MONMOUTH UNIVERSITY

URBAN COAST INSTITUTE

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UCI's MacDonald Joins Team Researching How Chemical Cues Influence Marine Life Habitat Selection on Coral Reefs in Belize

WEST LONG BRANCH, NJ – What makes fish feel at home around healthy coral reefs and avoid degraded ones? Monmouth University Urban Coast Institute (UCI) Director Tony MacDonald has joined a research team dedicated to understanding the chemical cues that influence how fishes, corals and other organisms select a reef habitat.

The project is being led by the University of Delaware's Danielle Dixson with the support of a $1 million grant from the Gordon and Betty Moore Foundation. Additional collaborators include Valerie Paul, a natural products chemist and lead scientist at the Smithsonian Marine Station and director of the Carrie Bow Cay field station in Belize; and Jay Odell, Mid-Atlantic marine program director at The Nature Conservancy in Virginia.

Previous research by Dixson demonstrated that fish can tell the difference between healthy and degraded reefs, and that degraded reefs produce a chemical cue that repels fishes and corals. The researchers will conduct surveys during high recruitment periods at the Smithsonian Institution's Carrie Bow Cay research station in Belize and record the composition of the benthic communities (coral, algae, sand), as well as what fish and other reef creatures — and their predators — recruit to these communities. The data will provide a picture of what is different on high recruitment reefs and low recruitment reefs. Armed with this information, the researchers will perform chemical tests to determine the source of positive or negative cues.

MacDonald and Odell will focus on how the chemical cues data could potentially be incorporated in digital mapping tools that will help inform reef conservation management decisions and ocean planning. They will work with the researchers to determine how their work may be transferred to other regions, particularly in the Mid-Atlantic region. The UCI is currently leading the development of the Mid-Atlantic Ocean Data Portal (portal.midatlanticocean.org), a free, state-of-the-art mapping and information site focused on ocean areas from New York through Virginia. Odell serves as the technical lead on the Portal project, and was recognized by the UCI with a Regional Champion of the Ocean award in 2015.

"This is an exciting opportunity to work with a team of innovative scientists on research that could impact coral preservation around the world," MacDonald said. "The data gathered through this project will be used to develop more effective marine management and ocean planning strategies."

Research at the Carrie Bow Cay facility will take place beginning this summer. The project is scheduled for completion in the fall of 2019.

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About the Urban Coast Institute

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The Urban Coast Institute (UCI) was established in 2005 as one of Monmouth University's "Centers of Distinction." The UCI's mission is to serve Monmouth University and the public interest as a forum for research, education and collaboration in the development and implementation of science-based policies and programs that support stewardship of healthy, productive and resilient coastal ecosystems and communities. Visit www.Monmouth.edu/uci for more information.

About the Gordon and Betty Moore Foundation

The Gordon and Betty Moore Foundation fosters path-breaking scientific discovery, environmental conservation, patient care improvements and preservation of the special character of the Bay Area. Visit Moore.org or follow @MooreFound.