NICHOLAS BAETGE

Microbial oceanographer that collects and synthesizes biogeochemical, biooptical, and experimental data to address questions in plankton ecology and carbon cycling.



EDUCATION

2014 21

Ph.D., Marine Science

University of California, Santa Barbara

Thesis: The bioavailability of seasonally accumulated dissolved organic carbon and its contribution to export in the western North Atlantic Committee: Dr. Craig Carlson (Chair), Dr. Alyson Santoro, Dr. Dave

Siegel

2009 13

B.S., Aquatic Biology (Distinction in the Major)

University of California, Santa Barbara

Thesis: Mucosal microbial assemblages of wild and cultured intertidal

Advisors: Dr. Peter Collins and Dr. Craig Carlson



RESEARCH EXPERIENCE

2023 Present

2021

23

2013

14

Postdoctoral Research Fellow

Oregon State University

Postdoctoral Scholar

Oregon State University

Junior Research Specialist

University of California, Santa Barbara



FELLOWSHIPS AND AWARDS

2024 25

American Geophysical Union

Leadership Academy Network for Diversity and Inclusion in the Geosciences (LANDInG) Fellow

2023 25

National Science Foundation Ocean Science Postdoctoral Research Fellowship

Smoke on the water: the impacts of wildfire ash deposition on surface ocean biology (\$300K)

CONTACT INFO

Oregon State University

Depts. Botany and Plant Pathology,

Microbiology

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2503 Cordley Hall

Corvallis, OR 97331

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TRAINING

- ☐ Chief Scientist Workshop (2024)
- NSF-UNOLS travel award
- PACE Hackweek (2024) OCB
- travel award □ Cornell Satellite Remote

Sensing Program (2023) - OCB travel award

☐ Calibration and Validation for Ocean Color Remote Sensing

(2021) - NASA and OCB travel award

☐ Bermuda Institute of Ocean Sciences Microbial Oceanography (2014) - The Starr Foundation travel award

2017	University of California Ship Funds Program Ship time aboard <i>R/V Sally Ride</i> (AGOR-28) Co-I: Dr. Kelsey Bisson (equiv. \$250K)
2019	NASA Group Achievement Award, North Atlantic Aerosols and Marine Ecosystems Study (NAAMES)
2017	University of California, Santa Barbara Coastal Fund Across the Channel: Investigating Diel Dynamics (\$12K)
2017	Bermuda Institute of Ocean Sciences Sydney L Wright Fellowship (\$1K)
2017	University of California, Santa Barbara Coastal Fund Across the Channel: Investigating Diel Dynamics (\$12K)
2014	United States Congress Antarctic Service Medal
2013	University of California, Santa Barbara Department of Geography Leal Ann Kerry Mertes Scholarship (\$1.5K)
2013	University of California, Santa Barbara Coastal Fund Growth, bacterial resilience, and mucosal microbial assemblages of wild and cultured intertidal finfish along the California coast (\$3.5K)
2011, 2012	University of California, Santa Barbara Undergraduate Research and Creative Activities Award (\$1K)

PUBLICATIONS IN PEER-REVIEWED JOURNALS

in review

in prep

2024

2023

Pre-existing in situ conditions shape coastal plankton response to fire-generated ash leachate Baetge, N., Halsey, K.H., Hanan, E.J., Behrenfeld, M.J., Milligan, A.J., Graff, J.R., Hansen, P., Carlson, C.A.,
Boiteau, R.B., Arrington, E.A., Comstock, J., Halewood, E.R., Harvey, E.L., Nelson, N.B., Opalk, K., Very Wey, B. in review. *Limnology and Oceanography*

Molecular delineation and fertilization of dissolved organic matter of Santa Barbara coastal waters during the Thomas Fire (California, USA)

Goranov, A.I., Schmitt, N., Agar, J., Harvey, E., **Baetge, N.**, McNair, H., Arrington, E., Stubbins, A., Wagner, S. in prep.

Physiological and interspecific factors determine diel changes in phytoplankton bio-optical properties

Baetge, N., Halsey, K.H., Graff, J.R., Ver Wey, B., Westberry, T.K., Appel, A.E., Bourdin, G., Begouen Demeaux, C., Boss, E., Behrenfeld, M.J. (2024) *Limnology and Oceanography*, (69)2, 390-407.

Altered growth and death in dilution-based viral predation assays
Knowles, B., Bonachela, J.A., Cieslik, N., Della Penna, A., Diaz, B., Baetge, N., Behrenfeld, M.J., Naumovitz, K.,

Knowles, B., Bonachela, J.A., Cieslik, N., Della Penna, A., Diaz, B., **Baetge, N.**, Behrenfeld, M.J., Naumovitz, K. Boss, E., Graff, J.R., Halsey, K.H., Haramaty, L., Karp-Boss, L., Bidle, K.D. (2023) *Plos one*, 18(7), e0288114.

2021

2020

Bacterioplankton Response to Physical Stratification following Deep Convection

Baetge, N., Bolaños, L., Della Penna, A., Gaube, P., Liu, S., Opalk, K., Graff, J., Giovannoni, S., Behrenfeld, M., Carlson, C. (2022) *Elementa: Science of the Anthropocene*. 10(1), 00078.

Bacterioplankton communities reveal horizontal and vertical influence of an Island Mass Effect Comstock, J., Nelson, C., James, A., Wear, E., **Baetge, N.**, Juknavorian, A., Carlson, C. (2022) *Environmental Microbiology*. 24(9), 4193-4208.

Characterization of Sea Surface Microlayer and Marine Aerosol Organic Composition using STXM-NEXAFS Microscopy and FTIR Spectroscopy.

Lewis, S., Russel, L., Saliba, G., Quinn, P., Baters, T., Carlson, C., **Baetge, N.**, Aluwihare, L., Boss, E., Haetjens, N., Frossard, A., Bell, T., Behrenfeld, M. (2022). *ACS Earth and Space Chemistry.* 6(7), 1899-1913.

Seasonal mixed layer dynamics shape phytoplankton physiology, viral infection, and accumulation in the North Atlantic.

Diaz, B., Knowles, B., Johns, C., Laber, C., Bondoc, K.G.V, Harvey, E., Lowenstein, D., Fredricks, J., Haramaty, L., Natale, F., Graff, J., Haentjens, N., Westberry, T., **Baetge, N.**, Mojica, K., Gaube, P., Boss, E., Carlson, C., Behrenfeld, M., Van Mooy, B., Bidle, K. (2021). *Nature Communications*. 12(1), 6634.

Investigating atmospheric inputs of dissolved black carbon to the Santa Barbara Channel during the Thomas Fire (California, USA).

Wagner, S., Harvey, E., **Baetge, N.**, McNair, H., Arrington, E., Stubbins, A. (2021). *Journal of Geophysical Research: Biogeosciences*. 126(8), e2021JG006442.

The Seasonal Flux and Fate of Dissolved Organic Carbon through the Food Web in the Westen North Atlantic.

Baetge, N., Behrenfeld, M., Fox, J., Halsey, K., Mojica, K., Novoa, A., Stephens, B., Carlson, C. (2021). *Frontiers in Microbiology.* 12, 669883.

Seasonality of the microbial community composition in the western North Atlantic.

Bolaños, L., Choi, C.J., Worden, A., **Baetge, N.**, Carlson, C., Giovannoni, S. (2021). *Frontiers in Marine Science*. 8, 624164.

Role of Sea Surface Microlayer Properties in Cloud Formation.

Hendrickson, B., Brooks, S., Thornton, D., Moore, R., Crosbie, E., Ziemba, L., Carlson, C., **Baetge, N.**, Mirrielees, J., and Alsante, A. (2020). *Frontiers in Marine Science*. 7, 596225.

Net Community Production, Dissolved Organic Carbon Accumulation, and Vertical Export in the Western North Atlantic.

Baetge, N., Graff, J. R., Behrenfeld, M. J., & Carlson, C. A. (2020). Frontiers in Marine Science. 7, 227.

California Wildfire Burns Boundaries Between Science and Art.

Bisson, K. M., **Baetge, N.**, Kramer, S. J., Catlett, D., Girling, G., McNair, H., Arrington, E., Hayes, D., Jacobs, C., James, A., Closset, I., Fischer, A., Wagner, S., Reading, M., Comstock, J., Amiri, S., Harvey, E., Carlson, C. Gaube, P., Drushka, K., Valentine, D. (2020). *Oceanography*. 33(1), 16-19.

Different carboxyl-rich alicyclic molecules proxy compounds select distinct bacterioplankton for oxidation of dissolved organic matter in the mesopelagic Sargasso Sea.

Liu, S., Parsons, R., Opalk, K., **Baetge, N.**, Giovannoni, S., Bolaños, L. M., Kujawinski, E.B., Longnecker, K., Lu. Y, Halewood, E., Carlson, C. A. (2020). *Limnology and Oceanography*. 65(7), 1532-1553.

Stable isotope probing identifies bacterioplankton lineages capable of utilizing dissolved organic matter across a range of bioavailability.

Liu, S., **Baetge, N.**, Comstock, J., Opalk, K., Parsons, R., Halewood, E., English, C., Giovannoni, S., Bolanos, L., Nelson, C., Vergin, K., Carlson, C. (2020) *Frontiers in Microbiology.* 11, 2364.

Seasonal Differences and Variability of Concentrations, Chemical Composition, and Cloud Condensation Nuclei of Marine Aerosol over the North Atlantic.

Saliba, G., Chen, C., Lewis, S., Russell. L, Quinn, P., Bates, T., Bell, T., Lawler, M., Saltzman, E., Sanchez, K., Moore, R., Shook, M., Rivellini, L., Lee, A., **Baetge, N.**, Carlson, C., Behrenfeld, M. (2020). *Journal of Geophysical Research: Atmospheres*. 125(19).

Factors driving the seasonal and hourly variability of sea-spray aerosol number in the North Atlantic.

Saliba, G., Chen, C. L., Lewis, S., Russell, L. M., Rivellini, L. H., Lee, A. K., Quinn, P.K., Bates, T.S., Haëntjens, N., Boss, E.S., Karp-Boss, L., **Baetge, N.**, Carlson, C., Behrenfeld, M. (2019). *Proceedings of the National Academy of Sciences*. 116(41), 20309-20314.

The North Atlantic aerosol and marine ecosystem study (NAAMES): science motive and mission overview.

Behrenfeld, M. J., Moore, R. H., Hostetler, C. A., Graff, J., Gaube, P., Russell, L. M., Chen, G., Doney, S.C., Giovannoni, S., Liu, H., Proctor, C., Bolaños, **Baetge, N.**, Davie-Martin, C., Westberry, T.K., Bates, T.S., Bell, T.G., Bidle, K.D., Boss, E.S., Brooks, S.D., Cairns, B., Carlson, C., Halsey, K., Harvey, E.L., Hu, Chuanmin, Karp-Boss, L., Kleb, M., Menden-Deuer, S., Morison, F., Quinn, P.K., Scarino, A.J., Anderson, B., Chowdhary, J., Crosbie, E., Ferrare, R., Hair, J.W., Hu., Y., Janz, S., Redemann, J., Saltzman, E., Shook, M., Siegel, D.A., Wisthaler, A., Marting, M.Y., Ziemba, L. (2019). *Frontiers in Marine Science*. 6, 122.

FIELD AND SEA EXPERIENCE

2019

2015

18

NASA

2024	Early Career Chief Scientist Workshop NSF-UNOLS R/V Kilo Moana, 5 days	♀ 21.75°N, 158°W
2023	Redfield Ratio Oregon State University Redfield Ratio Oregon State University Robert Gordon Sproul, 28 days	♥ 31 - 36°N, 117 - 123°W
2017	Across the Channel: Investigating Diel Dynamics (ACIDD) University of California R/V Sally Ride (AGOR-28), 6 days	◊ 32°N, 119°W
2016 17	Served as Co-Chief Scientist BIOS-SCOPE Simons Foundation International ♣ R/V Atlantic Explorer, 2 expeditions x 4 days each	◊ 31°N, 64°W

9 39°N - 57°N, 40°W

North Atlantic Aerosols and Marine Ecosystems Study (NAAMES)

♣ R/V Atlantis (AGOR-25), 3 expeditions x 26 days each

2014	KM14-16 Moorea Coral Reef-Long Term Ecological Research Network ♣ <i>R/V Kilo Moana</i> (T-AGOR-26), 11 days	♦ 17°S, 150°W
2014	P16S US Global Ship-based Hydrographic Investigations Program <i>■ R/V Nathaniel B. Palmer</i> (icebreaker), 46 days	♀ 17°S - 67°S, 149°W
1	CONFERENCE PRESENTATIONS	
Oct 2022	(Poster) Diel variability in phytoplankton backscattering and cell TOS Ocean Optics	composition
Feb 2020	(Lightning poster) Dissolved organic carbon accumulation and e North Atlantic	
	AGU/ASLO/TOS Sciences Meeting	San Diego, CA
Feb 2018	(Talk) DOC bioavailability and evidence of priming effect in the w AGU/ASLO/TOS Ocean Sciences Meeting, student travel award	restern North Atlantic Portland, OR
Feb 2017	(Talk) Estimating DOC bioavailability with marine bioreactors ASLO Aquatic Science Meeting, student travel award	♥ Honolululu, HI
1	DEPARTMENTAL PRESENTATIONS	
Feb 2024	(Talk) Smoke on the water: the impacts of wildfire ash deposition Department of Microbiology Seminar	on surface ocean biology • Oregon State University
May 2023	(Talk) Illuminating the path: phytoplankton production and its ve	
	Department of Microbiology Seminar	rtical fate ♦ Oregon State University
Nov 2019	Department of Microbiology Seminar (Talk) Net community production, dissolved organic carbon and	Oregon State University
	Department of Microbiology Seminar	Oregon State University
	Department of Microbiology Seminar (Talk) Net community production, dissolved organic carbon and Atlantic	♥ Oregon State University export in the Western North
Nov 2019 Jan 2019	Department of Microbiology Seminar (Talk) Net community production, dissolved organic carbon and Atlantic Department of Geography Biogeosciences Group Seminar (Talk) ROAM-ing on ACIDD	 ◆ Oregon State University export in the Western North ◆ University of California, Santa Barbara
Nov 2019 Jan 2019	(Talk) Net community production, dissolved organic carbon and Atlantic Department of Geography Biogeosciences Group Seminar (Talk) ROAM-ing on ACIDD Department of Geography 264 Seminar	 ◆ Oregon State University export in the Western North ◆ University of California, Santa Barbara

Jun 2018	(Poster) Bacterial remineralization of DOM NAAMES All-Scientists Meeting	◆ Oregon State University (74 participants)
May 2017	(Poster) Bacterial carbon and growth efficiencies in the North NAAMES All-Scientists Meeting (67 participants)	Atlantic ▼ NASA Langley Research Center
Oct 2016	(Poster) Bioavailability and fate of DOM NAAMES All-Scientists Meeting (58 participants)	Oregon State University
Oct 2015	(Poster) NAAMES DOM dynamics, characterization, and bioavan NAAMES All-Scientists Meeting (60+ participants)	ailability ◆ NASA Langley Research Center
R	STUDENT TRAINEES	
2024 Present	Tara Conrad (BSc)	Oregon State University
2023 Present	Parker Hansen (BSc)	Oregon State University
2021 22	Amanda Appel (BSc, Thesis)	Oregon State University
2018 19	Ruby Korpics (BSc, Thesis)	♥ University of California, Santa Barbara
Ť	TEACHING	
May 2024	Guest Lecture (Measuring photosynthesis) Botany and Plant Pathology 480/580	Oregon State University
Jul 2022 24	Mentor and Co-Coordinator Pernot Microbiology High School Summer Camp	Oregon State University
Fall 2018 20	Lead Teaching Assistant Marine Microbiology Laboratory (EEMB 144L)	♥ University of California, Santa Barbara
Fall 2015 16	Teaching Assistant Introductory Biology Laboratory (EEMB 3L)	♥ University of California, Santa Barbara
Jul Aug 2012	Mentor UCSB Summer Sessions: Research Mentorship Program	♥ University of California, Santa Barbara
4	PROFESSIONAL SERVICE	
2021	Field Support NASA EXPORTS (EXport Processes in the Ocean from Remote Sensing	g) Expeditionary Alternate North Atlantic

Ad-hoc Peer Review

Science Advances (1), Aquatic Microbial Ecology (1), ISME (1), mbio (1), Marine Chemistry (1), JGR Biogeosciences (1), Global Biogeochemical Cycles (1, with ECR co-reviewer)

DEPARTMENTAL SERVICE

2020 21	Graduate Student Representative Election Working Group Marine Science Institute Search Committee	♥ University of California, Santa Barbara
2016 18	Committee Member Graduate Student Advisory Committee	♥ University of California, Santa Barbara
2016 17	Coordinator Interdepartmental Graduate Program in Marine Science Seminar Series	♥ University of California, Santa Barbara
2014 17	Social Chair Interdepartmental Graduate Program in Marine Science	♥ University of California, Santa Barbara

ACCESSIBILITY, JUSTICE, EQUITY, DIVERSITY, AND INCLUSION

2024 25	Fellow Leadership Academy Network for Diversity and Inclusion in the	e Geosciences (LANDInG) • American Geophysical Union
2022 23	Member Core Values Committee	Oregon State University
2020 21	Member Marine Science DEI Working Group	University of California, Santa Barbara
2020 21	Participant Unlearning Racism in the Geosciences (URGE)	♥ University of California, Santa Barbara

₱ PUBLIC OUTREACH

Aug 2024 NSF-UNOLS Chief Scientist Workshop Contributor
Scientist Posts

Smithsonian Institution Contributor
A Microbial World

University of California Graduate Student Delegate to California State Assembly

Sacramento, CA

Sisters of the Blue Interviewee

Plankton from Outer Space

Mar 2019

Nov 2017

2016 18	NASA Earth Observatory Notes from the Field Contributor North Atlantic Aerosols and Marine Ecosystems Study (NAAMES)
2017	National Academies Keck Futures Inititaive Contributor Magazine and Documentary