

Paolo Marra-Biggs

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PaoloMB@Hawaii.edu

Education

B.Sc in Marine Biology, **University of California: Santa Cruz** Class of 2014

Ph.D in Marine Biology, **University of Hawai'i: Mānoa** In Progress 2019

Skills & Certifications

SCUBA Certifications

NAUI SCUBA Instructor Certified
PADI Divemaster (PADI # 307113)
PADI Rescue /Advanced
NAUI Master Diver / Open Water
AAUS Scientific Diver 100'
National Park Service Blue Card Certified 100'

SCUBA Qualifications

800+ logged SCUBA dives, 150 Drysuit Dives
SCUBA survey experience in cold waters (250 dives)
Aqualung Regulator / BCD Repair Technician Certified

Boating Experience

-USFWS MOCC Instructor Certified (MOICC)
-Small Vessel Operator (<40ft) (450+ Hours logged)
-Evinrude E-Tec Level 1 Mechanic Training
-Forklift Certified (up to 6,000 lb)
-DAN CPR, First Aid O2 Administration Instructor
-Red Cross Certified Lifeguard
-Wilderness First Responder
-ArcGIS, Microsoft Office, Access proficient
-Data entry, analysis & report preparation
-Proficient with identifying South Pacific Corals, Fish, Inverts
-Proficient with identifying NE Pacific Algae, Fish, Inverts

Employment

Hawai'i Institute of Marine Biology

December 2024 – Present

Interim Marine Safety Officer

Marine Safety Officer Assistant **March 2024 – Present**

Supervisor: Jason Jones (JasonCJ@hawaii.edu) (May be contacted)

- Research Support operating small research vessels (17' Boston Whaler, 22' Boston Whaler Outrage, 25' Boston Whaler)
- Provides technical advice on boat operations and fieldwork logistics and assists research teams in planning and implementing vessel-based research activities safely
- Acting member on HIMB Boating Safety Committee
- Maintains inventory of SCUBA cylinders
- Maintains open circuit SCUBA equipment for HIMB
- Performs annual inspections and service of SCUBA equipment
- Maintains compressor and air/gas blending fill station at HIMB
- Maintains HIMBs scientific diving equipment and facility
- Conduct boat training and checkouts for new operators utilizing HIMB vessels for research
- Assists & Instructs in Department of Interior Motorboat Operator Certification Course (MOCC)
- Trailer transport of boats for training or to bring a vessel to a shop for maintenance
- Provide vessel support for HIMB projects
- Serves as on-site contact for boating operations by HIMB researchers and visiting scientists/organizations
- Develops a maintenance protocol and tracking for the research fleet
- Interface with maintenance staff to implement a regular maintenance schedule
- Schedules and manages boat use using HIMB's Checkfront reservation system
- Conducts Diving First Aid for Professional Divers courses and refreshers
- Conducts comprehensive DAN DFA Pro First Aid/CPR/AED classes for HIMB staff on an annual basis
- Acted on Search Advisory Committee for Institutional Hiring
- Maintains AEDs, AED trainers, CPR mannequins and other First Aid training materials to ensure all equipment is up to date
- Supports periodic removal and replacement of submerged seawater intake pipes

Pacific Islands Climate Adaptation Science Center

Feb 2021 – Sept 2023

PI-CASC Graduate Scholar

Supervisor: Beth Lenz (EALenz@hawaii.edu) (May be contacted)

- Drive small research vessels (17' Boston Whaler, 22' Boston Whaler Outrage)
- Conduct genetic dissertation research projects (phylogenetics and population connectivity)
- Grant writing

NOAA: Sea Grant

Dec 2019 – Feb 2021

Hawai'i Sea Grant Graduate Fellow

Supervisor: Maya Walton (Waltonm@hawaii.edu) (May be contacted)

- Drive small research vessels (17' Boston Whaler, 22' Boston Whaler Outrage)

- SCUBA diving to deploying and retrieve CTD sensors
- Water quality analysis (DIC, Oxygen, Nutrients, Chlorophyll)
- Data analysis (spatial and statistical) for technical reports

National Geographic / Lindblad Expeditions

June 2017 - Present

Undersea Specialist, Naturalist Tour Guide

Supervisor: Ashley Knight (206 403 1543) (May be contacted)

- SCUBA diving in polar and temperate regions (Drysuit, H valve dual regulators)
- Drysuit and SCUBA repair and maintenance
- Drive zodiac tours and shoreside expeditions
- Underwater videography, create and edited undersea footage for guest lectures
- Create natural history talks and present them onboard

NOAA National Marine Sanctuary of American Samoa

March - April 2019

Outboard Engine Mechanic

Supervisor: Hanae Spathias (684 633 6503) (May be contacted)

- Diagnosed and repaired Evinrude E-Tec outboard engines
- Small boat operations to test repairs
- Trailer operation and repair

San Diego State University

Feb - April 2019

Research Assistant III (located in American Samoa)

Supervisor: Walter Oechel (619 980 6827) (May be contacted)

- Maintained a Nordhavn 47' Motor yacht
- Operated small research vessels (18' boston whaler)
- Collected shallow water – atmospheric CO₂ flux using LI-COR CO₂-H₂O gas analyzer
- Collected eddy covariance data using Campbell CSAT-B Sonic Anemometer
- Outreach to the National Park service and other local agencies

National Park Service of American Samoa

April 2015 - Feb 2018

Marine Field Technician, Research SCUBA Diver

Supervisor: Tim Clark (808 792 9566) (Timothy_Clark@FWS.gov) (May be contacted)

- Managing dive team and conducting safe and efficient data collection dives
- Operating boat trailers and small vessels (33 ft Swiftcat, 24 ft Boston Whaler, 23 ft Zodiac Hurricane)
- Open Ocean vessel operation in rough seas.
- Extensive repairing and maintaining of boat, truck and SCUBA gear.
- Regularly fill Nitrox tanks with various gas blends.
- Data management using Microsoft Access, ArcGIS, and DNR GPS to communicate data
- Grant writing for National Park Service Projects
- Installing and operated sensor instruments for monitoring projects (ADCP's, CDT's, SONDE, Niskin Bottles)
- Writing safety protocols (writing job hazard analyses, SOP's, MSDS sheets, incident report forms)
- Collecting stream Inventory & Monitoring data
- Coral bleaching and crown of thorn monitoring surveys
- Data analysis (spatial and statistical) for technical reports
- Using Microsoft Access to manage, query, and graph data for technical reports
- Composing outreach & education programs for local students

University of Hawaii at Manoa

May - July 2016 & Feb 2017

Marine Science Technician

Supervisor: Matthew Widlansky (808 956 2822) (May be contacted)

- Retrieved/deployed temperature loggers
- Conducted coral bleaching photo surveys
- Downloaded data using instrument specific software, entering data into database

UCSB: SONGS Mitigation and Monitoring

May - Nov 2014

Marine Field Technician, Research SCUBA Diver

Supervisor: David Huang (706 310 0828) (May be contacted)

- Conducted underwater scientific research for long term Mitigation and Monitoring project.
- Performed Scientific methods on SCUBA: Quadrat, RPC, UPC, Algae/Invert swath, Fish Surveys
- Conducted biological surveys of artificial and natural reefs
- Operating dive boats (26ft Radon)
- Performed SCUBA dive operations off of boats in poor visibility (<3 ft)

- Fabricated scientific instrument using lathe, drill press, table saw, planar, band saw, milling machine
- Processing, sorting, and classifying samples collected in situ
- Data Entry, QA/QC

Employment (Continued)

Kayak Connection – Santa Cruz / Moss Landing

June 2010 – May 2014

Kayak Instructor/ Naturalist Tour Guide

- Supervisor: Dave Grigsby (831 454 6999) (May be contacted)
- Guided 300+ naturalist tours in Monterey Bay
 - Instructed Kayak and Stand up paddleboard classes in the Monterey Bay
 - Managed relations with sponsors, dealers and event managers
 - Worked retail selling kayaks, stand up paddleboards and accessories

Professional Research Experience

NOAA Marine Sanctuaries and Bishop Museum Rebreather Divers

February 2017

Safety Support Diver

- Supervisor: Joe Paulin (684 633 6500) (May be contacted)
- Provide safety support on decompression stops on SCUBA
 - Cross-training for emergency procedures and diver egresses

Department of Marine and Wildlife Resources

December 2015 – Jan 2017

Assistant Researcher

- Supervisor: Mareike Sudek (+351 912 980 982) (Mareike.Sudek@NOAA.gov) (May be contacted)
- Designing and implementing coral bleaching surveys
 - Conducting coral monitoring surveys
 - Maintaining and Repairing SCUBA gear
 - Data Entry, QA/QC

PISCO (Partnership for Interdisciplinary Studies of Coastal Oceans)

Sept 2013 – March 2014

Research SCUBA Diver, Data Technician

- Supervisor: Peter Raimondi (831 459 5674) (May be contacted)
- Kelp forest rugosity, sediment and habitat surveys
 - Collected data on algae, invert populations on SCUBA
 - Data Entry and database management
 - Mapped features using ArcGIS

Monterey Bay Aquarium

June 2009 – Sept 2009

Student Docent

- Managed and maintained touch tanks
- Operated marine mammal information booths
- Supervised sustainable fishing department booths
- Informed public of current environmental hazards

Publications

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| 2017 | US Fish & Wildlife Report on Giant Clam Populations at Rose Atoll Marine National Monument |
| 2022 | Marra-Biggs et al. "Range Expansion and First Observation of <i>Tridacna noae</i> (Cardiidae: Tridacninae) in American Sāmoa." <i>Ecology and Evolution</i> , vol. 12, no. 12, 2022, doi:10.1002/ece3.9635. |
| 2022 | American Sāmoa Department of Marine and Wildlife Resources Giant Clam Territorial Report |
| In Review | <i>Coral degradation impacts CO2 fluxes</i> , Trunkhill et al. (in review) |
| In Prep | <i>Giant Clam Population and Distribution in American Samoa</i> , Marra-Biggs et al. (in Prep) |
| In Prep | Management Efforts to Control Crown of Thorns Starfish at the National Park of American Samoa |

REVIEWS

- Reviewer of *Frontiers in Marine Science*: Ma et al (2022) Molecular phylogeny and divergence time estimates for native giant clams (Cardiidae: Tridacninae) doi: 10.3389/fmars.2022.964202
- Reviewer of *Palawan Scientist*: Distribution, habitat characteristics, and conservation status of Noah's clam *Tridacna noae* (Röding, 1798) in the reefs of Palawan, Philippines."

Funding Acquired

2019 Colonel Willys E. Lord, DVM & Sandina L. Lord Scholarship	\$2,500
2020 Hawaii Conservation Conference Student Scholarship	\$180
2020 Colonel Willys E. Lord, DVM & Sandina L. Lord Scholarship	\$1,000
2020 Ruth D. Gates Memorial Fund	\$1,000
2020 Robinson Fellowship	\$5,000
2021 Watson T. Yoshimoto Fellowship	\$5,000
2023-2024 National Park Service Cooperative Research Agreement	\$32,561
American Sāmoan Government Genetics Funding (Pending)	\$25,014
2022- 2024 Sea Grant Biennial Grant	\$72,513

Scientific Presentations

2017 - US Fish & Wildlife Report on Giant Clam Populations
 2017 - 2019 University of Hawai‘I at Mānoa QUEST Lectures to American Sāmoa Community College Students
 2020 University of Hawai‘I at Mānoa Tester Symposium Presentation
 2020 NOAA Sea Grant: Hanauma Bay Research Talk
 2020 NOAA Sea Grant: Science by the SEA Talk
 2020 NOAA Sea Grant: Research Symposium Talk
 2020 - Present: Mentor for Hawaii Pacific University student (1)
 2020 - 2021 International Coral Reef Symposium Poster Abstract Acceptance
 2021- Present: Mentor for UH Manoa Undergraduate student via *Aloha Hawai‘i 'Onipa'a* (3)
 2022 University of Guam Conference on Island Sustainability Presentation
 2022 American Sāmoa Department of Marine and Wildlife Resources Giant Clam Survey Training / Presentation
 2022 Poster Presentation at International Coral Reef Symposium
 2022 American Sāmoa Department of Marine and Wildlife Resources Giant Clam Territorial Report
 2023 Pacific Island Climate Adaptation Science Center Storymap Presentation
 2023 Asia Pacific Coral Reef Symposium Presentation
 2023 Nerd Night “Bohemian Behemoths”
 2023 Slice of PI-CASC Seminar Series “*The Shrinking Presence of Giant Clams: Transpacific Partnerships to Restore an Ocean Giant*”
 2024 AAUS Scientific “Polar Diving” Lecture
 2024 MOCCC “Special Items Lecture”

References

Name	Employer	Title	Phone	Email
Robert Toonen	UH Manoa/ HIMB	Graduate Advisor	(808) 236-7471	RJToonen@gmail.com
Eric Brown	National Park	PhD Marine Ecologist	(684)-272-7470	eric_brown@nps.gov / Pavona@aol.com
Mareike Sudek	NOAA: NMSAS	Project Coordinator	+351 912 890 982	Mareike.Sudek@gmail.com
David Huang	UCSB:SONGS	Research Associate	(706) 310-0828	David.Huang@LifeSci.UCSB.edu
Peter Raimondi	UCSC; PISCO	PI, Professor	(831) 459-5674	Raimondi@UCSC.edu
David Grigsby	Kayak Connection	Owner	(831) 454-6999	Dave@KayakConnection.com