Matt McIntosh/NOAA

# MARINE BIODIVERSITY DIALOGUES I
## *TASK FORCE TO DEVELOP A MARINE BIODIVERSITY ASSESSMENT FRAMEWORK*

To maintain healthy marine ecosystems in the United States, researchers, managers, and practitioners suggest that a scientific framework would help to identify the types and percentages of biodiversity in need of protection. The Lenfest Ocean Program and the National Marine Sanctuary Foundation are supporting an international team of experts led by Dr. J. Emmett Duffy, Smithsonian Institution, and Dr. Daniel Dunn, University of Queensland, to:

- develop a framework to assess the abundance and distribution of marine biodiversity; and

- apply it to U.S. waters from the near coast to the borders of Exclusive Economic Zone (EEZ).

## BACKGROUND

Global marine biodiversity plays a vital role in maintaining essential ecosystem functions, including primary productivity, food provision, and shelter. For example, structure-forming plants like kelp and seagrasses not only produce oxygen via photosynthesis, but also provide shoreline protection and habitat for many fish and shellfish. In return, gastropods and small crustaceans feed on algae growing on seagrasses, preventing the plants from being smothered. In the U.S., marine sanctuaries and other strategically placed habitat protections can safeguard biodiversity hotspots, enhancing ecosystem health and the many benefits they provide.

In 2000, President Clinton signed Executive Order 13158, which called for a "scientifically based, comprehensive national system of marine protected areas (MPAs) representing diverse U.S. marine ecosystems, and the Nation's natural and cultural resources." Over the last 20 years, the increase in size and number of MPAs in federal waters (between 3 and 200 miles offshore) has generally occurred on a site-by-site basis, likely leaving gaps in protection of important habitats. The lack of a system-wide strategy for MPA placement and size reduces their efficiency in providing sustainable use and conservation benefits.

## AN ASSESSMENT FRAMEWORK APPROACH

Drs. Duffy and Dunn will convene two teams of experts to examine existing data, methods, expert opinion, and analytical tools to assess the status of marine biodiversity and habitat conservation in U.S. federal waters. This work will inform creation of a framework that enables agency managers and scientists to holistically assess current biodiversity protections, target areas most in need of management action, and facilitate adaptation to changing ocean conditions.

## Team 1: Scoping the Framework

Participants will be international experts in marine ecology, conservation science, resource management, and monitoring that have informed efforts all over the world to study and sustain marine biodiversity. They will scope a data-based framework to assess spatial gaps in protection of marine biodiversity in U.S. waters.

- **Compile and discuss data, information and case study examples:** Team members will give a series of presentations and hold discussions to bring together information from domestic and international case studies in marine conservation planning and biodiversity monitoring. The team will compile goals, objectives, and methodological approaches.
- **Produce synthesis summaries:** Subgroups of team members will produce written summaries of the types of frameworks available to assess biodiversity, ways to incorporate impacts from climate change, and appropriate indicators. These summaries will form the basis for Team 2.

Team 1 will conduct their work from May through August 2020.

## Team 2: Developing the Framework

In this second phase, a second team will use the framework and recommendations from Team 1. Team 2 will include some of the participants from Team 1 and experts in geospatial analysis. This group will quantitatively evaluate marine habitat and biodiversity conservation in U.S. federal waters. The lead researchers will use findings from both phases to develop an evidence-based framework to inform strategies for sustaining U.S. marine biodiversity through protected areas at a national scale.

Team 2 will conduct their work from August through September 2020.

## Lead Researchers

- J. Emmett Duffy, Director, Tennenbaum Marine Observatories Network and MarineGEO Program, Smithsonian Institution

- Daniel Dunn, Senior Lecturer, School of Earth and Environmental Sciences, University of Queensland

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Nick Zachar/NOAA


Greg McFall/NOAA


Nick Zachar/NOAA

## Contact

For any questions, please contact Emily Knight, Manager, Lenfest Ocean Program, at eknight@lenfestocean.org. To learn more about this research and stay up to date on our latest projects, follow us on Twitter @lenfestocean or sign up for our newsletter at lenfestocean.org.

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