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Education

University of Michigan, 2025–Present

Earth & Environmental Sciences Department (Advisor: Ingrid Hendy).

Research Field: Paleoceanography. GPA: 4.0

Nova Southeastern University, 2021–2025.

B.Sc. Marine Biology & Environmental Science (honors). Minor: Transdisciplinary Studies
(Environmental Sociology). GPA: 3.71

Ongoing Research

Southern Ocean Productivity and Dissolved Oxygen at the Eocene-Oligocene Transition (EOT) — I am researching how the carbonate chemistry of ocean water masses changed during the transition from a very warm period, called the Eocene “hothouse,” to the Oligocene “coolhouse,” when a stable ice sheet formed on Antarctica. This transition, about 35 million years ago, is recorded in global ocean sediments, but the response of water masses close to Antarctica has been understudied thus far. I am using sediments and nannofossils (foraminifera) from the International Ocean Discovery Program Site U1553 to study changes in water biogeochemistry across the EOT, later comparing it to the nearby Ocean Discovery Program Site 748, to answer how changes to the Southern Ocean’s biological carbon pump and ocean current system influenced the broad shift in global climate as Earth cooled.

- Collect sediment samples across the EOT to resolve obliquity-paced glacial-interglacial cycling.
- Measure bulk carbonate $\delta^{18}\text{O}$ on an isotope ratio mass spectrometer to identify glacial periodicity and calculate high resolution sedimentation rates.
- Quantify total organic carbon (wt %) via elemental analysis to measure changes in export productivity.
- Log glauconite band depths and redox-sensitive elemental enrichments as indicators of low-oxygen depositional conditions.
- Integrate $\delta^{18}\text{O}$, total organic carbon, and glauconite stratigraphy using Code for Ocean Drilling to test coupling between Southern Ocean cooling, carbon-pump strength, and dissolved oxygen decreases.

Past Research Experience

Galápagos Field Project (2025) — site reconnaissance, underwater photography, and 3D-modeling of a submerged lava cave on Isabela Island, Galápagos. Expanded photogrammetry applications for underwater geological methods.

Honors Research Citation (2023–2025) — Paleoenvironmental reconstruction using the oxygen and carbon isotopic compositions of fossil gastropods that lived during the Last Glacial Maximum. My thesis found that “megadroughts” and intense dust storms in the western U.S. responded to the Laurentide Ice Sheet’s expansion about 23,000 years ago. *Fieldwork*: geologic mapping of Quaternary strata and fossil collection from last glacial and modern mesas in Badlands National Park, South Dakota, U.S.

NOAA Hollings Internship (2024) — 12-year carbonate chemistry trends at Cheeca Rocks Reef, FL; R and Python statistical analyses; pH, DIC, oxygen, and alkalinity measurements at the Atlantic Oceanographic and Meteorological Laboratory (Miami, Florida). *Fieldwork*: deployment of a Benthic Ecosystem Monitoring System.

U.S. Geological Survey Pathways Program (2023–2024) — water isotope chemistry for Biscayne Aquifer mixing models; water geochemistry diagrams; R scripts for chloride-specific conductance regressions; coauthor of USGS report and data release (Ft. Lauderdale, Florida). *Fieldwork*: well water sampling, geophysical borehole imaging.

Publications

Renshaw, C., 2025, *Fossil Gastropod Proxies Reveal Paleoenvironmental Changes in the White River Badlands, SD, at the Last Glacial Maximum*. Honors thesis, Nova Southeastern University, Halmos College of Arts and Sciences & Guy Harvey Oceanographic Research Center. https://nsuworks.nova.edu/honors_theses/43/

Zhang, J., and **Renshaw, C.**, 2024, Update of the Approximate Inland Extent of Saltwater Intrusion at the Base of the Biscayne Aquifer in Miami-Dade County, FL. *USGS Publications Warehouse*.
<https://pubs.usgs.gov/publication/sim3541>

Zhang, J.Z., and **Renshaw, C.**, 2024, Shapefile and summary tables for the approximate inland extent of saltwater intrusion at the base of the Biscayne aquifer in 2022, Miami-Dade County, Florida: *U.S. Geological Survey data release*, <https://doi.org/10.5066/P13TSEEA>

Renshaw, C., Feingold, J., Kempe, S., Farris, C. [in review]. Using Photogrammetry to Investigate a Submerged Lava Cave: Concha de Perla Lagoon, Isabela Island, Galápagos Islands, Ecuador. *Acta Carsologica*.

Baldauf, P.E., Baker G.S., Grimley, D.A., **Renshaw, C.**, Burkhardt, P.A., Hanson, P.R. [in preparation]. Red Dog Loess: A Peoria-equivalent, last glacial desert loess, South Dakota, USA. *Quaternary Research*.

Presentations

Renshaw, C., Palacio, A., Enochs, I. 2024. CARBONATE CHEMISTRY DYNAMICS AT THE INSHORE PATCH REEF, CHEECA ROCKS. NOAA Office of Education Science Education and Communication Symposium. American Geophysical Union. <https://agu24.ipostersessions.com/?s=86-07-79-4F-FD-19-D5-B7-27-C1-CA-EF-0F-A8-BB-AF>

Renshaw, C., Baldauf, P., Grimley, D., Baker, G., Nichols, J. 2024. FOSSIL GASTROPODS AS LATE PLEISTOCENE PALEOENVIRONMENTAL PROXIES, WHITE RIVER BADLANDS, SOUTH DAKOTA, USA. Geological Society of America Abstracts with Programs. Vol. 56, No. 5, 2024. <https://gsa.confex.com/gsa/2024AM/webprogram/Paper402603.html>

Teaching Experience

Graduate Student Instructor (2025–Present) — EARTH 201: Intro to Physical Geology, University of Michigan.

Lab Teacher's Assistant (2023–2024) — BIOL3360: Genetics, Nova Southeastern University.

Scholarships and Awards

Best Campus Organization Collaboration Award (May 2025).

Issued by the Inter-Organizational Council at Nova Southeastern University

Awarded to the honors fraternity, Epsilon Eta Sigma Chapter, during my time as president, for the campus voters registration event I organized with the Broward County Board of Elections in October of 2024.

Alpha Chi Honors Society for Collegiate Athletes (May 2024).

Issued by the National College Athlete Society

For maintaining a final GPA above 3.5 throughout 4 years of collegiate athletic training and competition.

USGS Special Achievement Award (October 2023).

Issued by Dorothy F. Sifuentes Ph.D., Director, USGS Florida-Caribbean Water Science Center

Awarded for volunteering and completing a hydrologic model used in Everglades reconstruction, specifically regulating sustained water flow to the eastern 'Taylor' slough, prone to drought.

Honors College Data Visualization Competition – 2nd Place (August 2023).

Issued by Dean Andrea Nevins Ph.D., Farquar Honors College, Nova Southeastern University

For the ArcGIS Story Map, "Anthropogenic Influences on the Biscayne Aquifer"

(<https://arcg.is/0G90X80>).

NOAA Ernest F. Hollings Scholarship (April 2023).

Issued by the National Oceanic and Atmospheric Administration (NOAA)

<https://www.noaa.gov/hollings-scholarship/our-people/corinne-rendshaw> ; <https://www.noaa.gov/office-education/hollings-scholarship/stories/hollings-internship-at-cutting-edge-of-coral-research-in-florida-keys>