

## EDUCATION

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- University of Washington** Seattle, WA  
Ph.D. in Physical Oceanography, Advisor: Charles Eriksen 2013–2020  
– Thesis: “Eddy Vertical Structure and Variability: vortex evolution and the geography of geostrophic turbulence”
- University of Washington** Seattle, WA  
M.S. in Applied Mathematics 2016
- University of Washington** Seattle, WA  
M.S. in Physical Oceanography 2016
- University of Maryland** College Park, MD  
B.S. in Civil and Environmental Engineering, Magna Cum Laude (minor: project management) 2009–2013

## PUBLICATIONS

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- [1] **Steinberg, J.M.** and C. Eriksen, “Eddy Vertical Structure and Variability: Deepglider Observations in the North Atlantic”, *under review*, 2021. DOI: tbd.
- [2] I. Grooms, N. Loose, R. Abernathey, **Steinberg, J.M.**, S. Bachman, G. Marques, A. Guillaumin, E. Yankovsky, and L. Zanna, “Diffusion-based smoothers for spatial filtering of gridded geophysical data”, *Journal of Advances in Modeling Earth Systems*, 2021. DOI: <https://doi.org/10.1029/2021MS002552>.
- [3] **Steinberg, J.M.** and C. Eriksen, “Glider Sampling Simulations in High-Resolution Ocean Models”, *Journal of Atmospheric and Oceanic Technology*, vol. 37, pp. 975–992, 2020. DOI: <https://doi.org/10.1175/JTECH-D-19-0200.1>.
- [4] **Steinberg, J.M.** and C. Eriksen, “Observed Evolution of a California Undercurrent Eddy”, *Journal of Physical Oceanography*, vol. 49, pp. 649–674, 2019. DOI: <https://doi.org/10.1175/JPO-D-18-0033.1>.
- [5] N. Pelland, J. Bennett, **Steinberg, J.M.**, and C. Eriksen, “Automated Glider Tracking of a California Undercurrent Eddy Using the Extended Kalman Filter”, *Journal of Atmospheric and Oceanic Technology*, vol. 35, pp. 2241–2264, 2018. DOI: <https://doi.org/10.1175/JTECH-D-18-0126.1>.

## Prior Work

Bricker, S.B. and Grizzle, R. and Trowbridge, P. and Rose, J.M. and Ferreira, J.G. and Wellman, K. and Zhu, C. and Galimany, E. and Saurel, C. and Landeck-Miller, R. and Wands, J. and Rheault, R. and **Steinberg, J.M.** and Jacob, A. and Davenport, E.D. and Ayvazian, S. and Chintala, M. and Tedesco, M.A.. “Bioextractive Removal of Nitrogen by Oysters in Great Bay Piscataqua River Estuary, New Hampshire, USA”. *Estuaries and Coasts*, 43:23, 2020.

Bricker, S.B. and Ferreira, J.G. and Zhu, C. and Rose, J.M. and Galimany, E. and Wikfors, G. and Saurel, C. and Landeck-Miller, R. and Wands, J. and Trowbridge, P. and Grizzle, R. and Wellman, K. and Rheault, R. and **Steinberg, J.M.** and Jacob, A. and Davenport, E.D. and Ayvazian, S. and Chintala, M. and Tedesco, M.A.. “Role of Shellfish Aquaculture in the Reduction of Eutrophication in an Urban Estuary” *Environmental Science and Technology*, 52:173-183, 2018.

## RESEARCH EXPERIENCE

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current research interests: mesoscale turbulence, energy cascades, observations below 2000 m, altimeter derived surface eddy kinetic energy, autonomous platforms

### Woods Hole Oceanographic Institution

Postdoctoral Investigator

Woods Hole, MA

May 2020 –

- Analyze and synthesize observations of eddy kinetic and potential energy in a scale-aware consistent manner to improve mesoscale eddy representation and parameterization in global climate models. This work also considers large scale temperature and salinity structure as related to eddy mixing. A main focus is the joint analysis of observational and model data. (Ocean Transport and Eddy Energy Climate Process Team)

### University of Washington

Graduate Research Assistant

Seattle, WA

September 2013–March 2020

- Studied ocean eddy radial-vertical structure, evolution, and decay with a specific focus on geostrophic turbulence, energy cascades, and the surface expression of interior motions.

### University of Delaware

Research Experience for Undergraduates: Intern

Lewes, DE

Summer 2012

- project summary: “Laboratory Investigation of Sea Spray as Produced by Wind and Breaking Waves”

### N.O.A.A.

Data Analyst/Intern for East Coast eutrophication study

Silver Spring, MD

2011-2013

## FIELDWORK

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### Seaglider and Deepglider Operations

Graduate Research Assistant

UW

2013–2020

- Participated in the preparation, deployment, piloting, and recovery of Seaglider and Deepglider autonomous underwater vehicles. Completed over a dozen small boat operations on university, chartered, and private vessels at the starts and ends of multi-month missions in the Northeastern Pacific and North Atlantic.

### Ocean Inquiry Project

Field instructor - Diver

Seattle, WA

2014–2019

- Led education-based one-day research cruises on Puget Sound focused on mini CTD operations, net tows, and water samples.

## TEACHING

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- **Teaching Assistant** at the University Washington  
*Geophysical Fluid Dynamics (OCN 512)*

Winter 2018-2019, 2019-2020

Lectured as well as organized and carried out experiments in the UW GFD lab.

- **Teaching Assistant** at the University Washington  
*Physics Across Oceanography: Fluid Mechanics and Waves (OCN 285)*
- **Teaching Assistant** at the University Washington  
*Introduction to Fluid Mechanics (OCN 511)*

Fall 2017

Fall 2015

## CONFERENCES & PRESENTATIONS

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- Aspen Center for Physics: Transport and Mixing of Tracers in Geophysics and Astrophysics  
*Meeting Participant*
- NOAA Monster Jam Seminar: Invited Talk  
*Talk: Using Deepglider AUVs to explore the structure of large ocean eddies and the role they play in the redistribution of energy and tracers*

June 2021

May 2021

- UCLA: Biogeochemistry Group: Invited Talk Mar. 2021  
*Talk: Eddy Vertical Structure and Variability: Deepglider Observations of Geostrophic Turbulence in the North Atlantic*
- NCAR-CESM: Ocean Model Working Group / CPT: Ocean Transport and Eddy Energy Annual Meeting Feb. 2021  
*Talk: Scale Aware Eddy Kinetic Energy from Along-Track Sea Surface Height Measurements*
- Woods Hole Oceanographic Institution: Department Seminar Woods Hole, Jul. 2020  
*Talk: Eddy Vertical Structure and Variability: Deepglider Observations of Geostrophic Turbulence in the North Atlantic*
- Ocean Sciences Meeting San Diego, Feb. 2020  
*Talk: Observations of Eddy Vertical Structure Variability in the North Atlantic and Energy Partitioning Across Vertical Modes*
- Bermuda Institute of Ocean Sciences Bermuda, Aug. 2019  
*Talk: Geostrophic Turbulence and Eddy Vertical Structure*
- Oregon State University Corvallis, Jun. 2019  
*Invited Talk: Geostrophic Turbulence and Eddy Vertical Structure*
- University of Washington Seattle, Jun. 2019  
*Talk: Geostrophic Turbulence and Eddy Vertical Structure*
- US CLIVAR Workshop: Sources and Sinks of Mesoscale Eddy Energy Tallahassee, Mar. 2019  
*Poster: Interpreting Geostrophic Turbulence from Eddy Vertical Structure and Variability*
- Ocean Sciences Meeting Portland, Feb. 2018  
*Poster: Geostrophic Turbulence Observed in Eddy Vertical Structure*
- GHER: Liege Colloquium Liege, Belgium, Jun. 2016  
*Poster: The Evolution of a California Undercurrent Submesoscale Eddy (Cuddy)*
- Ocean Sciences Meeting New Orleans, Feb. 2016  
*Poster: The Evolution of a California Undercurrent Submesoscale Eddy (Cuddy)*

## OUTREACH & VOLUNTEERING

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- Letters to a Pre-Scientist 2020 –  
*Pen-pal/mentor for letter-writing non-profit with the goal of exposing middle school STEM students to new career pathways*
- MIT: EAPS Mentoring Program 2020 –  
*Mentor to graduate students in the Joint MIT-WHOI Program*
- Orca Bowl: Science Judge 2014–2019  
*High School STEM quiz-bowl competition*
- Pacific Science Center: Polar Science Weekend 2014–2019  
*Annual expo showing ocean exploring instruments to the public*
- Hazel Wolf Elementary 2016 –2019  
*STEM career 'advisor' to middle school students*

## PROFESSIONAL ACTIVITIES

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- Postdoctoral Association: At-Large Member 2020 –  
*Elected member of the WHOI postdoctoral association responsible for organizing and engaging with the WHOI postdoc community. Includes organizing seminars, workshops, panels, and happy-hours.*
- Reviewer for Journal of Geophysical Research: Oceans
- Reviewer for Journal of Marine Systems
- UW College of the Environment: Student Advisory Committee Member 2017 –2018  
*Oceanography graduate student representative in the council serving as liaison between students and faculty/administration*

## AWARDS

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- Liege Colloquium: Jacques Nihoul Poster Award (2016)