

ALEX BARTH, Ph.D.

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TheAlexBarth.Github.io

RESEARCH EXPERIENCE

2024-	Postdoctoral Researcher, University of Texas, Marine Science Institute + Statistics & Data Science Advisors: Dr. Jordan Casey & Dr. Mevin Hooten
2019-2024	Graduate Research Assistant, Stone Zooplankton Ecology Lab , University of South Carolina Advisor: Dr. Joshua Stone
2017-2019	HAB Sampling Technician, Southern California Coastal Ocean Observing System , Cal Poly Center for Coastal Marine Science. Advisors: Dr. Alexis Pasulka, Dr. Ryan Walter
2018-2019	Student Research Assistant, Common Garden reciprocal cross of <i>K. kelletii</i> , Cal Poly Advisor: Dr. Crow White
2017	Senior Research Project, Investigating a trophic cascade in the upper subtitle Wrigley Institute, Catalina Island. Advisor: Dr. Chris Lowe
2017	Summer Research Assistant, Fishes of Texas , University of Texas at Austin Advisors: Adam Cohen, Dr. Dean Hendrickson

EDUCATION

Ph.D. Biological Sciences, Ecology 2024
University of South Carolina

B.S. Marine Science, Minor Statistics 2019
Cal Poly, San Luis Obispo

TEACHING & OUTREACH EXPERIENCE

Instructor of Record

Fall 2023 Principles of Ecology Lab, University of South Carolina (BIOL570L)
[Archived Course Materials](#)

Workshops, Lectures, & Training Modules

Fall 2024 Spooky Statistics, University of Texas MSI
[A halloween-themed introduction to Bayesian statistics.](#)

Graduate Teaching Assistant (Lab Instructor)

Spring 2023 Invertebrate Zoology, USC (MSCI510L)
Spring 2020 - Fall 2022 Ecology & Ecology Lab, USC (BIOL301L)
Fall 2019 Introduction to Biology Lab, USC (BIOL101L)

Undergraduate Student Mentorship

2024- Louis Stokes Alliance for Minority Participation (LSAMP), Texas A&M Corpus Christi, Student
Co-Advised with Dr. John Majoris.
Project: *Community structure and biomass of mesozooplankton in the Mission-Aransas Estuary.*

2024 Summer Louis Stokes Alliance for Minority Participation Summer Research Academy, University of Texas
Project: *Changes in plankton biodiversity following salinity regime shifts*

2022-2023 Magellan Scholar Program, University of South Carolina
Project: *Characterizing trichodesmium patterns in oligotrophic oceans through in-situ imaging*

Guest Lectures

Fall 2024 MNS101: Undergraduate Seminar in Marine Science, UT Austin
Fall 2022 CSCE585: Machine Learning Systems, USC
Fall 2020 Ocean Sampling Techniques, Cal Poly

Outreach Programs

2020-2022 PlanktoScope development and outreach program, University of South Carolina and North
Inlet-Winyah Bay National Estuarine Research Reserve

2018-2019 Outreach Diver, Dive Beneath the Surface, Cal Poly

2018, 2019 Group Instructor, Learn by Doing Lab Cal Poly

2016 Informal Education Assistant, Greater Cleveland Aquarium

GRANTS & AWARDS

2024-2025	Impact 2075 , Texas Gulf Coast Research Center, \$249,947 PIs: Dr. Jordan Casey, Dr. Mevin Hooten. Co-investigators: Dr. Alex Barth* , Dr. Zach Olson. <i>Untangling food webs along the Texas Gulf Coast to predict the future of estuarine ecosystems.</i> * co-wrote proposal with Drs. Casey & Hooten.
2024	Jeffery Barnsdale Memorial Fellowship , University of South Carolina, \$1,000
2023	Graduate Travel Grant , University of South Carolina, \$500
2023-2024	FlowCam Graduate Research Grant , Equipment and Travel <i>Using FlowCam to characterize microplankton communities following intense rainfall events</i>
2023	Elsie Taber Fellowship , University of South Carolina, \$2,500
2023	Graduate Travel Grant , University of South Carolina, \$800
2023	Slocum Lunz Foundation , \$1,130 <i>A combined experimental-observational approach to measure whole-community responses to storm events in estuaries</i>
2022	Elsie Taber Fellowship , University of South Carolina, \$2,980 <i>Collaborative Research with NOAA Pacific Islands Fisheries Science Center</i>
2021-2022	SPARC Graduate Research Grant , \$4,979 <i>Establishing community-based science monitoring of zooplankton communities' response to harmful algae through low-cost imaging tools</i>
2019-2023	Presidential Fellowship , University of South Carolina, \$40,000 <i>University-wide fellowship for top doctoral students</i>
2019, 2021	NSF GRFP , Honorable Mention (2x)
2019	Frost Student Research Award , \$500 <i>A common-garden, reciprocal cross of <i>K. kelletii</i></i>

PUBLICATIONS

2024	Cohen NR. Krinos AI. ... Barth AB. ... et al. Protistan metabolism across the western North Atlantic Ocean revealed through autonomous underwater profiling. <i>Nature Comms.</i> doi: 10.1038/s41467-024-51583-4
2024	Barth AJ. Blanco-Berical L. Johnson R. Stone J. Rhizaria in the oligotrophic ocean exhibit temporal and vertical variability. <i>Deep Sea Research Part I.</i> doi: 10.1016/j.dsr.2024.104371
2024	Barth AJ. Stone JP. Understanding the picture: the promise and challenges of in-situ imagery data in the study of plankton ecology. <i>Journal of Plankton Research: Horizons</i>
2023	Barth A. Johnson R. Stone J. Size and transparency influence diel vertical migration patterns in copepods. <i>Limnology and Oceanography.</i> doi: 10.1002/lno.12461
2023	Kenitz KM. Orenstein EC. Anderson CR. Barth AJ. et al. Convening expert taxonomists to build image libraries for training automated classifiers. <i>Limnol. Oceanogr. Bulletin.</i> doi: 10.1002/lob.10584
2022	Barth A. Stone J. Comparison of an <i>in situ</i> device and net-based method to study mesozooplankton communities in an oligotrophic system. <i>Front. Mar Sci.</i> doi: 10.3389/fmars.2022.898057
2020	Barth A. Walter RK. Robbins I. Pasulka A. Seasonal and interannual variability of phytoplankton abundance and community composition on the Central Coast of California. <i>Mar. Ecol. Prog. Ser.</i> doi: 10.3354/meps13245

SERVICE

Grant Review	National Science Centre (NCN) Poland External Reviewer.
Journal Reviewer	Estuaries & Coasts, Nature Comm. Earth and Environment, Journal of Geophysical Research, Journal of Plankton Research, Limnology & Oceanography: Methods, Limnology & Oceanography
2024	Expert Panel Member, National Science Centre (NCN) Poland. Krakow, Poland. Provided review on 14 proposals and participated in panel evaluation.
2022-2023	Co-Chair Graduate Stipend & Cost-of-Living Committee, USC
2022-2023	Secretary of Data Management, Graduate Student Association of USC
2021-2022	Service Chair, Graduate Association of Biological Sciences of USC
2019-2021	Presidential Fellows Advisory Council, USC
2019-2024	Member, Graduate Association of Biological Sciences, USC
2016-2019	Member, Marine Science Club, Cal Poly

PUBLIC SOFTWARE PACKAGES

(DEV) Ver 0.0.0.9	Flowprocess. A processing pipeline for flowcam output (Visual SpreadSheet 6) to be best formatted for Ecotaxa entry. R. https://github.com/TheAlexBarth/FlowProcess
(DEV) Ver 1.2.2.9	EcotaxaTools. A toolkit to process output files from the web application Ecotaxa. R. https://github.com/TheAlexBarth/EcotaxaTools .
Ver 0.2.0	ggusc. A color palette for University of South Carolina color schemes. R. https://github.com/TheAlexBarth/ggusc

FIELD & OCEANOGRAPHIC EXPERIENCE

2024	R/V Atlantic Explorer, BATS-Rhizaria Spring Bloom Cruise
2022	R/V Oscar Elton Sette, Big Eye Tuna Oceanography Cruise
2019	R/V Atlantic Explorer, BATS, July Cruise
2018	Scientific Diver Certification, American Academy of Underwater Scientists (AAUS)
2017	Small Boat Certification, NASBLA , California

PRESENTATIONS & SEMINARS

Seminars & Invited Talks

Feb 2024	Doctoral Defense Seminar Title: <i>Illuminating the mesopelagic through in-situ imaging of plankton communities.</i>
Dec 2023	USC Ecology Seminar Title: <i>Microplankton responses to intense rainfall events.</i>
Mar 2023	Invited Seminar, British Antarctic Survey, Cambridge UK Title: <i>Plankton Paparazzi: How can in situ imaging reveal new patterns in plankton ecology?</i>
April 2022	USC Presidential Fellows Seminar Title: <i>Plankton control the world: New ways to understand the global overlords.</i>
Feb 2022	USC Ecology Seminar Title: <i>Plankton from the great blue to our local shores</i>
Jun 2021	USC Ecology Seminar Title: <i>Ocean Monsters: Giant protists and their role in zooplankton communities</i>

Conference & Workshops

OSM 2023	Barth A. Smith E. Pinckney J. Krask J. Stone J. Determining the impact of severe rain events on phytoplankton communities through HPLC & FlowCam. Oral Presentation.
CERF 2023	Barth A. Stone J. A combined observational-experimental approach to identify the influence of rain on plankton communities. Oral Presentation.
ASLO 2023	Stone JP. Barth AJ. Rykaczewski R. Wren J. Effects of the ETNP oxygen deficient zone on zooplankton communities and vertical migration. Co-author.
ASLO 2023	Barth AJ. Stone JP. Occupancy modelling of imagery data can reveal zooplankton vertical patterns and patchiness. Oral Presentation.
UVP User Meeting, Villefrance 2022	Barth AJ. EcotaxaTools: an open-source R. package for managing Ecotaxa data. Oral Presentation.
UVP User Meeting, Villefrance 2022	Barth AJ. Stone JP. UVP5HD comparisons to MOCNESS zooplankton abundance estimates and other observations from over a year of deployments in the Sargasso Sea.
International Conference on Copepoda 2022	Barth AJ. Stone JP. Migrator Morphology: In situ observations of copepod diel vertical migration. Oral Presentation.
SEERS 2022	Barth AJ. Stone JP. Improving citizen science phytoplankton monitoring through a low-cost, open-source imaging device. Poster
OSM 2022	Pasulka AL. Walter RK. Barth AJ. Gilbert J. Robbins IR. Phytoplankton phenological shifts as indicators of oceanographic change in Central California. Co-author.
PlanktoScope Workshop 2021	Barth AJ. PlanktoScope Progress and Plans. Oral Presentation.
ASLO 2021	Stone JP. Barth AJ. In-situ quantification of zooplankton around the oxygen minimum zone in the Sargasso Sea. Co-author.
ASLO 2021	Barth AJ. Stone JP. Quantifying Rhizaria abundance and ecology in the oligotrophic ocean. Oral Presentation
OSM 2020	Barth AJ. Walter RK. Robbins IR. Pasulka AL. Seasonal and interannual variability of phytoplankton abundance and community composition on the Central Coast of California. Poster.