



SEAMUS HARRISON, M.S.
Ecologist

Research Planning, Inc.

Mr. Harrison is an ecologist with expertise in coastal ecology, natural resource mapping, the impacts of human activity on natural systems, and data synthesis and analysis. He has extensive experience working in both freshwater and marine coastal ecosystems, including the Great Lakes, Caribbean, and the Western Pacific. As an ecologist at RPI, Mr. Harrison focuses on understanding how anthropogenic stressors affect the ecology of coastal ecosystems by identifying the factors that influence their form and structure.

Prior to joining RPI, Mr. Harrison worked as a geospatial analyst for several National Geospatial Agency programs as well as a lab manager at the Smithsonian Tropical Research Institute.

EDUCATION

M.S., School for Natural Resources and the Environment, University of Michigan, Ann Arbor, MI (2020)
Thesis Title: Assessment of Ecosystem Management Strategies and Stakeholder Needs for Harmful Algal Blooms in the Great Lakes

B.S., Biology, Loyola University Chicago, Chicago, IL (2011)

PROFESSIONAL EXPERIENCE

2024 - Present: Coastal Ecologist, Research Planning Inc, Columbia, South Carolina

2022 - 2024: Geospatial Analyst, Maxar Technologies, Remote

2020 - 2022: GIS Specialist, Bureau of Environmental and Coastal Quality, Saipan, CNMI

2018 - 2020 Research Fellow, Cooperative Institute for Great Lakes Research, Ann Arbor, MI

2012 - 2017: Lab Manager, Smithsonian Tropical Research Institute, Bocas Del Toro, Panama

Mr. Harrison's experience is outlined separately in four main areas:

- 1) Environmental Sensitivity Index (ESI) Mapping
- 2) Land use, land cover (LULC) analyses and GEOINT data management
- 3) Management and operation of Geographic Information Systems
- 4) Freshwater Ecology
- 5) Marine Ecology

COASTAL AND OFFSHORE RESOURCE MAPPING

Environmental Sensitivity Index (ESI) Mapping: Mr. Harrison has worked on several ESI projects used for coastal zone management, contingency planning, and hazardous material/natural disaster responses:

Florida Pan Handle	2024
Lake Michigan	2024
Southern California	2024
Texas	2024

His role as a coastal ecologist on multiple ESI projects requires extensive correspondence with biological resource experts from several government, academic, tribal, and private agencies throughout the U.S.

LAND USE, LAND COVER ANALYSIS AND GEOINT DATA MANAGEMENT

Janus NGA programs: Spatial data analysis, modification, and enrichment of satellite imagery.

Human Landscape: Geospatial and sociocultural analysis

MANAGEMENT AND OPERATION OF GEOGRAPHIC INFORMATION SYSTEMS

Mr. Harrison coordinated and assisted with the production of thematic maps for the Bureau of Environmental and Coastal Quality in the Central Northern Mariana Islands (CNMI) through building relationships with Federal, State, and non-profit agencies. In addition, Mr. Harrison led efforts for marine spatial planning in the CNMI and the designation of Areas of Particular Concern in both terrestrial and marine environments.

FRESHWATER ECOLOGY

While a graduate student at the University of Michigan Mr. Harrison worked as a Research Fellow at the Cooperative Institute for Great Lakes Research (CIGLR) where he improved satellite monitoring for near-term harmful algal blooms in Lake Erie and Saginaw Bay. This work has been published in the journal Harmful Algae.

MARINE ECOLOGY AND CORAL BIOLOGY

Mr. Harrison worked at the Smithsonian Tropical Research Institute (STRI) where his focus was marine community ecology and coral biology. During his time at the Smithsonian Mr. Harrison investigated top-down control disruptions in coral reefs, mangroves, and sea grasses. In addition, Mr. Harrison investigated differences in tolerance to thermal and hypoxic stress on two Caribbean coral species. This work has been published in the Proceedings of the National Academy of Sciences and Nature Communications.

RELEVANT SKILLS AND CERTIFICATIONS

Software – R, ArcGIS, ERDAS IMAGINE, CoralNET, Image J

Hardware – YSI handhelds and sondes, hydrophones, RTK GPS networks and Trimble Total Station

Certifications – PADI Rescue Diver and Nitrox, PADI Emergency Oxygen Provider, Panamanian Boating License, Shoreline Cleanup and Assessment Technique

AWARDS AND FELLOWSHIPS

Leadership Fellowship, University of Michigan (2018)

Paul. S. Limnology Fellowship, University of Michigan (2018)

Smithsonian Tropical Research Institute Fellowship (2015)

PUBLICATIONS

Thomsen, M.S., A.H. Altieri, C. Angelini, M.J. Bishop, F. Bulleri, R. Farhan, V.M. Fröhling, P.E. Gribben, **S.B. Harrison**, ... and G. Zotz. 2022. Heterogeneity within and among co-occurring foundation species increases biodiversity. *Nature Communications*, 13(1), 581.

Den Uyl, P.A., **S.B. Harrison**, C.M. Godwin, M.D. Rowe, J.R. Strickler, and H.A. Vanderploeg. 2021. Comparative analysis of *microcystis* buoyancy in western Lake Erie and Saginaw Bay of Lake Huron. *Harmful Algae*, 108, 102102.

Harrison, S. and A. Altieri. 2021. Nutrients and consumers have direct effects on coral recovery after biological disturbance. June 2021 Marianas Terrestrial Conservation Conference – Virtual.

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- Harrison, S.**, A. Oest, H. Wu, and C. Ramsey. 2020. Assessment of Ecosystem Management Strategies and Stakeholder Needs for Harmful Algal Blooms in the Great Lakes. Thesis published internally at University of Michigan. <https://deepblue.lib.umich.edu/handle/2027.42/155019>.
- Altieri, A.H., **S.B. Harrison**, J. Seemann, R. Collin, R.J. Diaz, and N. Knowlton. 2017. Tropical dead zones and mass mortalities on coral reefs. *Proceedings of the National Academy of Sciences*, 114(14), 3660-3665. <https://doi.org/10.1073/pnas.1621517114>.
- Altieri, A., L. Frhling and **S.B. Harrison**. 2014. Top-down control disrupts facilitation cascade in a mangrove ecosystem. 99th ESA Annual Convention, Sacramento (CA).