herbert and Samantha Bova	Summer 2014 Brown University
Project Title: 3D trackway analysis of theropod locomotion Advisor: Professor Stephen Gatesy	2012–2013 Brown University

Professional Development

Sequence Stratigraphy for Graduate Students Short Course, ExxonMobil	September 2019
Pedagogy and Technology in the Modern Paleontology Classroom, Paleontological Society	November 2018
Marine Invertebrate Zoology Field and Laboratory Course, Friday Harbor Laboratories	June–July 2018
Teaching Colloquium: Graduate Student Instructor Training, University of California Berkeley	Fall 2017
Stratigraphic Paleobiology Field Course, Paleontological Society	Summer 2017

Memberships

Member of the Sigma Xi, The Scientific Research Honor Society	2018–Present
Member of the Paleontological Society	2017–Present

Member of the honor society Phi Beta Kappa	2016–Present
Member of the honor society Omicron Delta Kappa	2015–Present
Member of the Geological Society of America	2015–Present

Other

College of William & Mary Men's Varsity Swimming Team (US Nationals and Division One NCAA Provisional Qualifier)	2013–2017
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