



GUIDE TO EXPERTS

University of Maryland Center for Environmental Science

2024

HARNESSING THE POWER OF SCIENCE to transform the way society understands and manages the environment

A globally eminent research and graduate institution focused on advancing scientific knowledge of the environment, the **University of Maryland Center for Environmental Science** provides sound advice to help state and national leaders and prepares future scientists to meet the global challenges of the 21st century.



RESEARCH

We work across disciplines and in diverse settings—from the Appalachian Mountains to the Arctic—seeking solutions that improve people’s lives and sustain the natural world.



PUBLIC SERVICE

As trusted scientific advisors, our faculty provide unbiased research to inform management decisions and public policy on pressing environmental issues in our communities and around the world.



EDUCATION

Our renowned faculty train the next generation of environmental leaders as part of the University System of Maryland’s nationally ranked graduate program in marine and environmental science.



POPULAR TOPICS

CHESAPEAKE BAY RESTORATION

CHESAPEAKE BAY REPORT CARD:

Bill Dennison, Professor: Coastal ecosystem ecology, assessing ecosystem health dennison@umces.edu

CRABS: **Thomas Miller**, Professor:

Recruitment and population dynamics of aquatic animals, fish early life history, blue crabs

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OYSTERS: **Michael Wilberg**, Professor:

Population dynamics, quantitative fisheries, stock assessment, management strategy evaluation, fisheries management

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OYSTER HATCHERY: **Stephanie Alexander**,

Oyster Hatchery Manager: Production of oyster larvae, seed, spat on shell, restoration, aquaculture tobash@umces.edu

FISHERIES: **David Secor**, Professor:

Migration and population ecology of marine fishes, telemetry and analytical techniques for tracking fish movements, fisheries and protected species

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DEAD ZONES: **Jeremy Testa**, Associate

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CLIMATE CHANGE

Victoria Coles, Professor: Climate

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Matthew Fitzpatrick, Professor:

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Hali Kilbourne, Associate Professor:

Paleoclimatology and paleoceanography, contextualizing modern climate change and exploring the processes causing seasonal to centennial climate variability

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Ming Li, Professor: Physical oceanography,

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TOPICS OF EXPERTISE

AGRICULTURAL/ LAND IMPACTS

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Biogeochemistry and
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Terrestrial and atmospheric
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Xin Zhang, Professor:
Environmental science and
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cycles of carbon and
nitrogen, earth system
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AIR QUALITY

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ALGAL BLOOMS

Pat Glibert, Professor:
Phytoplankton ecology,
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Allen Place, Professor:
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ALTERNATIVE ENERGY

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IMPACT ON MARINE LIFE—

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CHEMISTRY & TOXICOLOGY

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Chemical diversity of
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Johan Schijf, Associate Professor: Aqueous biogeochemistry of trace metals schijf@umces.edu

CHESAPEAKE BAY RESTORATION

Walter Boynton, Professor Emeritus: Systems ecology, nutrient cycling in estuarine systems, estuarine restoration, management/policy boynton@umces.edu

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Bill Dennison, Professor: Coastal ecosystem ecology, bioindicators in nearshore environments, assessing ecosystem health dennison@umces.edu

Matthew Gray, Assistant Professor: Ecophysiology of bivalves, ecological restoration, ecosystem services, aquaculture mgray@umces.edu

Jeremy Testa, Professor: Estuarine biogeochemistry, dissolved oxygen cycling, numerical modeling, estuarine systems ecology jtesta@umces.edu

Lisa Wainger, Research Professor: Environmental economics, integrated ecological and economic modeling, ecosystem services, environmental restoration, water quality trading wainger@umces.edu

CLIMATE CHANGE

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“What you do with coastline management has huge implications in terms of how the tides and storm surge in Chesapeake Bay respond to sea-level rise. Climate change is real; sea-level rise is happening. We have to understand it and plan for it right now.”

—Oceanographer Ming Li, co-author of “Sea-level rise projections for Maryland”



“Maybe we’ll see higher production of some things like blue crabs, but we may see diminished production of fish that don’t do so well in warmer waters, such as striped bass, perch and black sea bass.”

—Fisheries expert Dave Secor on the impact of climate change on the commercial fishery in

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ARCTIC RESPONSE—

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WILDFIRE— Mark Cochrane, Professor: Earth systems science, wildland fire, climate change, ecology, land cover change, remote sensing
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COASTAL ECOSYSTEMS

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CRABS

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EDUCATION & PUBLIC ENGAGEMENT

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FISHERIES

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FORESTS & TERRESTRIAL ECOLOGY

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MARINE FOOD WEB

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NUTRIENT DYNAMICS

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“Within the lifetime of children living today, the climate of many regions is projected to change from the familiar to conditions unlike those experienced in the same place by perhaps any generation. .”

—Matt Fitzpatrick created the Future Urban Climates app

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Lora Harris, Professor:
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Jeremy Testa, Professor:
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Xin Zhang, Professor:
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OCEAN SCIENCE

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Raleigh Hood, Professor:
Models to simulate and
predict biogeochemical
and ecological variability
in marine environments
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“Decoding the blue crab genome enables us to decode the factors providing resiliency of the blue crab to climate change and disease in the Chesapeake Bay and beyond.”

— Biochemist Sook Chung led the effort to sequence the genome of blue crab

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PHYSICAL—

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OYSTERS

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STREAM HEALTH & RESTORATION

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Solange Filoso, Associate Research Professor: Biogeochemistry and nutrient dynamics, effectiveness of stream restoration, impacts of human activities on water resources, water quality, urban streams
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Robert Hilderbrand, Associate Professor: Stream ecology and conservation; stream assessment, monitoring, and restoration; watershed responses to land use/land cover change; brook trout
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UNDERWATER GRASSES

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URBAN WATERFRONTS

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WATER QUALITY

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“Sampling a single river, you need a net, crew, permit; it can be expensive. The eDNA approach is an alternative where you just take a water sample, and you get an idea of the abundance of fish.”

—Louis Plough on using DNA to track fish in area waterways



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