



PLANNING FOR A

Changing Ocean

Shifting Species in the Mid-Atlantic

Fish in the Mid-Atlantic are on the move. Aquatic habitats are, by definition, fluid places, and as waters flow from one area to another, so do their inhabitants.

The physical attributes of the ocean – like temperature, oxygen levels and currents – continually influence where fish thrive, migrate or find their next meal. At the same time, factors such as sea level rise and ocean acidification are impacting marine life in ways that are only now beginning to be understood.

Fortunately, the Mid-Atlantic is home to a wealth of expertise dedicated to these issues. Scientists, academic institutions, nonprofit organizations, government agencies and fishermen are collecting and pooling their information and expertise, which is being used to create databases and innovative map products that help illustrate the extent of shifting habitats.

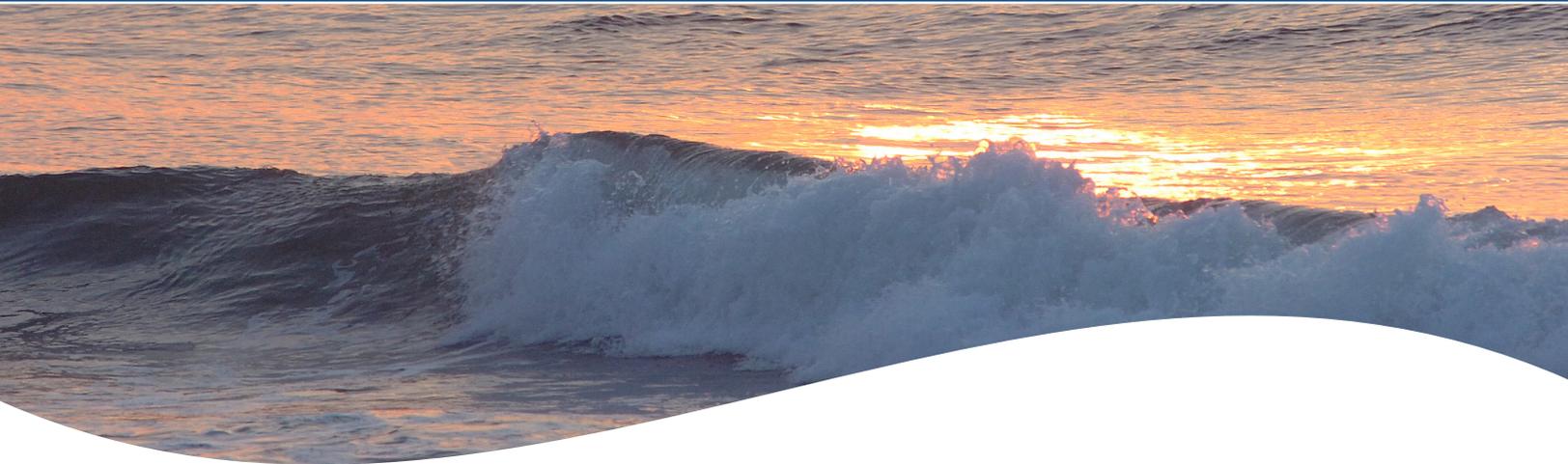
About the Project

Planning for a Changing Ocean aimed to understand how a changing climate impacts our ocean and the Mid-Atlantic's diverse marine ecosystems, coastal communities and economies. The project examined the implications for resilience of current trends, including increased acidification of coastal and ocean waters, the availability of offshore sand resources and shifting marine life habitats. The project was a collaboration of the **Mid-Atlantic Regional Council on the Ocean (MARCO)**, the **Mid-Atlantic Regional Association Coastal Ocean Observing System (MARACOOS)** and the **Monmouth University Urban Coast Institute (UCI)**, made possible by a grant from the **National Oceanic and Atmospheric Administration (NOAA)**.



FOR MORE INFORMATION, VIEW OUR FULL REPORT

Workshop Summary: Changing Ocean Conditions Related to Fisheries, at MidAtlanticOcean.org.



However, information about the available data and latest scientific discoveries does not always make it to those who could benefit from it most. To that end, a workshop was held at Rutgers University in 2017 to facilitate an exchange of information between some of the region's leading marine scientists, managers, and commercial fishermen. The goals of the session were to:

- **Identify regional data** sources and assets that are relevant to ecological observation and modeling.
- **Inventory existing efforts** in the region to explore changing ocean conditions, ecosystem shifts and their impacts on fisheries.
- **Identify knowledge/resource gaps** that must be addressed in order to develop tools that better inform management decisions.
- **Develop a strategy** to improve communication of these efforts between scientists, managers, and commercial fishermen.

This workshop helped to implement the [Mid-Atlantic Regional Ocean Action Plan's](#) Healthy Ocean Ecosystem action 2 on shifts in ocean species and habitats.

Findings

The input received before and during the workshop highlighted the variety of resources available to support scientific research, assessment and decision making related to changing ocean conditions and fisheries in the Mid-Atlantic. Those resources include environmental information from MARACOOS, industry-based data collection, and both state and federal research.

The meeting participants identified these critical gaps to both better utilize existing resources and invest in additional needs:

- **In the short term**, the primary need was to facilitate collaborative interactions among all subject matter experts, including industry, government and academic stakeholders.
- **Over the longer term**, effort is needed to engage a broader group with better communication strategies. An improved exchange of information could lead to the availability of more current datasets that equip fishery management agencies and others to make more informed decisions.

Shifting Species: Butterfish

As noted in the Mid-Atlantic Regional Ocean Assessment (roa.midatlanticocean.org), butterfish is one species that is actually spending more time close to shore. While many species are moving north to cooler waters, research by NOAA Fisheries scientists indicates other species are moving into the Mid-Atlantic's shallower waters that can be cooler than deeper water in the spring.