

ALEXANDRA FINE

Ocean Chemistry and Ecosystems Division
Atlantic Oceanographic and Meteorological Laboratory
National Oceanic and Atmospheric Administration
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EDUCATION

Master of Arts in Marine Conservation and Policy **August 2016**

School of Marine and Atmospheric Sciences, Stony Brook University, Stony Brook, NY
Incidental overfishing: Techniques to reduce elasmobranch bycatch

Bachelor of Science in Marine Science and Biology; minors in Chemistry and Psychology **May 2013**

Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL
*Parental and alloparental associations and whistle use of two *Tursiops truncatus* calves post-parturition*

RELEVANT EXPERIENCE

Senior Research Associate I – Cooperative Institute for Marine and Atmospheric Studies, Miami, FL **2020 – Present**

Stationed at NOAA's Atlantic Oceanographic and Meteorological Laboratory

- Land-Based Sources of Pollution Coordinator and Nutrient Lab Manager
- Conduct sample collection, analyses, database management and instrument care for nutrients and oxygen
- Lead Biscayne Bay Water Quality study by organizing fieldwork, reporting data and coordinating with partners
- AOML project lead for collaborative Coral Gables Waterway study to investigate land-based sources of pollution
- Compile merged datasets and trend analyses for all comparable water quality programs in South Florida
- Update annual juvenile sportfish monitoring report with current data and results for Everglades Restoration
- Participate in fieldwork and provide logistical support on small boat operations and large research vessels
- Database management and data analysis to chart results, map hotspots and analyze long-term time series trends
- Supervise and mentor nutrient laboratory technician, interns and fieldwork personnel
- Implement protocols to fulfill National Environmental Laboratory Accreditation Conference standards and ensure the highest levels of proficiency among analysts and quality control for nutrient lab samples

Staff Chemist and CAOS Research Coordinator – Mote Marine Laboratory, Summerland Key, FL **2018 – 2020**

- Managed the Climate and Acidification Ocean Simulator (CAOS) System to ensure successful experiments
- Carbonate chemistry lab manager responsible for running daily DIC, TA, and pH measurements in CAOS system
- Conducted coral resiliency research and design experiments exploring the effects of climate change, ocean acidification, coral disease and restoration methods on coral reef ecosystems
- Performed coral care and husbandry, daily health assessments and water quality monitoring and performed physiology trials and growth measurements using buoyant weight, ImageJ and 3D scanning during experiments

Fisheries Technician – Atlantic States Marine Fisheries Commission, East Setauket, NY **2017 – 2018**

- Conducted fisheries research by identifying, measuring weighing catch on fishing boats and at shore sites
- Collected data on catch per unit effort and bycatch to contribute recreational data to fisheries stock assessments
- Communicated with local anglers and stakeholders about fisheries management and their perception of policies

- Research Assistant** – Rosenstiel School of Marine and Atmospheric Science, Miami, FL 2016 – 2017
- Collected water samples from CTD on the NOAA R/V Ronald H. Brown at over 200 stations in the Pacific Ocean
 - Analyzed samples for pH and total alkalinity to study ocean acidification and compare to previous years' data
 - Assisted with deployment of research equipment including ARGO floats, plankton and microplastic tows
- Naturalist** – Biscayne Nature Center, Key Biscayne, FL 2013 – 2014
- Led educational nature programs through seagrass beds and coastal ecosystems for groups of students
 - Developed informative activities, taught squid and shark dissections, and gave lectures on coral reef ecology
 - Head counselor at 'Summer by the Sea' Marine Science Camp
- Research and Lab Technician** – Rosenstiel School of Marine and Atmospheric Science, Miami, FL 2010 – 2013
- Maintained lab damselfish and zebrafish wet labs with aquarium husbandry, animal care and water quality
 - Cultured damselfish tumor cells, observed progress in live specimen and performed cell passaging
 - Worked with embryonic development and transgenic manipulations of zebrafish

RESEARCH AND PUBLICATIONS

University of Miami Cooperative Institute for Marine and Atmospheric Studies

NOAA Atlantic Oceanographic and Meteorological Laboratory; Ocean Chemistry and Ecosystems Division

- City of Coral Gables Assessment of Water Quality and Habitat Conditions in the Coral Gables Waterway to Inform Management and Restoration (2020-2021 and 2023-2024)
- Florida's Coral Reef Water Quality Data Compilation, Analysis and Decision Support
- Juvenile Sportfish Monitoring in Florida Bay, Everglades National Park: Monitoring and Assessment
- Alarcon, V. J., Linhoss, A. C., Mickle, P. F., Kelble, C. R., & **Fine, A.** (2022, July). Estimation of Groundwater and Salinity for the Central Biscayne Bay Coast, Florida, USA. In *International Conference on Computational Science and Its Applications* (pp. 594-606). Cham: Springer International Publishing.
- Alarcon, V. J., Mickle, P. F., Kelble, C. R., Linhoss, A. C., & **Fine, A.** (2023, June). Simulation of Total Phosphorus in Biscayne Bay, USA. In *International Conference on Computational Science and Its Applications* (pp. 427-438). Cham: Springer Nature Switzerland.
- Raju, M., Linhoss, A., Linhoss, J., Mickle, P.F., Alarcon, V.J., **Fine, A.**, & Kelble, C.R. (In progress). Seasonal salinity trends in Central and Southern Biscayne Bay (Florida, USA). *Journal of Hydrologic Engineering*.
- Alarcon, V. J., Linhoss, A. C., Kelble, C. R., Mickle, P. F., Sanchez-Banda, G. F., **Fine, A.**, & Montes, E. (In press). Spatial Distribution of Salinity Under Climate Change: Implications for Restoration of Coastal Biscayne Bay, Florida, USA. *Florida, USA. Ocean and Coastal Management*.
- Presentation: Water Quality Conditions of the Coral Gables Waterway Driven by Shifts in Salinity Regime

Note Marine Laboratory *Elizabeth Moore International Center for Coral Reef Research and Restoration*

- Post-Outplant Growth, Calcification and Resilience of two in-situ restoration methods for *Acropora cervicornis* in the context of coral restoration efforts in the Florida Keys
- Impacts of In-Situ Restoration Methods on Global Change Resilience of *Acropora cervicornis*
- Light-driven Dynamics between Calcification and Production in Coral Reef Calcifiers
- Improvements to the Climate and Acidification Ocean Simulator (CAOS) for Coral Reef Ecosystem Research

Galápagos Research *Isabela Oceanographic Institute*

- Sewage pollution on coral reefs: a source of nutrients, disease and ecological harm
- Coral bleaching and biodiversity trends on reefs surrounding Isabela Island, Galápagos

GIS Research *Stony Brook University School of Marine and Atmospheric Sciences*

- Vulnerability of Shinnecock Bay Subwatersheds to Pathogen Contamination

OCEANOGRAPHIC RESEARCH CRUISES

Total Sea Days: 205

R/V Ronald H. Brown

A16N GO-SHIP/CO2 Repeat Hydrography Cruise Recife, Brazil – Rota, Spain

March-April 2023

32 days

R/V Walton Smith

South Florida Ecosystem Restoration Research Cruises South Florida Atlantic/Gulf

Bimonthly, 2021-2023

40 days

R/V Thomas G. Thompson

A20 GO-SHIP/CO2 Repeat Hydrography Cruise

Woods Hole, MA – USVI

March-May 2021

31 days

A22 GO-SHIP/CO2 Repeat Hydrography Cruise

USVI – Woods Hole, MA

26 days

R/V Ronald H. Brown

P18 GO-SHIP/CO2 Repeat Hydrography Cruise

San Diego, CA – Punta Arenas, Chile

November-February 2017

76 days

SKILLS AND CERTIFICATIONS

NOAA Small Boats Operator-in-Charge (OIC) and Qualified Crew (QC) – NOAA & USCG

Emergency First Aid, CPR, AED and Oxygen Provider – Emergency First Response

Scientific Diver – American Academy of Underwater Sciences (AAUS)

Dive Master – Professional Association of Diving Instructors (PADI)

Nitrox Diver – Professional Association of Diving Instructors (PADI)

Computer Software – Microsoft Office, ArcGIS, R, Adobe, ChatGPT

Laboratory Manager – Ocean Acidification Coral lab, Carbonate Chemistry lab, Nutrient lab, Oxygen lab

Instruments – Segmented Flow Autoanalyzer, Shimadzu, Spectrophotometer, Titrator, Fluorometer, Kingfisher

Biological and Chemical Analyses – Nutrients, Chlorophyll-A, Oxygen, eDNA, Total Alkalinity, Dissolved Carbon, pH

Animal Husbandry – corals, fish, octopi, sea turtles, sea lions, dolphins, and sharks

Saltwater aquaria maintenance in laboratory and aquarium settings

Logistical planning and execution of field work

Scientific outreach, activities, and public speaking

HONORS AND ACTIVITIES

Fluent in Spanish • Ocean Kids Shark Conservation Station Leader • Dolphins Plus Research and Husbandry Intern •

Marine Science Honors Society • Wildlife Conservation Society NY Seascape Research, Policy and Outreach Intern •

Women in Science and Engineering (WISE) • Cornell Cooperative Extension of Suffolk County Marine Program Intern •

Skype-A-Scientist • Diversity, Inclusion and You Affinity Group Member • Nature, Underwater and Drone Photography