William Kumler

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## Professional Summary

Ph.D. candidate in chemical oceanography with a focus on marine microbial metabolomics under Dr. Anitra Ingalls. Focusing on automated and untargeted liquid chromatography mass spectrometry with significant development of existing and novel computational tools.

## Education

**Ph.D. in Chemical Oceanography**, University of Washington *2019 - 2025*

**M.Sc. in Oceanography**, University of Washington *2019 - 2023*

**B.A. in Marine Science**, University of California, Berkeley *2014 - 2018*

**B.S. in Molecular and Environmental Biology**, University of California, Berkeley *2014 - 2018*

## Work experience

**Koehl Lab manager**, University of California, Berkeley *2018 - 2019*

* Maintain live cultures of choanoflagellates and various protozoa
* Manage and organize lab members, materials, and safety
* Assist visiting researchers with projects and statistical analyses
* Tutor undergraduates in ImageJ and R programming

**Edwards Lab manager**, University of California, Berkeley *2018 - 2019*

* Laboratory planning and setup
* HPLC-MS (Thermo Fusion Lumos ID-X) sample preparation and analysis
* Data handling, statistical analyses and lipidomics pipeline development, maintenance, and expansion
* One-on-one education of undergraduates in R programming and SLURM cluster architecture

## Publications

* W. Kumler, B.J. Hazelton & A.E. Ingalls (2023). Picky with peakpicking: assessing chromatographic peak quality with simple metrics in metabolomics. BMC Bioinformatics, v.24:404. <DOI:10.1186/s12859-023-05533-4>
* W. Kumler & A.E. Ingalls (2022). Tidy data neatly resolves mass-spectrometry’s ragged arrays. R Journal, v.14:3 p193-202.
* A.K. Boysen, B.P. Durham, W. Kumler, R.S. Key, K.R. Heal, L.T. Carlson, R.D. Groussman, E.V. Armbrust & A.E. Ingalls (2022). Glycine betaine uptake and metabolism in marine microbial communities. Environmental Microbiology, v.24:5 p2380-2403. <DOI:10.1111/1462-2920.16020>
* W.E. Kumler, J. Jorge, P.M. Kim, N. Iftekhar & M.A.R. Koehl (2020). Does Formation of Multicellular Colonies by Choanoflagellates Affect Their Susceptibility to Capture by Passive Protozoan Predators? Journal of Eukaryotic Microbiology, v.67:5 p555-565. <DOI:10.1111/jeu.12808>

In review:

* W. Kumler, W. Qin, R.A. Lundeen, B. Barone, L.T. Carlson & A.E. Ingalls (in review with Frontiers in Marine Science). Metabolites reflect variability introduced by mesoscale eddies in the North Pacific Subtropical Gyre.
* E.A. Seelen, S.J. Gleich, W. Kumler, H.S. Anderson, X. Bian, K.M. Bjorkman, D.A. Caron, S.T. Dyhrman, S. Ferrón, Z.V. Finkel, S.T. Haley, Y. Hy, A.E. Ingalls, A.J. Irwin, D.M. Karl, K.P. Kong, D. Lowenstein, A. Salazar Estrada, E. Townsend, J.C. Tracey, K. Turk-Kubo, B.A.S. Van Mooy & S.G. John (in review with Nature Communications). A tale of two nutrients: how nitrogen and phosphorus differentially control marine biomass production and stoichiometry.

## Conference proceedings

* J. Rainer, P. Louail, A. Vicini, R. Gine, J. Badia, M. Stravs, M. Garcia-Aloy, C. Huber, L. Salzer, J. Stanstrup, N. Shahaf, C. Panse, T. Naake, W. Kumler, P. Vangeenderhuysen, C. Brunius, H. Hecht, S. Neumann, M. Witting, S. Gibb, & L. Gatto (2024). An Open Software Development-based Ecosystem of R Packages for Metabolomics Data Analysis. Presented as a poster at the 2024 Annual International Conference of the Metabolomics Society, Osaka, Japan. <DOI:10.5281/zenodo.13347220>.
* S. Garcia (?) @ GRC
* Y. Wang, W. Kumler, I. Kern, E. Seelen, S.G. John, & A.E. Ingalls (2023). Community metabolomes respond to nutrient supply in a mesocosm study in the North Pacific Subtropical Gyre. Presented as a poster at the 2023 Ocean Sciences Meeting, New Orleans, LA. Poster #OB14B-0682.
* W. Kumler, L.T. Carlson, & A.E. Ingalls plus the PARAGON team (2023). Metabolic fate of dissolved nitrogen in the NPSG. Presented as a poster at the 2023 Ocean Sciences Meeting, New Orleans, LA. Poster #OB14B-0702
* W. Kumler, L.T. Carlson, & A.E. Ingalls plus the PARAGON team (2023). Metabolic fate of dissolved nitrogen during PARAGON. Presented as a poster at the 2023 Simons Collaboration on Ocean Processes and Ecology, New York, NY.
* W. Kumler (2022). Unmasking the POC/Ness Monster: Depth and Mesoscale Features Drive Variability in Particulate Metabolite Profiles of the MESOSCOPE transect. Presented as a virtual poster at the 2022 Simons Collaboration on Ocean Processes and Ecology.
* W. Kumler (2022). Depth, diel, and eddy direction: The effect of three environmental factors on metabolite composition in the North Pacific Subtropical Gyre. Presented as a virtual poster at the 2021 Simons Collaboration on Ocean Processes and Ecology.
* W. Kumler & A.E. Ingalls (2021). RaMS: R-based Access to Mass-Spectrometry Data. Presented as a poster at the 2021 Annual Conference of the Metabolomics Society (virtual). Poster #298.
* W. Kumler, H. Fredricks, J. Ossolinski, A. Allen, K. Thamatrakoln, K. Bidle, B. Van Mooy, & B. Edwards (2019). Sign of the times: the lipid signature of a collapsing phytoplankton bloom. Presented as a poster at the 2019 Aquatic Sciences Meeting (ASLO) in San Juan, Puerto Rico. Poster #411.
* W. Kumler & M.A.R. Koehl (2018). Evolution of multicellularity: Capture of unicellular vs colonial choanoflagellates by a protozoan predator. Presented as a poster at the 2018 Society of Integrative and Comparative Biology Annual Meeting, San Francisco, CA. Poster #P1-115.

## Talks given

* Building a robust model of peak quality for untargeted mass-spectrometry (2023)
  + Seminar given at UW’s Quantitative Science Seminar
  + Seminar given at UW’s eScience Seminar
* Data Visualization (2022)
  + Workshop led at the Graduate Climate Conference
* Profiling R code and identifying bottlenecks (2019)
  + Invited speaker at FSH 507 (Super-advanced R)

## Technical Projects

* R-based Access to Mass-Spectrometry data (RaMS): R package for the reading and tidying of mass-spectrometry data. Available on CRAN (CRAN.R-project.org/package=RaMS) and Github (github.com/wkumler/RaMS).
* Python language gloss of the RaMS package (pylgrams): Python translation of the RaMS package. Available on PyPI (pypi.org/project/pylgrams/) and Github (github.com/wkumler/pylgrams).
* Speedy quality assurance via lasso labeling for untargeted MS data (squallms): R package for simultaneous interactive multi-file annotation of chromatographic feature quality. Available on Bioconductor (bioconductor.org/packages/devel/bioc/html/squallms.html) and Github (github.com/wkumler/squallms)

## Awards

* Achievement Rewards for College Scientists
* Mary C. Landsteiner Student Award

## Mentoring(?)

* Raafay
* Amy
* GAMP

## Volunteering(?)

* Software Carpentries
* SEAS Open House
* PRO-Series(?)
* Data Science Summer School
* Data Science Option

## Fun(?)

* Captain of bowling team
* Reproducible codfish

## References

Available upon request.