

# ENVIRONMENTAL INSIGHTS

NEWS FROM THE UNIVERSITY OF MARYLAND CENTER FOR ENVIRONMENTAL SCIENCE

**SCIENCE IN THE TIME OF COVID-19:** While UMCES researchers have had to limit what can be done while respecting social distancing and State guidelines, they persevere in pursuing important research.



## **NSF-funded project looks at influence of environmental quality on Chesapeake Bay policy decisions**

The impacts of congested roads, over-development, and farming practices on water quality in the Chesapeake Bay has been well-documented for decades, but what is less understood is how a damaged environment shapes human responses. A four-year, \$1.4 million grant from the National Science Foundation (NSF) will help researchers and water quality stakeholders predict how changes to environmental quality influence human behavior and policy decisions, and how those decisions impact quality of life throughout the bay.

"We currently have the computational tools we need to predict how human-induced nutrient pollution impacts water quality and living resources in the

Chesapeake Bay," said Raleigh Hood. "The revolutionary thing about this project is that it will develop new tools that allow us to predict how degraded water quality impacts human decisions and actions aimed at restoring the Chesapeake Bay."

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## Maryland loses pioneering Chesapeake Bay scientist

UMCES Professor Emeritus Michael Kemp, a pioneering ecosystems ecologist and world leader in conducting research on the ecology of estuaries, has passed away after a courageous battle with Parkinson's disease. Admired for his collegiality, scientific curiosity and his mentorship of early-career scientists, Kemp made significant contributions to the understanding of nutrient cycling in estuaries, the ecology and physiology of submerged aquatic vegetation, and the metabolism of estuarine ecosystems, as well as the causes of hypoxic waters and declines in aquatic plants in estuaries.



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## Powerful nitrous oxide emissions are putting the planet on track for a dangerous warming

Nitrous oxide from agriculture and other sources, a greenhouse gas that is 300 times more harmful than carbon dioxide, is accumulating in the atmosphere so quickly it is putting the planet on track for a dangerous warming this century, according to an international group of scientists.

"Nitrous oxide is a potent greenhouse gas that contributes to climate change and to destruction of the protective ozone layer of the upper atmosphere. It is increasing in the atmosphere at an alarming rate due mostly to emissions from the use of fertilizers and manures in agriculture," said Eric Davidson. "While there has been success in some regions to reduce emissions through improved agricultural practices, there is an urgent need to apply those improvements more broadly."

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## UMCES scientists tapped for national, global leadership on environmental challenges



An expert in the toxicological effects of oil on marine organisms, **Carys Mitchelmore** has been invited to serve on a prestigious National Academies of Sciences' Oil in the Sea IV Committee to study the inputs, fates and effects of oil in the marine environment with the scientific group. Her work in

environmental health and

toxicology has centered around investigating the fate and effects of pollutants on aquatic organisms, especially corals.

Environmental economist **Lisa Wainger** has been appointed to the California Delta Independent Science Board, joining scientists drawn from universities across the nation and from the federal government to advise the state of California on its management of the Delta ecosystem. Similar in intent to the Chesapeake Bay Program, the California Delta program seeks to restore and sustain the waters, natural resources and communities in the California Bay-Delta system.



**Mario Tamburri** has an international reputation for his work on green ship and green port innovations, and the role of commercial shipping in the spread of aquatic invasive species. He has turned his attention toward fouling organisms that attach to and grow on the hulls of ships and has been invited to be a

founding member of the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection, which has been established as an interagency body of the United Nations.



### **NEXT GENERATION: Shannon Hood on oyster aquaculture**

"My research focuses on advancing the oyster aquaculture industry through improved production practices that can streamline the efficiency of these operations. My primary research focus is on using exposure to air to control biofouling on cultured oysters. Biofouling, or plants and animals which attach to the oysters and/or cages, can be thought of akin to weeds in a cornfield. They can detract from the growing conditions available to the crop of interest, the oysters. I'm interested in finding an environmentally friendly method to control biofouling and improve efficiency of aquaculture operations."

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**"Climate change is here, and it doesn't care if we believe it in or**

**not."** Victoria Coles talks to BBC News about the impact of climate change and the threat of rising sea levels on Tangier Island in the Chesapeake Bay.

## WATCH

### UMCES IN THE NEWS

New research: Nitrous oxide emissions 300 times more powerful than CO<sub>2</sub> are jeopardising Earth's future (The Conversation)

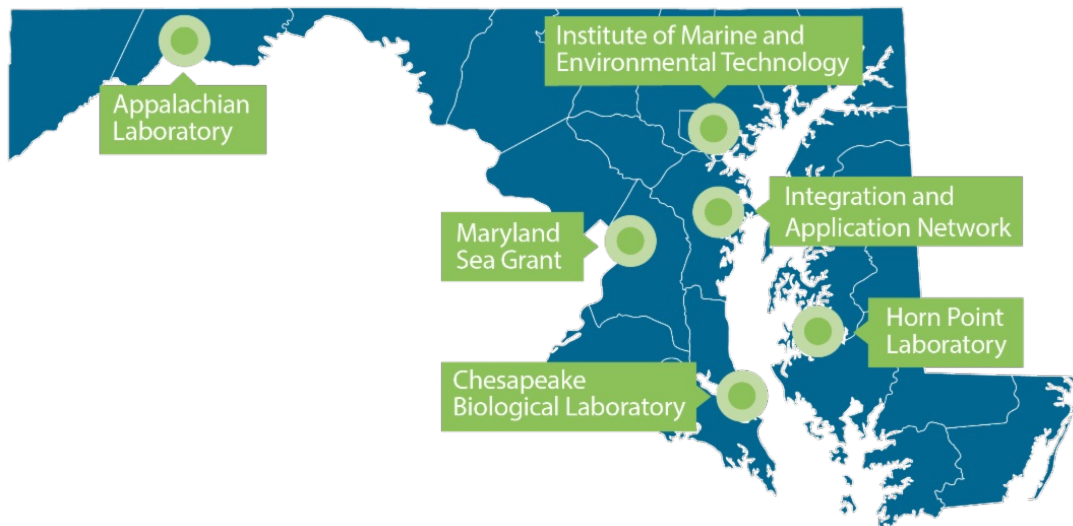
Mapping out rest stops for migrating birds (Science Daily)

This year's Chesapeake Bay dead zone is the second smallest since 1985, report says (Yahoo! News)

Rising Waters: Climate change and the Chesapeake Bay (The Chestertown Spy)

New Levels of Drought Forming (Progressive Farmer)

Stream restoration techniques draw pushback: Some question wisdom of tree removal (Augusta Free Press)



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