

# Joshua David Himmelstein

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## Education

**Ph.D. Student, Marine Sciences, UNC-Chapel Hill** *June 2020 – Present*

- Dating horizons in marsh sediments using Lead-210 to implicate differential accretion
- Leveraging existing photogrammetry tools to assess specimen-level flux of oyster reefs
- Mapping trends in hurricane-induced barrier island breaches to propose safest region for future development of Cape Lookout National Seashore headquarters

**B.S., Department of Geology, College of William & Mary (W&M)** *Class of 2018, Cum Laude*

Major: Geology with High Honors Thesis; Major GPA 3.76

Second Major: Environmental Science

Relevant Coursework: Hydrology, Ocean Acidification, Earth Surface Processes, Sedimentology, Earth Structure and Dynamics, Introduction to Data Science (Python), Introduction to GIS, Honors Physics, and Regional Field Geology (California and Lofoten Islands, Norway), Environmental Public Health, Environmental Ethics.

**Washington University in Saint Louis,** *June-July 2015*

Researched and analyzed Israel's sustainable water industry, focusing on implementation of desalination plants and water usage in agricultural, industrial, and domestic settings. Culminated in 25-page guiding document.

## Experience

**Interim Researcher, Perron Lab at MIT** *January 2020 – June 2020*

- Created a Google Earth Engine remote sensing model of anthrosol distribution in the Xingu Basin of Amazonia to refine ecosystem-wide estimates of carbon storage

**Science Educator & Laboratory Coordinator, Peace Corps, Liberia** *September 2018 – December 2019*

- Organized, prepared, and implemented science lab classes for Biology, Chemistry, Physics, and General Science subjects from 7<sup>th</sup> to 12<sup>th</sup> grade, with focus on hands-on learning and co-teaching

Himmelstein, Joshua: Curriculum Vitae

- Trained teachers to use local materials for demonstrating science topics
- Prepared stock solutions, calibrated instruments, designed experimental set-ups
- Taught 10<sup>th</sup> and 11<sup>th</sup> grade Physics and Biology per the West African Senior Secondary Certificate Examination (WASSCE) curricula

**Researcher, Kirwan Lab, Virginia Institute of Marine Science (VIMS)** 2016 – 2018

- Conducted NSF and USGS grant funded research on the response of salt-marshes to sea-level rise and anthropogenic impacts.
- Traced and quantified changes in marsh ponding using remote sensing through ArcGIS, historic aerial imagery, habitat classification, and NDVI techniques
- Worked in marshes across Eastern United States (Blackwater, MD; Plum Island, MA; Eastern Shore, VA; Sapelo Island, GA)
- Processed peat cores for organic vs minerogenic, water content, and bulk density
- Collected and massed aboveground biomass and sorted by species
- Extracted and analyzed porewater for NH<sub>4</sub> and SO<sub>4</sub> using chemical fixing and mass spectrometry
- Tested soil for shear strength at various depths using shear vane
- Collaborated with scientists from University of Antwerp, Belgium
- Created maps, graphs, and figures for use at conference and university presentations

**NSF Research Experience for Undergraduates – VIMS** June – August 2016

- Compared morphologies and sedimentation rates of connected and isolated ponds on Goodwin Island, VA, to predict their rehabilitation under varying RSLR rates.
- Employed sediment tiles, sediment tubes, RTK GPS, and Russian peat cores

**Teaching Assistant, Intro Geology Lab, College of William & Mary** January 2016 – May 2016

- Assisted in weekly 3-hour class lab, teaching sample identification, simple math, and technological literacy

## **Outreach and Conferences**

*Guest Speaker*, United Nations Day 2018  
Garraway Education District, Garraway City, Liberia

*Poster - Mechanisms of pond expansion and marsh loss*, Coastal Estuarine Research Federation Conference 2017  
Providence, RI

Department Brown Bag – Marsh Ponding and Working at VIMS, William & Mary Geology 2017  
Williamsburg, VA

## Field Experience

Pond ecogeomorphometrics, Blackwater National Wildlife Refuge, MD	2017
Structural Mapping Student- Lofoten Islands, Norway	2017
Suspended sediment and biomass collection - Sapelo Island, GA	2016
RTK, Sedimentation, and core collection, Goodwin Island, VA	2016
Suspended sediment and biomass collection, Plum Island, MA	2016
Geomorphology of California Student, Central Valley and Sierra Nevada Range, CA	2015

## Committee Service

Committee Member, Diversity, Equity, Inclusion in K-12 Marine Sci. Outreach	2020-Present
Committee Chair, Community Economic Development, Peace Corps Liberia	2018-2019
Committee Chair, Science & Sustainability Events, Alma Mater Productions	2016-2018

## Mentoring Activities

NASA GLOBE Partner – Environmental Observations through Students	2019
STEM Club for Junior High School Students	2019

## Teaching

“Science Teacher Training: A Guide to WASSCE Practicals”	2019
“Physics: Interactions of Matter, Space, and Time” 10 <sup>th</sup> and 11 <sup>th</sup> Grade Physics	2018-19
“Biology: Concepts of Life” 10 <sup>th</sup> Grade Biology	2018-19
“Geology 160: Introduction to Geology Lab” Teaching Assistant	2016