Erin K. Peck

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**I. EDUCATION**

**Ph.D., Oregon State University, Corvallis, OR June 2021**

College of Earth, Ocean, & Atmospheric Sciences (CEOAS)

Major: Ocean, Earth, & Atmospheric Sciences

Discipline: Ocean Ecology & Biogeochemistry

Minor: Risk & Uncertainty Quantification in Earth Systems

Advisor: Dr. Robert A. Wheatcroft

GPA: 3.97

**Graduate Certificate in College & University Teaching September 2019**

Graduate School, Oregon State University, Corvallis, OR

GPA: 4.0

**M.S., Oregon State University, Corvallis, OR June 2017**

CEOAS

Major: Ocean, Earth, & Atmospheric Sciences

Discipline: Ocean Ecology & Biogeochemistry

Advisor: Dr. Robert A. Wheatcroft

GPA: 3.95

**B.A., Franklin & Marshall College, Lancaster, PA May 2014**

Major: Environmental Science Minor: Geoscience

Magna Cum Laude

GPA: 3.85

**II. FELLOWSHIPS & GRANTS**

**National Science Foundation Research Traineeship (NRT) Fellow** in Risk & Uncertainty Quantification in Marine Science at Oregon State University (2019 - 2020); 1-year stipend ($34,000), tuition, & fees

Worked in a transdisciplinary group including Jasmine King (environmental policy scientist), Rosemary Pazdral (hydrologist), and Emerson Webb (statistician), studying the socio-ecogeomorphological connectivity of Oregon estuaries and watersheds and the vulnerability of these systems to climate and land-use change.

**The Geological Society of America Award for Geochronology Student Research** (AGeS2) (2019 - 2020); $9,447

Worked with Tom Guilderson at Lawrence Livermore National Laboratory to quantify salt marsh reemergence rates following the 1700 Cascadia Subduction Zone earthquake using high sample density radiocarbon dating and Bayesian age-depth modeling.

**Oregon Sea Grant Robert E. Malouf Marine Studies Scholarship** (2018-2019); $10,800

Developed and implemented a series of hands-on learning activities using Oregon salt marsh sediment cores with tsunami deposits for under-represented K-12 students from Oregon public schools.

**Oregon Sea Grant Omnibus Grant** (2016 - 2018)

“Competing Effects of Relative Sea-Level Rise and Fluvial Inputs on Blue Carbon Sequestration in Oregon Salt Marshes” (R/HBT-21-Wheatcroft) Co-PIs: Robert A. Wheatcroft & Laura S. Brophy

**III. PEER REVIEWED PUBLICATIONS**

**Peck, E.K.**, R.A. Wheatcroft, & L.S. Brophy. (*in prep*). Ecogeomorphics of Oregon tidal saline wetlands.

**Peck, E.K.**, T.P. Guilderson, M.H. Walczak, & R.A. Wheatcroft. (*in review*). Recovery rate of a salt marsh from the 1700 CE Cascadia Subduction Zone earthquake, Netarts Bay, Oregon.

**Peck, E.K.** & R.A. Wheatcroft. (*in review*). Spatiotemporal variation in Oregon salt marsh expansion and contraction.

Buser-Young, J., **E. Peck**, P. Chase, L. Lapham, & F. Colwell. (*in review*). Biogeochemical dynamics of a changing high-latitude wetland. *Frontiers in Earth Science.*

Lewis, E., Inamdar, S., Gold, A. J., Addy, K., Trammell, T. L., Merritts, D., ... & **Peck, E.** (2021). Draining the landscape: How do nitrogen concentrations in riparian groundwater and stream water change following milldam removal? *Journal of Geophysical Research: Biogeosciences*.

Ewton, E., S. Klasek, **E. Peck**, & F. Colwell. (*2021*). Microbial community characteristics largely unaffected by X-ray computed tomography of sediment cores. *Environmental Science & Technology Letters.*

**Peck, E.K.**, R.A. Wheatcroft, & L.S. Brophy. (2020). Controls on sediment accretion and blue carbon burial in salt marshes: Insights from the Oregon coast, USA. *Journal of Geophysical Research: Biogeosciences*.

de Wet, C.B., A. Moser, K. Oxman, & **E.** **Peck.** (2015). Semi-arid and cyclic carbonates; deposition and diagenesis of the Middle Cambrian Buffalo Springs Formation, Morgantown, Pennsylvania, USA. *PA Geology*.

**IV. CONFERENCES**

*AGU Fall Meeting, San Francisco, CA (virtual) December 2020*

Presentation – Linking salt marsh lateral change with vertical accretion: Insights from the Oregon coast, USA

*GSA Annual Meeting, (virtual) October 2020*

Presentation – Rate of salt marsh reemergence following the 1700 Cascadia Subduction Zone Earthquake

*CERF 25th Biennial Conference, Mobile, AL November 2019*

Poster – Time-varying drivers of tidal wetland sediment accumulation over the last century measured using biogeochemical proxies

*AGU Fall Meeting, Washington, DC December 2018*

eLightning Presentation – Controls on sediment accretion and blue carbon burial in salt marshes: Insights from the Oregon coast (Abstract ID: 441159)

*State of the Coast, Coos Bay, OR October 2018*

Poster – Changing sediment and blue carbon accumulation recorded in Oregon salt marshes

*AGU Fall Meeting, San Francisco, CA December 2016*

Poster - Influence of sea level rise on tidal wetland sediment and carbon accumulation under differing fluvial sediment supply in the Pacific Northwest (Abstract ID: 180433)

*ARCS Annual Luncheon October 2016*

Poster – Influence of sea level rise on tidal wetland carbon and sediment accumulation under differing sediment supplies

*CERF 23rd Biennial Conference, Portland, OR November 2015*

Poster - Quantifying sediment and carbon accumulation in Oregon tidal wetlands (Abstract ID: 0480-000886)

**V. TECHNICAL REPORTS**

Brophy, L.S., **E.K. Peck**, S.J. Bailey, C.E. Cornu, R.A. Wheatcroft, L.A. Brown, & M.J. Ewald. (2018). Southern Flow Corridor effectiveness monitoring, 2015-2017: Sediment accretion and blue carbon. Prepared for Tillamook County and the Tillamook Estuaries Partnership, Tillamook, Oregon, USA. Corvallis, Oregon: Institute for Applied Ecology.

Brophy, L.S., L.A. Brown, M.J. Ewald, & **E.K. Peck.** (2017). Baseline monitoring at Wallooskee-Youngs restoration site, 2015, Part 2: Blue carbon, ecosystem drivers and biotic responses. Corvallis, Oregon: Institute for Applied Ecology.

Brophy, L.S., L.A. Brown, M.J. Ewald, & **E.K. Peck.** (2015). Baseline monitoring at Wallooskee-Youngs restoration site, 2015, Part 1: Blue carbon and channel morphology. Corvallis, Oregon: Institute for Applied Ecology.

**VI. HONORS & AWARDS**

* CEOAS Student Travel Award (2019); $200
* Coastal & Estuarine Research Federation (CERF) Student Travel Award (2019); $300
* The Coastal Society Second Place Student Poster Award (2019); $100
* State of the Coast Runner-Up Student Poster Award (2018)
* Oregon Sea Grant Scholars Travel Award (2018); $500
* Murray Levine Memorial Fund for Teaching Assistant Excellence (2016); $500
* Achievement Rewards for College Scientists Scholar Award (2014 - 2017); $18,000
* Phi Beta Kappa Society (2014 - Present)
* Franklin & Marshall Environmental Science Award (2014); $500
* Lloyd S. Yeakel Memorial Award in Geology for outstanding performance in the field of sedimentology (2013); $500

**VII. INVITED SEMINARS**

*University of Washington ‘Seismolunch’ Seminar (Seattle, WA; virtual) December 2020*

“Creating a high-resolution chronology to determine intertidal accommodation space-filling after the 1700 Cascadia Subduction Zone earthquake”

*Oregon Sea Grant (OSG) Coffee with Colleagues (Corvallis, OR; virtual) May 2020*

“Outreach as an OSG Malouf Scholar and results from my OSG-funded research: Controls on sediment accretion and blue carbon burial in Oregon tidal saline wetlands”

*CEOAS Ocean Ecology & Biogeochemistry Seminar (Corvallis, OR) January 2020*

“Results from my recently published paper: Controls on sediment accretion and blue carbon burial in tidal saline wetlands: Insights from the Oregon coast”

*USGS Brownbag Seminar Series (Portland, OR) October 2018*

“Controls on sediment accretion and blue carbon burial in tidal saline wetlands: Insights from the Oregon coast”

**VIII. RESEARCH EXPERIENCE**

**Oregon State University**, Corvallis, OR

*Graduate Research (Dr. Robert Wheatcroft) Fall 2014 - Present*

* Impacts of relative sea-level rise and fluvial inputs on carbon and sediment accumulation in Oregon estuaries

*Collaborator – Institute for Applied Ecology (Laura Brophy) Jan. 2015 - Mar. 2016*

* Goals: (1) quantify carbon accumulation rates at tidal wetland restoration sites and nearby least-disturbed reference sites in Tillamook Bay and Youngs Bay estuaries of Oregon through carbon stock and sediment accumulation analysis on sediment cores, (2) estimate the carbon losses that occurred when the restoration sites were diked and drained, and (3) predict the post-restoration carbon sequestration capacity of the restoration sites

*Research Assistant – South Slough NERR (Craig Cornu) Nov. 2014 - Feb. 2015*

* Assisted PNW coastal blue carbon researchers to develop a collaborative research framework and subsequent research proposals

**Franklin & Marshall College**, Lancaster, PA
*Research Student – Earth & Env. Dept. (Dr. Robert Walter) Fall 2013 – Spring 2014*

* Completion of sediment fingerprinting through the use of Bayesian statistics on compositionally adjusted data

*Hackman Summer Research Scholar – Earth & Env. Dept. (Dr. Robert Walter) Summer 2013*

* Worked to identify the sources of sediment runoff into streams through geochemical sediment fingerprinting with the ultimate goal of aiding in the mitigation of fine-grain, suspended sediment polluting the Chesapeake Bay
* Determined element compositions of source soils and suspended sediment by partial acid digestion and ICP-OES

*Research Student - Chemistry Dept. (Dr. Jennifer Morford) Spring 2013*

* Refined a method for identifying thiols through sample preparation in a glove box and analysis using HPLC with fluorescence detection and ESMS that can be used to determine thiols in sulfidic salt marsh pore water

*Hackman Summer Research Scholar - Chemistry Dept. (Dr. Jennifer Morford) Summer 2012*

* Identified various thiols and trace metals in sulfidic salt marsh pore water from Great Bay (NH) using HPLC with fluorescence detection, and ICP-OES with the ultimate goal of understanding the role of trace metals in the mobilization of thiols within coastal marine sediments

*Laboratory Assistant - Biology Dept. (Dr. Carl Pike) Spring 2012*

* Studied the physiological responses of various plant species grown under elevated carbon dioxide through the analysis of leaf C:N through CHN Analyzer and measurement of root biomass

**IX. TEACHING EXPERIENCE & PRODUCTS**

*\*Teaching portfolio is available upon request.*

**Peck, E.K.** (published online January 2020). Teach the Earth Activity: Identifying tsunami sand in salt marsh stratigraphy. Science Education Resource Center (SERC) at Carleton College*.* serc.carleton.edu/teachearth/activities/234763.html

*Graduate Teaching Assistant – Oregon State University, Corvallis, OR Fall 2014 – Present*

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| --- | --- | --- | --- | --- |
| Course No. | Title | Credit Hour | No. of Students | Term/Year |
| eGEO 300 | Sustainability for the Common Good | 3 | 49 | F14 |
| eOC 103 | Exploring the Deep/Geog. of World Oceans | 4 | 48 | F14 |
| OC 201 | Oceanography | 4 | 48 | W15 |
| OC 201 | Oceanography | 4 | 17 | S15 |
| OEAS 500 | Cascadia Field Course | 4 | 18 | F15 |
| OC 201 | Oceanography | 4 | 24 | W16 |
| OC 103 | Exploring the Deep/Geog. of World Oceans | 4 | 50 | SR16 |
| OEAS 500 | Cascadia Field Course | 4 | 16 | F16 |
| OEAS 520 | The Solid Earth | 4 | 13 | F16 |
| OEAS 520 | The Solid Earth | 4 | 21 | W18 |
| OEAS 520 | The Solid Earth | 4 | 16 | W19 |
| OC 499 | Geological Oceanography | 4 | 25 | SR19 |
| eOC 103 | Exploring the Deep/Geog. of World Oceans | 4 | 20 | SU19 |
| OEAS 540 | The Biogeochemical Earth | 4 | 30 | F20 |
| OEAS 520 | The Solid Earth | 4 | 15 | W21 |
| OC 499 | Geological Oceanography | 4 | 25 | SR21 |

*Tutor* – *Franklin & Marshall College, Lancaster, PA Spring 2014*

Sedimentology & Stratigraphy

**X. OUTREACH EXPERIENCE**

*Oregon Sea Grant Growing Engineers and Marine Scientists Webinar December 2020*

Engaged with 6th – 12th graders about my research and experiences as a woman in marine science.

*OSU Marine & Geology Repository Grand Opening January 2020*

Spoke with Oregon community members about Oregon salt marshes ecosystem services and vulnerability to sea level rise and landscape alteration

*Sitka Sedge Technical Team Meeting October 2019*

As an expert scientist, spoke with the Sitka Sedge Technical Team and members of the Tierra Del Mar community about restoration options for a faulty tide gate in the southern portion of Sand Lake Estuary

*Corvallis da Vinci Days July 2019*

Designed and delivered a booth with the goal of communicating to Corvallis community members how Oregon’s salt marshes record the history of Cascadia Subduction Zone earthquakes and tsunami

*OSU’s SMILE Spring Challenge Event April 2019*

Designed and implemented a series of hands-on learning activities for K-12 students organized by OSU’s Science & Math Investigative Learning Experiences (SMILE) program. SMILE seeks to provide underrepresented Oregon K-12 students with pathway programs to degrees and careers in STEM. My activities guided ~60 high school students, ~100 elementary school students, and ~25 K-12 teachers in the SMILE program through an activity investigating organic carbon burial in salt marsh cores at the OSU Marine Geology Repository.

*Hatfield Marine Science Day April 2019*

Designed and delivered a booth with the goal of communicating to Oregon coastal community members how Oregon’s salt marshes record the history of Cascadia Subduction Zone earthquakes and tsunami

**XI. ORGANIZATIONS & COMMITTEES**

*Lead Organizer:*

CEOAS Assoc. of Grad. Students Professional Dev. Group *Fall 2019 - Spring 2020*

CEOAS Ocean Ecology & Biogeochemistry Grad Night *Fall 2017 - Fall 2019*

*Member:*

Unpacking Diversity CEOAS Professional Learning Community *Fall 2019 - Present*

CEOAS Promotion & Tenure Graduate Student Evaluation Committee *Fall 2018*

CEOAS Academic Mentoring Program *Winter 2018*

CEOAS Communication Group *Fall 2017 - Winter 2020*

**XII. AD HOC REVIEWER**

Manuscript Peer Reviewer for *Estuaries and Coasts* *Summer 2020*

Application Reviewer for the 2019 Oregon Sea Grant Summer Scholars Program *Spring 2019*

Application Reviewer for the 2018 Oregon Applied Sustainability Experience *Spring 2018*

Manuscript Reviewer for *Limnology and Oceanography: Methods* *Winter 2017*

**XIII. PROFESSIONAL MEMBERSHIPS**

Coastal Estuarine Research Federation *2020 - Present*

The Geological Society of America *2019 - Present*

American Geophysical Union *2016 - Present*

**XIV. RESEARCH KNOWLEGE**

*Software proficiency:* Microsoft Office Products, Adobe Illustrator, Fiji (ImageJ), MATLAB, ArcGIS Pro, ArcGIS Desktop

*Software basics:* R & RStudio, OsiriX

*Laboratory proficiency:* Gamma detection of excess 210Pb & 137Cs, Loss on ignition, Organic carbon & nitrogen analysis by CNH analysis, Recent organic radiocarbon sample preparation, Stable carbon & nitrogen isotope sample preparation, X-ray fluorescence (XRF) core scanning, Computed tomography (CT) analysis

*Laboratory basics:* Particle size analysis, Glove bag & glove box sample preparation, Partial sediment digestion, ICP-OES

*Field proficiency:* Salt marsh sediment core collection techniques, RTK GPS