

Dr. Angela K. Boysen

(she/her)

Assistant Professor

Chemistry Department

Pacific Lutheran University, Tacoma, WA

aboysen@plu.edu

EDUCATION

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| 2020 | Ph.D. in Chemical Oceanography
University of Washington. Advised by Dr. Anitra Ingalls.
Thesis: Marine microbial metabolomics: a journey through time, space, and metabolism |
| 2017 | Master of Science in Chemical Oceanography.
University of Washington. Advised by Dr. Anitra Ingalls.
Thesis: Marine metabolomics: overcoming analytical challenges to reveal microbial community dynamics. |
| 2011 | Bachelor of Science in Chemistry with Distinction. Stanford University. |

ACADEMIC APPOINTMENTS

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| 2022 – present | Assistant Professor , Chemistry Department, Pacific Lutheran University, Tacoma, WA. |
| 2021 – 2022 | Postdoctoral Scholar , Department of Geophysical Sciences, University of Chicago, Chicago, IL. Advised by Dr. Jacob Waldbauer |
| 2021 | Lecturer , School of Oceanography, University of Washington, Seattle, WA. |
| 2014 – 2020 | Graduate Research Fellow , School of Oceanography, University of Washington, Seattle, WA. Advised by Dr. Anitra Ingalls. |
| 2011 | Intern , Nutritional Ecology Lab, Smithsonian Environmental Research Center. Advised by Dr. Olav Oftedal. |
| 2010 | Summer Student Fellow , Department of Marine Chemistry and Geochemistry, Woods Hole Oceanographic Institution. Advised by Dr. Elizabeth Kujawinski. |
| 2009 | Undergraduate Research Fellow , Energy Resources Engineering Department, Stanford University. Advised by Dr. Jennifer Wilcox. |

TEACHING EXPERIENCE

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| 2022 – present | Pacific Lutheran University, Tacoma, WA
CHEM 115: General Chemistry 1, lecture and lab instructor, Fall 2022, Fall 2023, Fall 2024
CHEM 116: General Chemistry 2, lab instructor, Spring 2023
CHEM 320: Analytical Chemistry, lecture and lab instructor, Spring 2023, Spring 2024, Fall 2024
CHEM 499A: Capstone Seminar 1, instructor, Fall 2023
ESCI 102: General Oceanography, lecture and lab instructor, January 2024 |
| 2016 – 2021 | University of Washington, Seattle, WA
Ocean 295: Marine Organic Chemistry, Instructor, Winter 2020, Winter 2021
Environmental Science. Math Science Upward Bound, Instructor, Summer 2019
Ocean 330: Biogeochemical Cycles, Curriculum development, 2018
Ocean 330: Biogeochemical Cycles, Teaching Assistant, Spring 2017
Ocean 295: Marine Organic Chemistry, Teaching Assistant, Winter 2016 |

- 2016 – 2018 Jane Addams Middle School, Seattle, WA**
Guest teacher, curriculum development. Units on ocean sensor building and data analysis, harmful algal blooms and climate change, fish kills in Hood Canal.
- 2012 – 2013 Oregon Museum of Science and Industry, Portland, OR**
Outdoor Science Instructor

GRANTS, AWARDS AND FELLOWSHIPS

- 2024 L&O Letters Early Career Publication Honor** (valued at \$3,360)
- 2024 NOAA ECOHAB Research Proposal.** Linking the cellular level processes of *Akashiwo sanguinea* to its ecological success as a harmful algal bloom former. PI: A. Pasulka (Cal Poly). Co-PIs: A. Boysen (PLU); M. Harke (GMRI), E. Bockmon (Cal Poly), R. Walter (Cal Poly); Panel Score: Good. Not funded.
- 2021 – 2023 Simons Foundation Postdoctoral Fellow of Marine Microbial Ecology** (\$261,000 over 3 years)
- 2016 – 2020 National Science Foundation Graduate Research Fellow** (3-yr stipend and tuition)
- 2019 Meeting & Travel Award**, UW College of the Environment
- 2019 Best Student Poster**, 2019 Marine Particles and Phycospheres Conference
- 2017 McManus Teaching Award Honorable Mention**, UW Oceanography
- 2014 – 2016 National Science Foundation IGERT Fellow.** *Program on Ocean Change, University of Washington* (2-yr stipend and tuition)
- 2014 – 2017 ARCS Foundation Graduate Fellow** (\$17,500 over three years)
- 2011 Phi Beta Kappa**

PUBLICATIONS († INDICATES EQUAL CONTRIBUTION)

1. Joshua S. Sacks; Carlson, L.; Finch, A.; Ferrer-González, F.; **Boysen, A.**; Heal, K.; Karl, D.; White, A.; Sosa, O.; Ingalls, A. The cycling of glycine betaine and homarine in marine microbial communities: quantitative flux measurements and the role of competitive uptake inhibition. Submitted to *Limnology & Oceanography Letters*.
2. Durham, Bryndan; Johnson, W.; Bannon, C.; Bertrand, E.; Ingalls, A.; Edwards, B.; Apprill, A.; **Boysen, A.**; Bundy, R.; Chen, H.; Ferrer-González, F.; Fiore, C.; Heal, K.; Kuhlish, C.; Liu, S.; Lu, K.; Meke, L.; Pontrelli, S.; Prabavathy, V.; Reigel, A.; Sacks, J.; Schreier, J.; Sekar, J.; Uchimiya, M.; Kujawinski, E. An ecological framework for microbial metabolites in the ocean ecosystem. Submitted to *Limnology & Oceanography Letters*.
3. Joshua S. Sacks; Heal, K.R.; **Boysen, A.K.**; Carlson, L.T.; Ingalls, A.E. (2022) Quantification of dissolved metabolites in environmental samples through cation-exchange solid-phase extraction paired with liquid chromatography–mass spectrometry. *Limnology Oceanography Methods*. doi: 10.1002/lom3.10513.
4. Bryndan Durham; **Boysen, A.K.**; Heal, K.R.; Carlson, L.T.; Boccamazzo, R.; Deodato, C.R.; Qin, W.; Cattolico, R.A.; Armbrust, E.V.; Ingalls, A.E. (2022) Chemotaxonomic patterns in intracellular metabolites of marine microbial plankton. *Frontiers in Marine Science*, 1749. doi: 10.3389/fmars.2022.864796.
5. **Angela K. Boysen**; Durham, B.; Kumler, W.; Key, R.; Heal, K.R.; Carlson, L.T.; Groussman, R.; Armbrust, E.V.; Ingalls, A.E. (2022) Glycine betaine uptake and metabolism in marine microbial communities. *Environmental Microbiology*. 24, 2380-2403. doi: 10.1111/1462-2920.16020.
6. Daniel Muratore†; **Angela K. Boysen†**; Matthew Harke†; Becker, K.; Casey, J.; Coesel, S.; Mende, D.; Wilson, S.; Aylward, F.O.; Eppley, J.M.; Vislova, A.; Peng, S.; Rodriguez, R.; Beckett, S.J.; Armbrust, E.V.; DeLong, E.; Karl, D.M.; White, A.; Zehr, J.; Van Mooy, B.;

Dyhrman, S.; Ingalls, A.E.; Weitz, J., (2022) Complex marine microbial communities partition metabolism of scarce resources over the diel cycle. *Nature Ecology and Evolution*, 6, 218–229. doi: 10.1038/s41559-021-01606-w.

7. **Angela K. Boysen**; Carlson, L.T.; Durham, B.P.; Groussman, R.; Aylward, F.; Ribalet, F.; K.R. Heal; White, A.E.; DeLong, E.; Armbrust, E.V.; Ingalls, A.E. (2021) Particulate metabolites and transcripts reflect diel oscillations of microbial activity in the surface ocean. *mSystems*, 6(3).
8. Katherine R. Heal, Durham, B.P; **Boysen, A.K.**; Carlson, L.T.; Qin, W.; Ribalet, F.; White, A.E.; Bundy, R.M.; Armbrust, E.V.; Ingalls, A.E. (2021) Marine community metabolomes carry fingerprints of phytoplankton community composition. *mSystems*, 6(3).
9. Hannah M. Dawson; Heal, K.R.; **Boysen, A.K.**; Carlson, L.T.; Ingalls, A.E.; Young, J.N. (2020) Potential of temperature and salinity-driven shifts in diatom compatible solute concentrations to impact biogeochemical cycling within sea ice. *Elementa: Science of the Anthropocene*, 8(1).
10. McLachlan, R.; Bolden, I.; **Boysen, A.**; Baker, C. “Harmful Algal Blooms” *Climate Science for the Classroom* edited by Bertram and Biyani, 2019. <https://uw.pressbooks.pub/climate/>.
11. Samuel T. Wilson[†]; Nicholas J. Hawco[†]; Armbrust, E.V.; Barone, B.; Björkman, K.M.; **Boysen, A K.**; Burgos, M.; Burrell, T.J.; Casey, J.R.; DeLong, E.F.; Dugenne, M.; Dutkiewicz, S.; Dyhrman, S.T.; Ferrón, S.; Follows, M.J.; Foreman, R.K.; Funkey, C.P.; Harke, M.J.; Henke, B.A.; Hill, C.N.; Hynes, A.M.; Ingalls, A E.; Jahn, O.; Kelly, R.L.; Knapp, A N.; Letelier, R M.; Ribalet, F.; Shimabukuro, E M.; Tabata, R.K.S.; Turk-Kubo, K.A.; White, A.E.; Zehr, J.P.; John, S.; Karl, D.M. (2019) Kīlauea lava fuels phytoplankton bloom in the North Pacific Ocean. *Science*, 365(6457), 1040-1044.
12. Bryndan Durham; **Boysen, A.K.**; Carlson, L.T.; Groussman, R.; Heal, K.R.; Cain, K.; Morales, R.; Coesel, S.; Morris, R.; Ingalls, A.; Armbrust, E.V. (2019) Sulfonate-based networks between eukaryotic phytoplankton and heterotrophic bacteria in the surface ocean. *Nature Microbiology*, 1-10.
13. **Angela K. Boysen**[†]; Katherine Heal[†]; Carlson, L.T.; Ingalls, A.E. (2018) Best-Matched Internal Standard Normalization in Liquid Chromatography–Mass Spectrometry Metabolomics Applied to Environmental Samples. *Analytical chemistry*, 90 (2), 1363-1369.
14. Elizabeth B. Kujawinski; Kido Soule, M.C.; Valentine, D.L.; **Boysen, A.K.**; Longnecker, K.; Redmond, M.C. (2011) Fate of Dispersants Associated with the Deepwater Horizon Oil Spill, *Environ. Sci. Technol.*, 45 (4), 1298-1306.

CONFERENCE PRESENTATIONS (* DENOTES PLU STUDENT CO-AUTHOR, [†] DENOTES PRESENTING AUTHOR)

1. Ashley Fairbanks^{*†}; **Boysen, A.K.** Does Nutrient Limitation and UV Stress Influence Metabolite Production in Marine Phytoplankton? Talk presented at the 2024 Murdock College Science Research Conference. Nov 8, Vancouver, WA.
2. Lydia Flaspohler^{*†}; **Boysen, A.K.** Investigating the Effects of Salinity Manipulation on the Phytoplankton Species *Tisochrysis lutea*. Poster presented at the 2024 Murdock College Science Research Conference. Nov 8-9, Vancouver, WA.
3. Jacob Waldbauer[†]; Coleman, M.; Dürschlag, J.; Zimmerman, A.E.; **Boysen, A.K.** Isotope-tracking proteomics reveals nitrogen allocations in marine microbial communities. 2024 Ocean Sciences Meeting. February 2, 2024, New Orleans, LA.

4. Lydia Flaspohler^{*†}; **Boysen, A.K.** Investigating the Effects of Salinity Manipulation on the Phytoplankton Species *Tisochrysis lutea*. Poster presented at the 2023 Murdock College Science Research Conference. Nov 10-12, Vancouver, WA.
5. Ryan Fisher^{*†}; **Boysen, A.K.** The Impact of Nitrogen Concentration on the Fatty Acid Production of Marine Microorganisms. Poster presented at the 2023 Murdock College Science Research Conference. Nov 10-12, Vancouver, WA.
6. **Angela K. Boysen**[†]; Waldbauer, J. *Synechococcus* strains show differential proteome response to nitrogen substrate switching and starvation. Talk presented at the 2023 Aquatic Sciences Meeting. June 4-9, Palma de Mallorca, Spain.
7. Rebecca Key[†], Coesel, S. Gradoville, M.; Lambert, B.; **Boysen, A.K.**; Carlson, L.; Morales, R.; Zehr, J.; Ingalls, A.E.; Armbrust, E.V.; Durham, B.P. Latitudinal Diversity Gradient and Ecological Drivers of Marine Picophytoplankton in the North Pacific Ocean. Poster presented at the 2023 Aquatic Sciences Meeting. June 4-9, Palma de Mallorca, Spain.
8. Bryndan Durham[†], R. Key, L. Meke, **A.K. Boysen**, L. Carlson, L. Covone, S. Coesel, R. Groussman, L. Burchill, S. Williams, E.V. Armbrust, A. Ingalls. Distribution and cycling of organic sulfur metabolites that mediate phytoplankton-bacterial networks. Talk presented at the 2023 Aquatic Sciences Meeting. June 4-9, Palma de Mallorca, Spain.
9. **Angela K. Boysen**[†]. Chemical Currencies of Marine Microbes in the North Pacific Ocean. Thompson Hall Science and Mathematics (THSM) Seminar series, University of Puget Sound, Tacoma, WA. February 9, 2023.
10. **Angela K. Boysen**[†]. Chemical currencies of the marine microbial world. Chemistry department seminar, Pacific Lutheran University, Tacoma, WA. Oct 31, 2022.
11. **Angela K. Boysen**[†] and J. Waldbauer. Multiple choice: the metabolic consequences of nitrogen source switching in *Synechococcus*. Poster presented at the 2022 Marine Microbes Gordon Research Seminar and Gordon Research Conference. May 28 - June 3. Les Diablerets, Switzerland.
12. **Angela K. Boysen**[†], B.P. Durham, K.R. Heal, A.E. Ingalls, and J. Waldbauer. Dissolved organic nitrogen uptake and use by natural microbial communities and model picocyanobacteria. Talk presented at the 2022 Ocean Sciences Meeting. February 24 - March 4. Virtual.
13. **Angela K. Boysen**[†], Marine microbial metabolomics: a journey through time, space, and metabolism. Talk presented at the Dissertations Symposium in Chemical Oceanography XXVII. October 17-21, 2021; Lihue, HI.
14. **Angela K. Boysen**[†], Heal, K.R.; Durham, B.P., Carlson, L.T.; Groussman, R.D.; Armbrust, E.V.; Ingalls, A.E. Particulate metabolites of the North Pacific reflect microbial community composition and activity. Poster presented at the 2021 Ocean carbon and biogeochemistry workshop. Summer 2021. Virtual.
15. **Angela K. Boysen**[†]; Heal, K.R.; Gradoville, M.R.; Hawco, N.; Durham, B.P.; Groussman, R.D.; Carlson, L.T.; Pinedo-Gonzalez, P.; Ribalet, F.; Zehr, J.P.; Bundy, R.M.; John, S.; Armbrust, E.V.; Ingalls, A.E. Assessing community metabolism and flexibility: metabolomics and microbial diversity across the North Pacific Transition Zone and in response to nutrient amendments. Talk presented at the 2020 Ocean Sciences Meeting, February 17-21; San Diego, CA.
16. Katherine Heal[†]; **Boysen, A.K.**; Durham, B.P.; Carlson, L.T.; Armbrust, E.V.; Ingalls, A.E.; Bundy, R.M. Chemical and genetic evidence point to arsenic-metabolites underpinning the marine

arsenic cycle. Talk presented at the 2020 Ocean Sciences Meeting, February 17-21; San Diego, CA.

17. Sarah Ellen Johnston[†]; Collins, J.; **Boysen, A.K.**; Soued, C.; Butman, D.E.; Wickland, K.; Sadro, S.; Ingalls, A.E.; Bergamaschi, B.; Windham-Myers, L.; Bogard, M. Planktonic respiration and organic matter cycling using short-term in situ measurements. Poster presented at American Geophysical Union 2019 Fall Meeting, December 9-13; San Francisco, CA.
18. **Angela K. Boysen**[†], Microbial community metabolism in the North Pacific Transition Zone: insights from metabolomics and nutrient amendment experiments. *University of Washington*. Chemical oceanography seminar. Nov 22, 2019.
19. **Angela K. Boysen**[†]; Bolden, I.W.; Baker, C.; McLachlan, R. A phenomenon based climate science curriculum for middle-school classrooms: Harmful Algal Blooms, Society, and Climate Change. Poster presented at the Earth Educators' Rendezvous. July 15-19, 2019; Nashville, TN.
20. **Angela K. Boysen**[†]; Heal, K. R.; Carlson, L. T.; Ingalls, A.E. Clues into microbial community and activity: particulate metabolites change over the diel cycle and across a natural oceanographic gradient in the North Pacific. Poster presented at the Marine Particles and Phycospheres Conference. May 19-23, 2019; Ascona, Switzerland.
21. Matt Bogard[†]; Collins, J.; **Boysen, A.K.**; Wickland, K.; Sadro, S.; Johnston, S.E.; Ingalls, A.E.; Windham-Myers, L.; Bergamaschi, B.; Striegl, R.G.; Dornblaser, M.; Spencer, R.; Butman, D.E. Exploring planktonic respiration using short-term in situ measurements. Talk presented at the 2019 Society for Freshwater Society annual meeting. May 19-23; Salt Lake City, UT.
22. Bryndan P. Durham[†]; **Boysen, A.K.**; Carlson, L.T.; Groussman, R.D.; Heal, K.R.; Cain, K.R.; Morales, R.L.; Morris, R.M.; Ingalls, A.E.; Armbrust, E.V. The sulfonate cycle; a new trophic link between ocean plankton. Poster presented at the 2018 Marine Microbes Gordon Research Conference, July 1-6; Lucca, Italy.
23. **Angela K. Boysen**[†]; Heal, K.R.; Durham, B.P.; Carlson, L.T.; Armbrust, E.V.; Ingalls, A. A metabolomic survey of marine microbes. Poster presented at the 2018 Annual Conference of the Metabolomics Society. June 24-28; Seattle, WA.
24. Katherine R. Heal[†]; Carlson, L.T.; **Boysen, A.K.**; Durham, B.P.; Armbrust, E.V.; Ingalls, A.E. Metabolite pools in the marine microbiome across a basin-wide oceanographic gradient in the North Pacific. Poster presented at the 2018 Annual Conference of the Metabolomics Society. June 24-28; Seattle, WA.
25. Hannah M. Dawson[†]; **Boysen, A.K.**; Heal, K.R.; Carlson, L.T.; Ingalls, A.E.; Young, J.N., Metabolic response of sea-ice diatoms to shifting temperature and salinity. Poster presented at the Polar 2018 Conference. June 15-26; Davos, Switzerland.
26. **Angela K. Boysen**[†]; Aylward, F.; Durham, B.P.; Carlson, L.T.; Armbrust, E.V.; DeLong, E.; Ingalls, A.E. Diel Patterns in Intracellular Metabolite Pools of the North Pacific Subtropical Gyre Microbial Community Show Linkages Between Gene Expression and Community Activity. Talk presented at the 2018 Ocean Sciences Meeting. February 12-16; Portland, OR.
27. Hannah M. Dawson[†]; **Boysen, A.K.**; Heal, K.R.; Carlson, L.T.; Ingalls, A.E.; Young, J.N. Characterization of compatible solute use in a cultured sea-ice alga, *Nitzschia lecontei*, and in the environmental algal community of Utqiagvik [Barrow], AK using a metabolomics approach. Poster presented at the 2018 Ocean Sciences Meeting. February 12-16; Portland, OR.
28. Bryndan P. Durham[†]; Groussman, R.; **Boysen, A.K.**; Heal, K.R.; Carlson, L. T.; Morales, R.; Coesel, S.; Ingalls, A. E.; Armbrust, E. V. Trophic exchange between eukaryotic phytoplankton

and bacterial taxa revealed through metabolomics and transcriptomics. Poster presented at the 2018 Ocean Sciences Meeting. February 12-16; Portland, OR.

29. Bryndan P. Durham[†]; Carlson, L. T.; **Boysen, A.K.**; Heal, K.R.; Groussman, R.; Morales, R.; Ingalls, A. E.; Armbrust, E. V. Novel organosulfur metabolism in eukaryotic phytoplankton revealed through combined 'omics approaches. Talk presented at the 2018 Ocean Sciences Meeting. February 12-16; Portland, OR.
30. Katherine R. Heal[†]; Carlson, L.T.; **Boysen, A.K.**; Durham, B.P.; Kellogg, N.A.; Lionheart, R.; Armbrust, E.V.; Ingalls, A.E. Metabolite pools across a basin-wide oceanographic gradient in the North Pacific. Poster presented at the 2018 Ocean Sciences Meeting. February 12-16; Portland, OR.
31. **Angela K. Boysen**[†]; Carlson, L.; Aylward, F.; Durham, B.; Delong, E.; Armbrust, E.V.; Ingalls, A. Integrating metabolite and transcript data to study diel cycles of activity in the North Pacific Subtropical Gyre. Poster presented at the 2017 Chemical Oceanography Gordon Research Conference. July 23-28; New London, NH.
32. **Angela K. Boysen**[†]; Carlson, L.; Aylward, F.; Durham, B.; Delong, E.; Armbrust, E.V.; Ingalls, A.E. Integrating metabolite and transcript data to study diel cycles of activity in the North Pacific Subtropical Gyre. Talk presented at the 2017 Chemical Oceanography Gordon Research Seminar. July 22-23; New London, NH.
33. **Angela K. Boysen**[†], Marine metabolomics: overcoming analytical challenges to reveal microbial community dynamics. *University of Washington*. Special chemical oceanography seminar. May 10, 2017.
34. **Angela K. Boysen**[†]; Carlson, L.T.; Wied, A.; Lionheart, R.; Ingalls, A.E. Diel Patterns in Cellular Metabolites Reflect Marine Microbial Interactions. Poster presented at the 2017 American Society of Limnology and Oceanography Aquatic Sciences Meeting. Feb 26-March 3; Honolulu, HI.
35. Bryndan P. Durham[†]; **Boysen, A.K.**; Carlson, L.T.; Ingalls, A.E.; Armbrust, E.V.; Sulfonate Cycling and Signaling Between Marine Phytoplankton and Heterotrophic Bacteria. Talk presented at the 2017 American Society of Limnology and Oceanography Aquatic Sciences Meeting. Feb 26-March 3; Honolulu, HI.
36. Katherine R. Heal[†]; Carlson, L. .; **Boysen, A.K.**; Lionheart, R.M.; Kellogg, N.A.; Ingalls, A.E.; Metabolic Consequences of Cobalamin Starvation in Marine Microbes Revealed Through Metabolomics. Talk presented at the 2017 American Society of Limnology and Oceanography Aquatic Sciences Meeting. Feb 26-March 3; Honolulu, HI.
37. **Angela K. Boysen**[†]; Carlson, L.T.; Ingalls, A.E. Insights into the diel cycles of marine microbes through metabolomics. Poster presented at the 2016 Graduate Climate Conference. Oct 28- 30; Pack Forest, WA.
38. **Angela K. Boysen**[†]; Carlson, L.T.; Hmelo, L.; Ingalls, A.E. Analysis of Particulate and Dissolved Metabolite Pools at Station ALOHA. Poster presented at the 2016 Ocean Sciences Meeting. Feb 22-26; New Orleans, LA.
39. Yina Liu[†]; **Boysen, A.K.**; Kujawinski, E.B. Characterization and fate of crude oil derived water-soluble polar organic components in seawater. Poster presented at the 2014 Gulf of Mexico Oil Spill & Ecosystem Science Conference. January 26-29; Mobile, AL.

40. Olav Oftedal; Ralls, K. †; Tinker, T.; Staedler, M.; **Boysen, A.K.** Can Fatty Acids Be Used to Determine Diet in Seat Otters? Talk presented at the Southern Sea Otter Research Update Meeting, Feb 9, 2012. Santa Cruz, CA.
41. **Angela K. Boysen**†; Kujawinski, E.B. Mass Spectral Analysis of Water Column Samples from a Single Depth Profile Near the Deepwater Horizon Oil Spill. Poster presented at the American Geophysical Union, Fall Meeting 2010. Dec 13-17; San Francisco, CA.
42. Ariel Atkins†; **Angela K. Boysen**†; Wilcox, J. On the Prevention of Trace Metal Emissions from Coal Combustion. Poster presented at the Student Poster Session. American Institute of Chemical Engineers 2009 Annual Meeting. Nov 7-13; Nashville, TN.

PLU RESEARCH STUDENTS

Ashely Fairbanks, Summer 2024
 Lydia Flaspohler, Summer 2023 & Summer 2024
 Ryan Fisher, Summer 2023

RESEARCH CRUISE EXPERIENCE

2019	Gradients 3.0 Cruise , Honolulu, HI on R/V Kilo Moana, 21 days
2018	HOT-LAVA Cruise , Hilo, HI to Honolulu, HI on R/V Ka'imikai-O-Kanaloa, 5 days
2017	Gradients 2.0 Cruise , Honolulu, HI on R/V M.G. Langseth, 18 days
2015	SCOPE/C-MORE HOE Legacy Cruise , Honolulu, HI on R/V Kilo Moana, 13 days
2015	C-MORE Summer Course Cruise , Honolulu, HI on R/V Kilo Moana, 8 days
2014	Hood Canal, WA on <i>R/V Barnes</i> , 1 day
2012	Cascadia Initiative Cruise, Leg 6 , Newport, OR on R/V Oceanus, 11 days

PROFESSIONAL MEMBERSHIP

2023 – Present Member of the American Chemical Society
2015 – Present Member of the American Society for Limnology and Oceanography.
2018 – 2019 Member of the National Association of Geoscience Teachers.
2018 Member of the Metabolomics Society.

UNIVERSITY AND ACADEMIC SERVICE

2022 –Present	PLU Chemistry Department instrument acquisition and maintenance
2024–Present	Steen Family Symposium Organizing Committee
2024	PLU Chemistry Department Hiring Committee
2024	PLU Presidential Scholar Interviewer
2023	PLU Chemistry Department Hiring Committee
Jun 4-9, 2023	Association for the Sciences of Limnology and Oceanography. Multicultural Program Meeting Mentor and Scientific Session Organizer. 2023 Aquatic Sciences Meeting.
2019 – 2020	University of Washington School of Oceanography Committee on Diversity, Equity, and Inclusion
2017 – 2019	University of Washington College of the Environment Committee on Diversity, Equity, and Inclusion
2016 – 2019	University of Washington, Organizing Committee for the Hedges Visiting Scholar Program
2018	University of Washington Marine Biology Major, Director Search Committee
2016	Graduate Climate Conference, Organizing Committee Member, Fundraising Chair, Chair of Biogeochemistry Session, Pack Forest, WA
2016	University of Washington School of Oceanography, Co-chair of the All-Student Educational Retreat
2015	University of Washington the IGERT speaker series, Organizing Committee

Ad hoc Reviewer for *National Science Foundation*; *Murdock Charitable Trust*; *Limnology and Oceanography*; *Limnology and Oceanography Methods*; *Limnology and Oceanography Letters*; *Applied and Environmental Microbiology*; *Journal of Proteome Research*; *Biogeochemistry*; *mSphere*; *Microbiology Spectrum*; *Nature Microbiology*

WORKSHOPS AND ACTIVITIES

Apr 20, 2024	American Chemical Society Puget Sound Undergraduate Research Symposium. Western Washington University, Bellingham, WA.
Mar 21-22, 2024	Biology and Ecology Data Education Network PNW workshop. University of Puget Sound, Tacoma, WA.
Aug 17, 2023	Collaborative Leadership Workshop for Early-Career Academics. Virtual.
Jun 20, 2023	Beginning a Research Program in an Experimental Science Discipline at a Primarily Undergraduate Institution (PUI) workshop. Council on Undergraduate Research. Virtual.
Jun 4-9, 2023	ASLO Multicultural Program Meeting Mentor and Scientific Session Organizer. 2023 Aquatic Sciences Meeting. Palma de Mallorca, Spain.
Apr 25-27, 2022	Simons Early Career & Fellows in Marine Microbial Ecology Meeting, Poster presenter. New York City, NY.
Dec 7-10, 2020	Simons Collaboration on Ocean Processes and Ecology Annual Meeting, Poster presenter. Online.
Jul-Aug, 2020	PR ² ISM workshop series on equity-minded practices for STEM instruction and research. University of Washington, Seattle, WA.
Dec 9-12, 2019	Simons Collaboration on Ocean Processes and Ecology Annual Meeting, Panel discussion participant, Poster presenter. New York, NY.
Oct 15-17, 2019	Simons Collaboration Gradients Program Workshop. Seattle, WA.
Jul 18-19, 2019	Broadening Participation in the Geosciences, Earth Educators' Rendezvous, TSU, Nashville, TN.
Jul 15-17, 2019	Preparing for an Academic Career. Earth Educators' Rendezvous, TSU, Nashville, TN.
Jun 10, 2019	Microaggressions Workshop. UW College of the Environment, Seattle, WA.
Jun 13-15, 2018	Modeling ALOHA with Hierarchical Analysis of the Light-driven Ocean workshops, Georgia Tech, Atlanta, GA.
Oct 29-31, 2018	Modeling ALOHA with Hierarchical Analysis of the Light-driven Ocean workshops. University of Washington, Seattle, WA.
Dec 4-6, 2017	Simons Collaboration on Ocean Processes and Ecology Annual Meeting, Poster presenter. New York, NY.
Sep 13-15, 2017	UW Program on Climate Change Summer Institute, "Climate Change and Population Health". Friday Harbor Labs, WA.
Apr 4, 2017	UW Research Computing eScience Institute Cloud 101 Workshop, Seattle, WA.
Dec 5-7, 2016	Simons Collaboration on Ocean Processes and Ecology Annual Meeting, Poster presenter. New York, NY.
Nov 18, 2016	UW College of the Environment Science Communication Workshop, Seattle, WA.
Sep 14-16, 2016	UW Program on Climate Change Summer Institute, "The Climate of Antarctica and the Southern Ocean", Friday Harbor Labs, WA.
Jul 11-15, 2016	Summer Institute in Statistics for Big Data. UW Department of Biostatistics, Seattle, WA.
Oct 16-18, 2015	UW IGERT Program on Ocean Change Workshop. Friday Harbor Labs, WA.
May 26 – Jun 26, 2015	Center for Microbial Oceanography: Research and Education Summer Course, "Microbial Oceanography: Genomes to Biomes", Student. Honolulu, HI.
Jan 15-16, 2015	UW eScience Software Carpentry Workshop. Seattle, WA.
Oct 10-12, 2014	UW IGERT Program on Ocean Change Workshop. Pack Forest, WA.

OUTREACH

- 2022 – *present*** PLU Mole Day organizer and demo presenter. Tacoma, WA.
- 2014 – 2020** Team lead and trip leader, Sierra Club Inspiring Connections Outdoors, Seattle, WA.
- 2018** Mentor for a high school intern, Pacific Science Center Discovery Corps, Seattle, WA.
- 2018** Guest judge for AP Environmental Science geoengineering project presentations, Lake Sammamish High School, Bellevue, WA.
- 2017 - 2018** Science Communication Fellow at the Pacific Science Center, Seattle, WA.
- 2017** Guest Instructor at Launch Learning at Highland Park Elementary School, Seattle, WA.
- 2015** Volunteer instructor, Ocean Inquiry Project, Seattle, WA.
- 2015** Volunteer instructor, HiveBIO Community Labs, Seattle, WA.
- 2015** Regional ORCA Bowl Volunteer, National Ocean Science Bowl, Seattle, WA.