

# ALEX BARTH, Ph.D.

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## RESEARCH EXPERIENCE

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

## EDUCATION

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**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

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### 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

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

## PUBLICATIONS

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2024	Cohen NR. Krinos AI. ... <b>Barth AB.</b> ... et al. Protistan metabolism across the western North Atlantic Ocean revealed through autonomous underwater profiling. <i>Nature Comms.</i> doi: <a href="https://doi.org/10.1038/s41467-024-51583-4">10.1038/s41467-024-51583-4</a>
2024	<b>Barth AJ.</b> 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: <a href="https://doi.org/10.1016/j.dsr.2024.104371">10.1016/j.dsr.2024.104371</a>
2024	<b>Barth AJ.</b> 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	<b>Barth A.</b> Johnson R. Stone J. Size and transparency influence diel vertical migration patterns in copepods. <i>Limnology and Oceanography.</i> doi: <a href="https://doi.org/10.1002/lno.12461">10.1002/lno.12461</a>
2023	Kenitz KM. Orenstein EC. Anderson CR. <b>Barth AJ.</b> et al. Convening expert taxonomists to build image libraries for training automated classifiers. <i>Limnol. Oceanogr. Bulletin.</i> doi: <a href="https://doi.org/10.1002/lob.10584">10.1002/lob.10584</a>
2022	<b>Barth A.</b> 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: <a href="https://doi.org/10.3389/fmars.2022.898057">10.3389/fmars.2022.898057</a>
2020	<b>Barth A.</b> 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: <a href="https://doi.org/10.3354/meps13245">10.3354/meps13245</a>

## SERVICE

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Grant Review	<b>National Science Centre (NCN) Poland External Reviewer.</b>
Journal Reviewer	<b>Estuaries &amp; Coasts, Nature Comm. Earth and Environment, Journal of Geophysical Research, Journal of Plankton Research, Limnology &amp; Oceanography: Methods, Limnology &amp; Oceanography</b>
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

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

## FIELD & OCEANOGRAPHIC EXPERIENCE

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

## PRESENTATIONS & SEMINARS

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