

ACADEMIC QUALIFICATIONS**PhD**, Physical Geography/Biological Sciences, Universities of Exeter/Queensland, UK/Aus., **2018 – 2022***'A multidimensional analysis of climate projections on the Great Barrier Reef'*, (Prof Paul Halloran/Prof Peter Mumby)

- Design and implementation of a vertical, 1-D semi-dynamic biogeochemical-physical model to improve climate projections on the Great Barrier Reef under various climate-change scenarios
- Identification of potential climate refugia across a range of depths on the Great Barrier Reef
- Application of climate models and ocean observations to understand oceanographic and atmospheric drivers of climate refugia on coral reef environments
- Data collection of coral reef carbonate budgets in Chagos, BIOT and Heron Island, Aus. under various levels of pH
- QUEX scholarship recipient, awarded Reef Guardians Research Grant, Great Barrier Reef Marine Park Authority (2019)

Master in Advanced Studies (MAS) in Marine Biodiversity and Conservation

Scripps Institution of Oceanography, UC San Diego, 2014 (GPA: 3.97), scholarship recipient

Bachelor of Arts - Physical Geography & Marine Option Program Certificate & Awardee

University of Hawai'i Mānoa, 2010 (GPA: 3.4) (Dean's List 2007, 2008)

EXPERIENCE**Oceanographer****2022- Present****NOAA/OAR/AOML, Ocean Chemistry and Ecosystem Division**, Miami, FL

- Research applying the Biogeochemical Argo array in the Gulf of Mexico
- Characterized open ocean influences on mesophotic reefs through the use of the Core Argo array in eddy features
- Field operations lead for the Biogeochemical Argo array in the Gulf of Mexico, deploying floats, float data check-outs, collecting samples, and recovering floats
- Research development across MOM6, EN4, and real-time Hurricane Models using Biogeochemical and Core Argo floats

Public and Government Relations Coordinator**2014 - 2018****Southern California Coastal Ocean Observing System (SCCOOS)/ Coastal Data Information Program (CDIP)****UCSD, Scripps Institution of Oceanography**, San Diego, CA

- Assisted in management and development of research efforts across a range of ocean observation systems and programs
- Secured additional federal grant funding for CDIP and SCCOOS research by engaging stakeholders on local, state, and federal levels
- Developed technical reports, plans, proposals and grants for various programs
- Developed and implemented outreach content, displays, videos, hand-outs, presentations, articles, education materials
- Aided in the maintenance and deployments of the US national Datawell Waverider Buoy network (>100 buoys)
- Managed CDIP dive operations for Datawell Waverider Buoys and pressure sensors
- UCSD Employee Star Award for certifying SCCOOS as US IOOS regionally data certified (2017)

Instructor- GIS II, Spatial Analysis, GIS III Geodatabase Design**2014 - 2019****University of California San Diego Extension**, Online

- Content development and instruction

Research Assistant- Stable Isotope Modeling and Mapping**2014****University of California San Diego**, San Diego, CA

- Biogeochemical laboratory processing and analysis of particulate organic matter for C₁₃ and N₁₅ isotope signatures
- Database and IT management using R, Microsoft Access and ArcGIS with the CalCOFI database
- GIS analysis and mapping using spatial statistics and biostatistics in R
- Bioaccumulation studies through various trophic levels

- Analysis of environmental monitoring data pertaining to environmental chemistry and oceanographic conditions

Consultant in Geographic Information Systems (GIS) Analysis

University of California San Diego, San Diego, CA

2014

- Quantified economic value using a point distance analysis from businesses to the coast for the Economics Department
- Developed web map platform using ArcGIS Online, InDesign, and Dreamweaver for the Environmental Law Institute

Geographic Information Systems (GIS) Coastal Research Analyst

Richard Stockton College, Coastal Resource Center, Port Republic, NJ

2013

- Performed the analysis of sand dune volumetric change using statistical modeling pre and post hurricane activities
- Sampled sediments in harbors and applied GIS analysis of potential dredging locations
- Informed the US Army Corp of Engineers on post-hurricane Sandy (2012) sediment budgets

Geographic Information Systems (GIS) Research Analyst

Rutgers University, Center for Remote Sensing and Spatial Analysis, New Brunswick, NJ

2012 - 2013

- Performed data research, analysis and implementation using ArcGIS software for offshore wind energy site assessments
- Engaged and communicated information to local fishermen to assess proposed offshore wind energy locations
- Assisted in the development of a wind energy planning web platform <http://portal.midatlanticocean.org/portal/>

Watershed Monitoring Assistant

Heal the Bay, Santa Monica, CA

2011

- Independently researched and developed a volunteer program monitoring the water quality in the Malibu watershed
- Collected and analyzed water samples in the field, testing for bioaccumulation and toxicity
- Applied the use of GIS software for high point pollution identification
- Researched government requirements for monitoring and permit regulations for viticulture and livestock

Marketing and Sales Associate

PermaCity Solar Construction Corporation, Los Angeles, CA

2010 - 2011

- Developed and implemented a Customer Service Continuity Program
- Aided in the development of marketing campaigns and materials, sales presentation materials, sales tools, etc.

Marine Spatial Planning Research Assistant; Molokini Crater,

University of Hawai'i Mānoa, Geography Department, Maui, HI

2010

- Conducted a research study of the use of moorings in a Marine Protected Area
- Developed ecological summaries comparing samples of control areas to the Marine Life Conservation District
- Assisted in writing a technical report, an Environmental Assessment reviewed by the Division of Aquatic Resources

Marine Debris Awareness Project Developer

UH Sea Grant, Reef Watch Waikiki, Honolulu, HI

2009 - 2010

- Executed community outreach activities to identify public groups interested in program participation
- Developed and integrated lesson plans comparing global to local marine debris, incorporating knowledge of marine biology, oceanography and variations of different environments and habitats, which were taught to home school and elementary school students
- Awarded Best Internship Presentation at the Marine Option Program Symposium

Aquarium Education Assistant

Waikiki Aquarium (Education Department), Honolulu, HI

2006 - 2010

- Arranged and conducted tours throughout the facility, including day and night reef walk education
- Collaborated with Aquarium personnel, and various public organizations for the utilization of Aquarium facilities
- Coordinated and lead community outreach programs with the public and school groups
- Developed marketing and advertising materials, graphic designs and documents to promote activities
- Trained personnel and volunteers, customer relations, registration, roster development, marine animal husbandry

SKILLS/COMPETENCIES

Software- python, R, MATLAB, CMIP6 datasets, Geographic Information Systems (GIS), Quick Terrain Modeler, Microsoft Office, Statview, Adobe Software, Sabre Software Application, Salesforce Software, Dreamweaver
Biostatistics, Spatial Statistics
Ocean sampling and instrumentation experience
Identification of marine fishes and trawl-caught marine macro-invertebrates
Technical writing and report production
Maritime Archeology Surveying Techniques
Communications- Public speaking, working with volunteers, stakeholder and government relations, multiple work groups
Foreign Language - Spanish Intermediate
NOAA/AAUS Scientific and Rescue Scuba Diver (First Aid/CPR/O2/Nitrox), CA Boating License

VOLUNTEER EXPERIENCE

Research involving tank experiments, reef flat and reef slope coral growth under variable pH conditions, Heron Island Research Station, AUS **2021**
Research to determined carbonate budgets of coral reefs involving coral collection, measurements, deployment of temperature and oxygen sensors, and parrotfish bite rates, Chagos Archipelago, BIOT **2019**
Animal Husbandry, Scripps Experimental Aquarium **2016**
Tutoring students, Rosa Parks Elementary School, San Diego, CA **2014**
Kelp Restoration, Oil Spill Planning, Santa Monica Baykeeper, Santa Monica, CA **2011**
Marine Debris Clean-up, Santa Monica Restoration Commission, Santa Monica, CA **2010**
Intertidal Marine Monitoring, UCLA **2010**
Ocean Awareness Training, Honolulu, HI **2009**
MPA Monitoring Outreach Project, Hui Malama o Pupukea-Waimea, Honolulu, HI **2009**
Invasive Algae (*Avrainvillea amadelpha*) Removal, Honolulu, HI **2009**

PUBLICATIONS

McWhorter, J. K., Halloran, P. R., Roff, & Mumby, P. J. (2023). Climate change impacts on mesophotic regions of the Great Barrier Reef. *Proceedings of the National Academy of Sciences*. (Under Review)

McWhorter, J. K., Halloran, P. R., Roff, G., Skirving, W. J., & Mumby, P. J. (2022). Climate refugia on the Great Barrier Reef fail when global warming exceeds 3° C. *Global change biology*, 28(19), 5768-5780. DOI: 10.1111/gcb.16323

McWhorter, J.K., Halloran, P.R., Roff, G., Skirving, W.J., & Mumby, P.J., (2021) The importance of 1.5°C warming for the Great Barrier Reef. *Global Change Biology*. DOI: 10.1111/gcb.15994

Halloran, P. R., **McWhorter, J. K.**, Arellano Nava, B., Marsh, R., & Skirving, W. (2021). S2P3-R v2. 0: computationally efficient modeling of shelf seas on regional to global scales. *Geoscientific Model Development Discussions*, 1-30. DOI: 10.5194/gmd-14-6177-2021

Kurle, CM and **McWhorter, JK** (2017) *Spatial and temporal variability within marine isoscapes: implications for interpreting stable isotope data from marine systems*. Marine Ecology Progress Series. DOI: 10.3354/meps12045

Thomas, J., **McWhorter, J.**, & Olfe, C. (2016). Importance of Wave Observations for Model Validation Within the San Pedro Bight, California. *Marine Technology Society Journal*, 50(3), 69-71. DOI: 10.4031/MTSJ.50.3.10

CONFERENCES/ACADEMIC TALKS

United Nations Association of Australia Youth Ambassador Panelist, Queensland Reef Sustainability, June 16, 2021, Virtual
Geography 2050: The Future of the World Ocean, Special Plenary Speaker: The 10 Greatest Challenges Facing the World Ocean: Coral reef loss/bleaching, November 16, 2020, Virtual
ARC Centre of Excellence for Coral Reef Studies, Coral Reef Virtual Symposium Presenter, July 7, 2020, Sydney, Australia
QUEX Institute Symposium, Speaker and Panelist, July 2019, Brisbane, Australia

International Coral Reef Society, Talk titled, Under pressure: Climate change at depth across the Great Barrier Reef, July 5, 2022 Bremen, Germany
International Argo Workshop Speaker, October 10, 2022 Brussels

OCEANOGRAPHIC RESEARCH CRUISES

Total Sea Days: 30 days

R/V Pelican

June 2023

Deployed Core/Biogeochemical Argo floats, Hydrography Gulf of Mexico

7 days

Grampian Frontier

February-March 2019

Coral reef sampling/experiments

Chagos, British Indian Ocean Territory (BIOT)

21 days

UCSD, Scripps Institution of Oceanography Day Cruises

2013-2014

San Diego, CA

2 days