

Laura K. Glastra

Ph.D. Student of Physical Oceanography at the University of Rhode Island's Graduate School of Oceanography

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Education:

University of Rhode Island, Graduate School of Oceanography (Sept. 2019-Present)

- Ph.D. in Physical Oceanography

Pacific Lutheran University (Sept. 2015-May 2019)

- Bachelor of Science in Chemistry with Biochemistry emphasis and American Chemical Society certification
- Bachelor of Arts in Physics
- Minor in Mathematics

Ocean Research College Academy/Everett Community College (Sept. 2013-June 2015)

- Associate of Arts and Sciences degree (graduated with high honors)

Research Experience:

Research at University of Rhode Island (Sept. 2019-Present)

- Analysis of noble gas behavior at liquid-ice interfaces in seawater, specifically in conditions relevant to the Antarctic's Ross Sea polynya
- Identification of microplastic species obtained from Arctic ice cores during the Northwest Passage Project

Research at Pacific Lutheran University (June 2017-May 2019)

- Heavy metal analysis (Pb, Cd, As, Zn) of mussel tissue via microwave digestion and ICP-MS analysis
- Assessing legacy effects of the American Smelting and Refining Company (ASARCO) in Puget Sound
- Adsorption of heavy metals to microplastics in estuarine systems

Ocean Research College Academy (Sept. 2013-May 2015)

- Spatiotemporal analysis of nutrient levels (NO₂, NO₃, NH₄, PO₄) on zooplankton and phytoplankton populations from anthropogenic run-off in the Possession Sound estuary
- Spatiotemporal analysis of heavy metals (As, Pb, Mn, Ni) in Possession Sound

Laboratory Experience:

- Agilent Technologies 7500ce ICP-MS on aqueous samples and solids EPA SW846 and 200 series methodologies
- PerkinElmer NexION 350 ICP-MS on digested samples EPA methods 3051A and 3052
- PerkinElmer Titan MPS Microwave Sample Preparation System EPA methods 3051A and 3052
- WITec Alpha300 R confocal Raman microscope
- Organic Carbon Analyzer by combustion Shimadzu TOC-VCSH for drinking water samples (EPA 415.3)
- YSI-650, Niskin bottle, and sediment grab operation
- UV/Vis Spectrophotometry
- Cold Vapor Analyzer for Hg CETAC Quick Trace M-7600 (EPA 245.1/7470/7471)
- Hach field colorimeter for nutrient (NH₃, NO₂, NO₃) analysis of wastewater process
- Color Analysis SM2120B
- Cary 5000 UV/VIS/NIR
- Waters Preparative Liquid Chromatography
- Percent Total Solids, Total Suspended Solids EPA 160 series
- Perkin Elmer FTIR analysis of solid, liquid, and gas phase samples
- Aminco Bowman 2 Spectrofluorometer
- 500 MHz Bruker NMR operation and troubleshooting
- Changing between Argon tank for ICP-MS utilization
- Analysis of data from aforementioned instruments and ability to independently troubleshoot instrumentation and analytical methods

Software Experience:

Operating Systems: Microsoft Windows XP/Vista/7/8/8.1, Macintosh OS/OS X, Linux

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Software and Coding: Python, LaTeX, MATLAB, ChemStation/Masshunter Hybrid, ChemDraw, LoggerPro, ACD/NMR Processor Academic Edition, IgorPro, CoCalc/SageMath, CCP4 Molecular Graphics, ApE (A plasmid Editor), Microsoft Office 2003-2018/XP

Professional Experience:

Graduate Assistantship (Sept. 2019-Present)

- Graduate Research Assistant in Geotracer Kitchen laboratory at University of Rhode Island, funded through the Polynyas, Ice Production, and seasonal Evolution in the Ross Sea (PIPERS) program (Sept. 2019-Present)

Teaching Assistantships (Feb. 2016-May 2019)

- Organic Chemistry Teaching Assistant (Feb. 2016-May 2019)
- General Chemistry Teaching Assistant (June-July 2018)
- Physical Chemistry Teaching Assistant (Sept.-Dec. 2018)

Stockroom Worker at PLU (Feb. 2016-2018)

- Maintain knowledgeable understanding of chemistry lab techniques and stockroom layout/inventory
- Prepare materials and reagents for general, environmental, nursing, and organic chemistry lab sections
- Maintain general safety and organization of stockroom and open laboratory areas
- Management and preparation of chemical waste for proper disposal

Chemistry Intern at Everett Environmental Lab (Mar.-Aug. 2015)

- Data entry into LIMS
- Instrumentation with ICP-MS, organic carbon analyzer, UV/Vis spectrophotometer, cold vapor analyzer for Hg, Hatch field colorimeter for nutrient analysis, color analysis, % total solids
- Instrument tuning, optimization, and troubleshooting of Agilent 7500CE ICP-MS
- Removal, cleaning, drying, and reassembly of torch assembly, lens set, cone set, and Octopole Reaction System on Agilent 7500CE ICP-MS

Honors, Awards, Memberships, Fellowships:

- NASA Rhode Island Space Grant Graduate Fellow (2020)
- Certified completion of Diversity and Inclusion Badge Training Program at URI (Sept. 2019-Dec. 2019)
- Recipient of Faculty Scholarship from PLU resulting in \$80,000 of academic funding (2015-Present)
- Dean's List 4 semesters
- American Chemical Society (ACS) member (2017-Present)
- American Physical Society (APS) member (2018-Present)
- American Geophysical Union (AGU) member (2020-Present)
- Recipient of Community Service Award in 2013 awarded by mayor of Mukilteo (Jennifer Gregerson)

Oral presentations:

- Speaker at Bay Informed Discussion Series on heavy metals found in Puget Sound mussels and microplastics found in Arctic ice cores during the Northwest Passage Project (Feb. 2020)
- Speaker at Pacific Lutheran University's Chemistry Symposium on legacy heavy metals from the American Smelting and Refining Company found in Puget Sound mussels (May 2019)
- Speaker at Pacific Lutheran University's Physics Symposium on modelling the adsorption of heavy metals to microplastics in estuarine systems (May 2019)
- Speaker at Possession Sound Student Showcase and Talks (PSSST) Conference on nutrient levels in the marine environment (June 2014)

Poster presentations:

- Poster presenter at the American Physical Society's Conference for Undergraduate Women in Physics (CUWiP) on method for analysis of microplastics as a vector for Pb and Cd in Puget Sound (Jan. 2019)
- Poster presenter at Pacific Lutheran University on Hawking Radiation and particle tunneling at the event horizon of black holes (May 2018)
- Poster presenter at University of Washington Undergraduate Research Symposium on nutrient levels in estuarine systems (May 2014)

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Communications:

- Applications and modelling of O₂, N₂, and Ar transport through bubble-mediated gas exchange in the Antarctic Ross Sea Polynya (Air-Sea Interactions)
- Identification of microplastic species obtained from Arctic ice cores during the Northwest Passage Project (Chemical Engineering, Interfaces and Colloids)
- Analyzed legacy heavy metal (As, Cd, and Pb) concentrations from the American Smelting and Refining Company in Puget Sound mussels (Chemistry thesis)
- Modeled adsorption of Cd and Pb to microplastics in estuarine conditions (Physics thesis)
- Developed an analytical method to analyze microplastics as a vector for Pb and Cu in estuaries (Analytical Chemistry)
- Review of the structure and function of the 5-HT_{2A} serotonin receptor and its response to lysergic acid diethylamide (Biochemistry 1)
- Wiki Article review of the metabolic pathways and mechanisms involved in hemochromatosis (Biochemistry 2)
- Poster on analysis of NMR spectra to determine what type of three-spin AX₂/AB₂ system they fit based on chemical shifts and coupling constants (Quantum Mechanics/Physical Chemistry 2)
- Review and poster on Hawking Radiation and particle tunneling at event horizons of black holes (Modern Physics)
- Review and presentation on non-homogeneous electromagnetic fields in the nervous system (Electromagnetic Theory)

Activities:

- Co-organizer of Physical Oceanography Seminars at URI's Graduate School of Oceanography (Jan. 2020-Present)
- Communications Chair of the Graduate Assistants United at URI (May 2020-Present)
- Co-organizer of the Bay Informed Discussion Series at URI's Graduate School of Oceanography (Nov. 2019-Present)
- President of the Scandinavian Club at Pacific Lutheran University (May 2017-May 2019)
- Participant in National Ocean Sciences Bowl competitions (2013- 2015)
- International Project Manager of Hugs for Ghana – a student run 501(c)(3) non-profit organization (2013-2015)
- Chief Creative Officer of Blueout – an application development company (October 2014-2016)
- Math tutor at Everett Community College (October 2014-June 2015)

Service to the Community:

Volunteer for Islands Oil Spill Association (IOSA) (2015-2019), volunteer at Trinity Lutheran Food Pantry (2015-2016), volunteer at Special Olympics Basketball tournament in Tacoma, WA (Feb. 2016), coordinating efforts for increasing JEDI (justice, equity, diversity, and inclusion) initiatives at the University of Rhode Island's Graduate School of Oceanography and in the local community