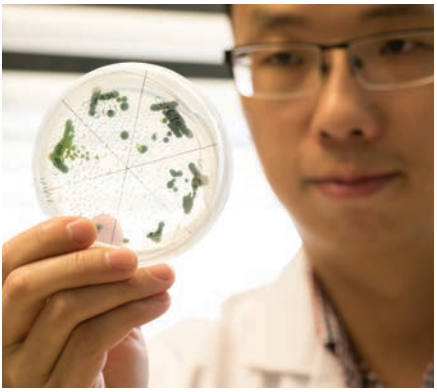





GUIDE TO EXPERTS

University of Maryland Center for Environmental Science

2023

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**, Vice President for Science Applications and Professor (IAN): Coastal ecosystem ecology, assessing ecosystem health dennison@umces.edu

CRABS: **Thomas Miller**, Director and Professor (CBL): Recruitment and population dynamics of aquatic animals, fish early life history, blue crabs miller@umces.edu

OYSTERS: **Michael Wilberg**, Professor (CBL): Population dynamics, quantitative fisheries, stock assessment, management strategy evaluation, fisheries management wilberg@umces.edu

OYSTER HATCHERY: **Stephanie Alexander**, Oyster Hatchery Manager (HPL): Production of oyster larvae, seed, spat on shell, restoration, aquaculture tobash@umces.edu

FISHERIES:
David Secor, Professor (CBL): Migration and population ecology of marine fishes, telemetry and analytical techniques for tracking fish movements, fisheries and protected species secor@umces.edu

DEAD ZONES: **Jeremy Testa**, Associate Professor (CBL): Estuarine biogeochemistry, dissolved oxygen cycling, numerical modeling, estuarine systems ecology jtesta@umces.edu

CLIMATE CHANGE

Victoria Coles, Professor (HPL): Climate variability and change, observations and modeling of ocean and estuarine ecology, biogeochemistry and circulation vcoles@umces.edu

Andrew Elmore, Professor (AL): Landscape ecology, remote sensing, spatial analysis, understanding global changes at the interface of ecology, geology, and the human sciences aelmore@umces.edu

Matt Fitzpatrick, President: Ecosystem restoration and management of aquatic systems, particularly tidal and wetland systems, hydrodynamics modeling, sediment transport and flood risk reduction pgoodwin@umces.edu

Hali Kilbourne, Associate Professor (CBL): Paleoclimatology and paleoceanography, contextualizing modern climate change and explor-ing the processes causing seasonal to centennial climate variability kilbourn@umces.edu

MEDIA CONTACT:

Amy Pelsinsky
Assistant Vice President for Communications
410-330-1389 | apelsinsky@umces.edu

TOPICS OF EXPERTISE

AGRICULTURAL/ LAND IMPACTS

Eric Davidson, Professor (AL): Biogeochemistry and soil microbial ecology in forests and agriculture, greenhouse gas emissions, water quality
edavidson@umces.edu

Tom Fisher, Professor (HPL): Terrestrial and atmospheric nutrient inputs, nutrient cycling and limitation
fisher@umces.edu

Xin Zhang, Professor (AL): Environmental science and policy, biogeochemical cycles of carbon and nitrogen, earth system modeling
xin.zhang@umces.edu

AIR QUALITY

Mark Castro, Associate Professor (AL): Atmospheric-biosphere interactions, impacts of land use on water quality
mcastro@umces.edu

Xin Zhang, Professor (AL): Biogeochemical cycles of carbon and nitrogen, earth system modeling, atmospheric-biosphere interactions
xin.zhang@umces.edu

ALGAL BLOOMS

Pat Glibert, Professor (HPL): Phytoplankton ecology, nitrogen uptake and mineralization by plankton, primary production and photosynthesis
glibert@umces.edu

Judy O'Neil, Research Associate Professor(HPL): Cyanobacteria ecophysiology and plankton trophodynamics
joneil@umces.edu

Allen Place, Professor (IMET): Genomics of toxin producing dinoflagellates, mitigation of cyanobacteria blooms place@umces.edu

ALTERNATIVE ENERGY

Feng Chen, Professor (IMET): Marine microbial ecology, microbial diversity, genomics, clean green biotechnology
chenf@umces.edu

Russell Hill, Director and Professor (IMET): Symbiosis between bacteria and marine invertebrates, microalgae and biofuels
hill@umces.edu

Yantao Li, Associate Professor (IMET): Microalgal molecular biology and lipid biochemistry, biotechnology and environmental bioremediation, metabolic engineering for biofuels and bioproducts
yantao@umces.edu

IMPACT ON MARINE LIFE—
David Secor, Professor (CBL): Migration and population ecology of marine fishes, telemetry and analytical techniques for tracking fish movements, fisheries and protected species
secor@umces.edu

CHEMISTRY & TOXICOLOGY

Michael Gonsior, Associate Professor (CBL): Chemical diversity of complex dissolved organic matter in aquatic and engineered systems, disinfection by-products, photochemistry, fluorophores
gonsior@umces.edu

Andrew Heyes, Associate Research Professor (CBL): Trace metal geochemistry, mineral weathering, contaminant transport and hydrology, sedimentology, wetlands and aquatic chemistry
heyes@umces.edu

Carys Mitchelmore, Professor (CBL): Water quality, environmental fate and impacts of pollutants, hydrocarbons and personal care products, toxicity testing, oyster health and aquaculture, coral health and biochemistry
mitchelmore@umces.edu

Christopher Rowe, Associate Professor (CBL): Physiological ecology, ecotoxicology, herpetology rowe@umces.edu

Johan Schijf, Associate Professor (CBL): Aqueous biogeochemistry of trace metals schijf@umces.edu

CHESAPEAKE BAY RESTORATION

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

Jeff Cornwell, Research Professor (HPL): Beneficial use of dredged materials for wetland restoration, water quality effects of dredging cornwell@umces.edu

Bill Dennison, Vice President for Science Application and Professor: Coastal ecosystem ecology, bioindicators in nearshore environments, assessing ecosystem health dennison@umces.edu

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

Lorie Staver, Assistant Professor (HPL) Environmental science, wetland ecology, restoration ecology lstaver@umces.edu

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

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

CLIMATE CHANGE

Victoria Coles, Professor (HPL): Climate variability and change, observations and modeling of ocean and estuarine ecology, biogeochemistry and circulation vcoles@umces.edu

Andrew Elmore, Professor (AL): Landscape ecology, remote sensing, spatial analysis, understanding global changes at the interface of ecology, geology, and the human sciences aelmore@umces.edu

Matthew Fitzpatrick, Professor (AL): Spatial modeling, quantitative ecology, biogeography, macro-ecology,biodiversity, climate change, biological invasions mfitzpatrick@umces.edu

Hali Kilbourne, Associate Professor (CBL): Paleoclimatology and paleoceanography, contextualizing modern climate change and explor-

"What you do with coastline management has huge implications in terms of how the tides and storm sturge 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

ing the processes causing seasonal to centennial climate variability kilbourn@umces.edu

Ming Li, Professor (HPL): Physical oceanography, estuarine and coastal dynamics, regional impacts of climate change and extreme weather events, biological-physical interactions mingli@umces.edu

Michael Roman, Professor (HPL): The effects of warming oceans and decreasing oxygen on marine food webs roman@umces.edu

Christopher Rowe, Associate Professor (CBL): Physiological ecology, ecotoxicology, herpetology rowe@umces.edu

Jian Zhao, Assistant Professor (HPL): Physical oceanography, mesoscale and sub-mesoscale processes, ocean's role in climate, geophysical fluid dynamics jianzhao@umces.edu

ARCTIC RESPONSE— **Lee Cooper**, Research Professor (CBL): Stable and radioisotope composition of organic materials and natural waters, aquatic plant physiology, high latitude oceanography and hydrology cooper@umces.edu

Jackie Grebmeier, Research Professor (CBL): Ecological responses of Arctic continental shelves to climate change, benthic ecology and marine ecosystem dynamic; connections among sea-ice coverage, water column processes and sea-floor organisms jgrebmei@umces.edu

WILDFIRE— **Mark Cochrane**, Professor (AL): Earth systems science, wildland fire, climate change, ecology, land cover change, remote sensing mark.cochrane@umces.edu

COASTAL ECOSYSTEMS

Jeff Cornwell, Research Professor (HPL): Sediment biogeochemistry, nutrient/metal/sulfur cycling in estuaries and coastal wetlands cornwell@umces.edu

Lora Harris, Professor (CBL): Systems ecology, coastal ecology, biogeochemistry, numerical modeling, metabolic rates lharris@umces.edu

Ming Li, Professor (HPL): Physical oceanography, estuarine and coastal dynamics, regional impacts of climate change and extreme weather events, biological-physical interactions mingli@umces.edu

William Nardin, Assistant Professor (HPL): Impact of storms and sea-level rise on wetlands eco-geomorphology, interaction between river (and estuaries), hydrodynamics and coastal processes wnardin@umces.edu

Cindy Palinkas, Associate Professor (HPL): Geological oceanography, sediment transport and deposition in intertidal, fluvial, and estuarine environments, tidal marshes response to environmental change
cpalinkas@umces.edu

Larry Sanford, Professor (HPL): Estuarine and coastal physical oceanography, fine sediment transport, boundary layers and turbulence, interdisciplinary processes in shallow water
lsanford@umces.edu

Lorie Staver,
Assistant Professor (HPL) Environmental science, wetland ecology, restoration ecology
lstaver@umces.edu

Court Stevenson, Professor Emeritus (HPL): Ecology of marsh and seagrass communities, effects of sea-level rise on coastal ecosystems, wetland restoration at Poplar Island, creation of living shorelines
court@umces.edu

Ryan Woodland, Assistant Professor (CBL): Coastal food webs, trophic ecology, fish ecology, anthropogenic effects and climate change, stable isotope ecology
woodland@umces.edu

CRABS

J. Sook Chung, Professor (IMET): Neuroendocrine regulation on crustacean physiology of molting, growth, reproduction, sex differentiation, and stress responses
chung@umces.edu

Thomas Miller,
Director and Professor (CBL): Recruitment and population dynamics of aquatic animals, fish early-life history, blue crabs
miller@umces.edu

Louis Plough, Associate Professor (HPL): Population structure of blue crabs, molecular identification of crabs species and origins, genomics of adaptation in blue crabs
lplough@umces.edu

Eric Schott, Associate Research Professor (IMET): Molecular detection and characterization of aquatic invertebrates, pathogens and viruses, soft-shell crabs
schott@umces.edu

Michael Wilberg, Professor (CBL): Population dynamics, quantitative fisheries, stock assessment, management strategy evaluation, fisheries management
wilberg@umces.edu

EDUCATION & PUBLIC ENGAGEMENT

Lora Harris, Professor (CBL): Systems ecology, coastal ecology, diversity in geosciences, SEAS Islands Alliance
harris@umces.edu

Eric Schott, Associate Research Professor (IMET): Molecular detection and characterization of aquatic invertebrates, pathogens and viruses, Living Marine Resources Cooperative Science Center
schott@umces.edu

Heath Kelsey,
Program Director (IAN): Conversations at the intersection of science/community/environment; scientific report cards on environmental restoration
hkelsey@umces.edu

Fredrika Moser, Director (MDSG): Marine science policy, science education, SEAS Island Alliance, REU Program
moser@mdsg.umd.edu

James Pierson, Associate Professor (HPL): Biological oceanography, plankton ecology, trophic dynamics, SEAS Island Alliance
jpierson@umces.edu

Larry Sanford, Vice President for Education and Professor (HPL): Estuarine and coastal physical oceanography, MEES program graduate education
lsanford@umces.edu

Cathlyn Davis Principal Agent (AL): Public engagement with science, citizen science, environmental education, educator professional development, education program design and evaluation
cathlyn.davisi@umces.edu

FISHERIES

Edward Houde, Professor Emeritus (CBL): Fisheries science, ecosystem-based management, ecology
ehoude@umces.edu

Victor S. Kennedy, Professor Emeritus (CBL): Historical exploitation of fisheries in Chesapeake Bay
kennedy@umces.edu

Thomas Miller, Director and Professor (CBL): Recruitment and population dynamics of aquatic animals, fish early-life history, blue crabs
miller@umces.edu

Genny Nesslage, Associate Research Professor (CBL): Fish and wildlife population dynamics and modeling, fisheries stock assessment, biological invasions, quantitative ecology
nesslage@umces.edu

Elizabeth North, Professor (HPL): Fisheries oceanography with emphasis on finfish and shellfish in estuaries, circulation and particle trajectory modeling
enorth@umces.edu

Allen Place, Professor (IMET): Elucidation of the molecular mechanisms that permit organisms to adapt to unique circumstances, sustainable fish feeds for aquaculture
place@umces.edu

Kenny Rose, Professor (HPL): Ecological modeling, fisheries assessment and management
krose@umces.edu

David Secor, Professor (CBL): Migration and population ecology of marine fishes, telemetry and analytical techniques for tracking fish movements, fisheries and protected species
secor@umces.edu

Michael Wilberg, Professor (CBL): Population dynamics, quantitative fisheries, stock assessment, management strategy evaluation, fisheries management
wilberg@umces.edu

FORESTS & TERRESTRIAL ECOLOGY

Mark Castro, Associate Professor (AL): Atmospheric-biosphere interactions, impacts of land use on water quality
mcastro@umces.edu

Mark Cochrane, Professor (AL): Earth systems science, wildland fire, climate change, ecology, land cover change, remote sensing
mark.cochrane@umces.edu

Andrew Elmore, Professor (AL): Landscape ecology, remote sensing, spatial analysis, understanding global changes at the interface of ecology, geology, and the human sciences
aelmore@umces.edu

Keith Eshleman, Professor (AL): Hydrology, watershed ecology, biogeochemistry of freshwater and groundwater, hydrological impacts of acid deposition, forest disturbances, and surface mining
keshleman@umces.edu

David Nelson, Director & Professor (AL): Stable isotope ecology, paleoecology, wind-wildlife interactions, watershed biogeochemistry
dnelson@umces.edu

GENOMICS & GENETICS

Tsvetan Bachvaroff, Associate Research Professor (IMET): Dinoflagellate evolution, DNA sequence analysis, establishing dinoflagellate cultures
bachvaroff@umces.edu

Katharina Engelhardt, Associate Research Professor (AL): Plant biodiversity (species and genetic), restoration ecology, wetland ecology, aquatic botany, invasion ecology, roadside grasses
kengelhardt@umces.edu

Robert Hilderbrand, Associate Professor (AL): Stream ecology and conservation, DNA sequencing for stream monitoring and assessment
rhilderbrand@umces.edu

Rose Jagus, Professor (IMET): Translational control of gene expression,

regulation of gene activity in early development, host defense against virus infection and viral countermeasures jagus@umces.edu

Allen Place, Professor (IMET): Elucidation of the molecular mechanisms that permit organisms to adapt to unique circumstances, molecular basis of sex determination place@umces.edu

Louis Plough, Associate Professor (HPL): Population genetics of marine animals, quantitative genetics, and experimental breeding of shellfish; larval biology of marine invertebrates lplough@umces.edu

Rodney Richardson, Assistant Professor (AL): Molecular ecology, pollinator ecology, metagenetics rodney.richardson@umces.edu

Eric Schott, Associate Research Professor (IMET): Molecular detection and characterization of aquatic invertebrates, pathogens and viruses, application of genome-targeted approaches in aquatic health schott@umces.edu

INVASIVE SPECIES

Katharina Engelhardt, Associate Research Professor (AL): Plant biodiversity, wetland ecology, aquatic botany, invasion ecology kengelhardt@umces.edu

Matthew Fitzpatrick, Professor (AL): Modeling the spread of invasive species, macroecology, biodiversity, climate change, quantitative ecology mfitzpatrick@umces.edu

Genny Nesslage, Associate Research Professor (CBL): Fish and wildlife population dynamics and modeling, invasive species dynamics, quantitative ecology nesslage@umces.edu

Mario Tamburri, Professor (CBL): Invasive species ecology (prevention and management), sustainable urban waterfronts, environmental technologies and observing tamburri@umces.edu

Lisa Wainger, Research Professor (CBL): Modeling economic benefits of management, assessment of invasive species, environmental economic indicators wainger@umces.edu

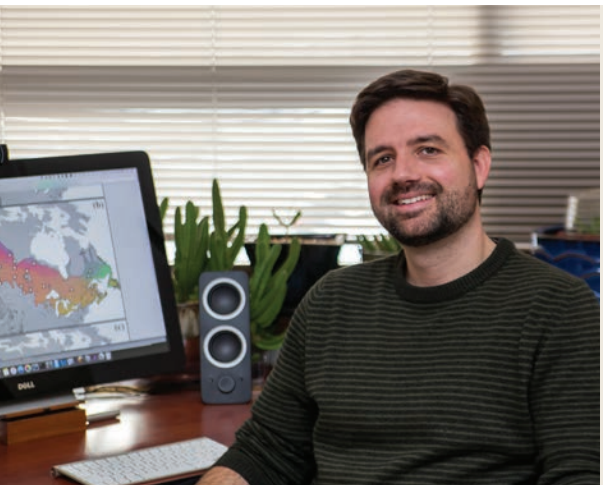
MARINE FOOD WEB

Hongsheng Bi, Associate Professor (CBL): Population modeling, zooplankton ecology, spatial statistics hbi@umces.edu

James Pierson, Associate Professor (HPL): Biological oceanography, plankton ecology, trophic dynamics, copepods jpierson@umces.edu

Michael Roman, Professor (HPL): Zooplankton ecology, biological oceanography roman@umces.edu

Ryan Woodland, Associate Professor (CBL): Coastal



"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

food webs, trophic ecology, fish ecology, anthropogenic effects and climate change, stable isotope ecology
woodland@umces.edu

MICROBIAL BIOLOGY

Feng Chen, Professor (IMET): Marine microbial ecology, microbial oceanography and biogeography, microbial diversity, genomics, functional genomics, clean green biotechnology
chenf@umces.edu

Jacob Cram, Assistant Professor (HPL): Microbial ecology, biogeochemistry, biological oceanography, mechanistic and statistical modelling, microbial communities, marine snow
jcram@umces.edu

Clara Fuchsman, Assistant Professor (HPL): Biogeochemical cycles, microbial ecology, sinking particles, anoxic environments such oxygen minimum zones
cfuchsman@umces.edu

Russell Hill, Director and Professor (IMET): Symbiosis between bacteria and marine invertebrates, molecular and culture-based studies of symbiotic bacteria, microalgae, biofuels
hill@umces.edu

Sairah Malkin, Assistant Professor (HPL): Biogeochemistry, microbial ecology, benthic ecology, geochemical cycling in aquatic systems
smalkin@umces.edu

Allen Place, Professor (IMET): Elucidation of the molecular mechanisms that permit organisms to adapt to unique circumstances, molecular basis of sex determination
place@umces.edu

NUTRIENT DYNAMICS

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

Jeff Cornwell, Research Professor (HPL): Biogeochemistry; nutrient, metal, and sulfur cycling in estuaries and coastal wetlands
cornwell@umces.edu

Eric Davidson, Professor (AL): Biogeochemistry and soil microbial ecology in forests/agriculture, greenhouse gas emissions and water quality
edavidson@umces.edu

Tom Fisher, Professor (HPL): Terrestrial and atmospheric nutrient inputs, nutrient cycling and limitation, primary production of aquatic systems
fisher@umces.edu

Lora Harris, Professor (CBL): Systems ecology, coastal ecology, biogeochemistry, numerical modeling, metabolic rates
harris@umces.edu

Laura Lapham, Associate Professor (CBL): Methane emissions from aquatic environments,

"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

biogeochemistry, carbon cycling, gas hydrates, hydrocarbon seeps lapham@umces.edu

Sairah Malkin, Assistant Professor (HPL): Biogeochemistry, microbial ecology, benthic ecology, geochemical cycling in aquatic systems smalkin@umces.edu

Andrea Pain, Assistant Professor (HPL): Carbon and nutrient processes across the land-sea interface, Arctic processes, coastal groundwater apain@umces.edu

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

Xin Zhang, Professor (AL): Biogeochemical cycles of carbon and nitrogen, earth system modeling, atmospheric-biosphere interactions xin.zhang@umces.edu

OCEAN SCIENCE

BIOLOGICAL—
Jacob Cram, Assistant Professor (HPL): Microbial ecology, biogeochemistry, mechanistic and statistical modeling, microbial communities, marine snow jcram@umces.edu

Clara Fuchsman, Assistant Professor (HPL): Biogeochemical cycles, microbial ecology, and sinking particles in anoxic environments such oxygen minimum zones cfuchsman@umces.edu

Jackie Grebmeier, Research Professor (CBL): Arctic benthic ecology and marine ecosystem dynamics, connections among sea ice coverage, water column processes and sea-floor organisms jgrebmei@umces.edu

Raleigh Hood, Professor (HPL): Using models to simulate and predict biogeochemical and ecological variability in marine environments rhood@umces.edu

Ming Li, Professor (HPL): Estuarine and coastal dynamics, regional impacts of climate change and extreme weather events mingli@umces.edu

Judy O'Neil, Research Associate Professor (HPL): Cyanobacteria ecophysiology and plankton trophodynamics joneil@umces.edu

James Pierson, Associate Professor (HPL): Biological oceanography, plankton ecology, trophic dynamics, copepods jpierson@umces.edu

Michael Roman, Professor (HPL): Zooplankton ecology, biological oceanography roman@umces.edu

Greg Silsbe, Assistant Research Professor (HPL): Role of phytoplankton in global carbon cycle, satellite remote-sensing, tropical limnology gsilsbe@umces.edu

Diane Stoecker, Professor Emeritus (HPL): Biological oceanography and plankton ecology, microzooplankton, mixotrophy (alternate modes of nutrition) in plankton stoecker@umces.edu

PHYSICAL—
William Boicourt, Professor Emeritus (HPL): Physical oceanographic processes, continental shelf and estuarine circulation boicourt@umces.edu

Lee Cooper, Research Professor (CBL): Stable and radioisotope composition of organic materials and natural waters, aquatic plant physiology, high latitude oceanography and hydrology cooper@umces.edu

Victoria Coles, Professor (HPL): Climate variability and change, observations and modeling of ocean and estuarine ecology, biogeochemistry and circulation modeling vcoles@umces.edu

Joe Jurisa, Assistant Professor (HPL): Mixing and transport processes in estuarine and coastal systems jjurisa@umces.edu

Larry Sanford, Professor (HPL): Estuarine and coastal physical oceanography, fine sediment transport, boundary layers and turbulence, interdisciplinary processes in shallow water lsanford@umces.edu

Jian Zhao, Assistant Professor (HPL): Mesoscale and sub-mesoscale processes, ocean's role in climate, geophysical fluid dynamics jianzhao@umces.edu

OYSTERS

Stephanie Alexander, Oyster Hatchery Manager (HPL): Production of oyster larvae, seed, spat-on-shell, restoration, aquaculture tobash@umces.edu

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

Elizabeth North, Professor (HPL): Fisheries oceanography with emphasis on finfish/shellfish in estuaries, circulation and particle trajectory modeling, OysterFutures enorth@umces.edu

Kennedy Paynter, Associate Professor (CBL): Comparative physiology of estuarine organisms, oyster disease biochemistry paynter@umces.edu

Louis Plough, Associate Professor (HPL): Population genetics of marine animals, quantitative genetics, and experimental breeding of shellfish, larval biology of marine invertebrates lplough@umces.edu

Michael Wilberg, Professor (CBL): Population dynamics, quantitative fisheries, stock assessment, management strategy evaluation, fisheries management wilberg@umces.edu

SOCIOECONOMIC MODELING

Lisa Wainger, Research Professor (CBL): Cost-effective environmental restoration strategies, value of ecosystem services, and other environmental economic modeling wainger@umces.edu

Xin Zhang, Professor (AL): Environmental science and policy, biogeochemical cycles of carbon and nitrogen, earth system modeling, xin.zhang@umces.edu

STATISTICS

Dong Liang, Associate Research Professor (CBL): Statistical issues in synthesizing environmental data sets, spatial sampling, remote sensing, spatio-temporal modeling dliang@umces.edu

Vyacheslav Lyubchich, Associate Research Professor (CBL): Machine learning and artificial intelligence, time series analysis, forecasting, applied statistics, non-parametric inference, random networks lyubchic@umces.edu

STREAM HEALTH & RESTORATION

Keith Eshleman, Professor (AL): Hydrology, watershed ecology, biogeochemistry of freshwater and groundwater, hydrological impacts of acid deposition, forest disturbances, and surface mining keshleman@umces.edu

Solange Filoso, Associate Research Professor (CBL): Biogeochemistry and nutrient dynamics, effectiveness of stream restoration, impacts of human activities on water resources, water quality, urban streams filoso@umces.edu

Robert Hilderbrand, Associate Professor (AL): Stream ecology and conservation; stream assessment, monitoring, and restoration; watershed responses to land use/land cover change; brook trout rhilderbrand@umces.edu

UNDERWATER GRASSES

Bill Dennison, Professor and Vice President: Coastal ecosystem ecology, ecophysiology of marine plants, bioindicators in nearshore environments, assessing ecosystem health dennison@umces.edu

"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

Katharina Engelhardt, Associate Research Professor (AL): Plant biodiversity, restoration ecology, wetland ecology, aquatic botany, invasion ecology
kengelhardt@umces.edu

URBAN WATERFRONTS

Allen Place, Professor (IMET): Elucidation of the molecular mechanisms that permit organisms to adapt to unique circumstances, HABs early warning system
place@umces.edu

Eric Schott, Associate Research Professor (IMET): Molecular detection and characterization of aquatic invertebrates, pathogens and viruses, soft-shell crabs
schott@umces.edu

Mario Tamburri, Professor (CBL): Sustainable urban waterfronts, invasive species ecology (prevention and management), environmental technologies and observing, chemical ecology of aquatic organisms
tamburri@umces.edu

Ryan Woodland, Associate Professor (CBL): Coastal food webs, trophic ecology, fish ecology, anthropogenic effects and climate change, stable isotope ecology
woodland@umces.edu

WATER QUALITY

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

Mark Castro, Associate Professor (AL): Atmospheric-biosphere interactions, impacts of land use on water quality
mcastro@umces.edu

Bill Dennison, Vice President for Science Applications and Professor: Ecology of marine plants, assessing ecosystem health, Chesapeake Bay report card
dennison@umces.edu

Keith Eshleman, Professor (AL): Hydrology, watershed ecology, biogeochemistry of freshwater and groundwater, hydrological impacts of acid deposition, forest disturbances, and surface mining
keshleman@umces.edu

Solange Filoso, Associate Research Professor (CBL): Biogeochemistry and nutrient dynamics, effectiveness of stream restoration, impacts of human activities on water resources, water quality, urban streams
filoso@umces.edu

Tom Fisher, Professor (HPL): Terrestrial and atmospheric nutrient inputs, nutrient cycling and limitation
fisher@umces.edu

Michael Gonsior, Associate Professor (CBL): Chemical diversity of complex dissolved organic matter in aquatic and engineered systems, disinfection by-products, photochemistry, fluorophores
gonsior@umces.edu

Lora Harris, Professor (CBL): Impact of management

actions on water quality, restoration of hypoxic estuaries, systems ecology, ecosystem modeling
harris@umces.edu

Carys Mitchelmore, Professor (CBL): Aquatic ecosystem health, whole effluent toxicity testing
mitchelmore@umces.edu

Judy O'Neil, Research Associate Professor (HPL): Cyanobacteria ecophysiology and plankton trophodynamics
joneil@umces.edu

Andrea Pain, Assistant Professor (HPL): Carbon and nutrient processes across the land-sea interface, Arctic processes, coastal groundwater
apain@umces.edu

Greg Silsbe, Assistant Research Professor (HPL): Role of phytoplankton in global carbon cycle, satellite remote-sensing, tropical limnology
gsilsbe@umces.edu

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

Qian Zhang, Watershed Effectiveness Data Analyst (IAN): Environmental science, water quality, watershed, nutrients, statistics, modeling
qzhang@umces.edu

WILDLIFE ECOLOGY

Emily Cohen, Assistant Professor (AL): Animal migration biology, migratory connectivity, stopover biology and aeroecology, population and behavioral ecology, ornithology
emily.cohen@umces.edu

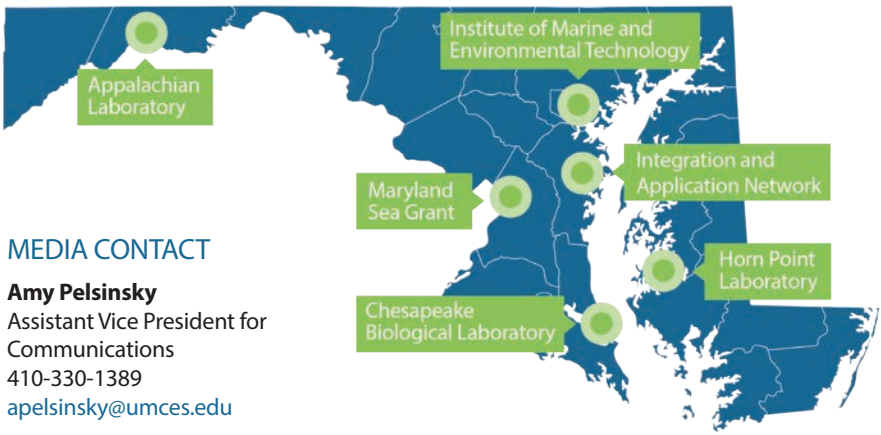
J. Edward Gates, Professor Emeritus (AL): Wildlife and conservation ecology and management, impact of land alteration/ connectivity/boundary dynamics, bats
egates@umces.edu

John Hoogland, Professor (AL): Evolution of social behavior, wildlife ecology, evolutionary ecology and behavior of prairie dog populations
hoogland@umces.edu

Rodney Richardson, Assistant Professor (AL): Molecular ecology, pollinator ecology, metagenetics rodney.richardson@umces.edu

Christopher Rowe, Associate Professor (CBL): Physiological ecology, ecotoxicology, herpetology
rowe@umces.edu

Location key:
AL -Appalachian Laboratory
CBL - Chesapeake Biological Laboratory
HPL - Horn Point Laboratory
IMET - Institute of Marine and Environmental Technology
IAN - Integration and Application Network
MDSG - Maryland Sea Grant



MEDIA CONTACT

Amy Pelsinsky
Assistant Vice President for Communications
410-330-1389
apelsinsky@umces.edu

LEADERSHIP

Peter Goodwin, President and Professor: Ecosystem restoration and management of aquatic systems, particularly tidal and wetland systems, hydrodynamics modeling, sediment transport and flood risk reduction pgoodwin@umces.edu

Bill Dennison, Vice President for Science Applications and Professor, Integration and Application Network: Ecology of marine plants, assessing ecosystem health, environmental report cards dennison@umces.edu

Larry Sanford, Vice President for Education and Professor: Coastal physical oceanography, sediment transport, waves, and physical/biological interactions lsanford@umces.edu

Dave Nemazie, Chief of Staff: Science communication, marine and estuarine ecology, watershed management, environmental policy and development nemazie@umces.edu

LABORATORY DIRECTORS

Russell Hill
Director and Professor, Institute of Marine and Environmental Technology: Symbiosis between bacteria and marine invertebrates, molecular and culture-based studies of symbiotic bacteria, microalgae, biofuels hill@umces.edu

Thomas Miller
Director and Professor, Chesapeake Biological Laboratory: Recruitment and population dynamics of aquatic animals, fish early-life history, blue crabs miller@umces.edu

David Nelson
Director and Professor, Appalachian Laboratory: Stable isotope ecology, biogeochemistry, global change ecology, ecosystem ecology, paleoecology, microbial ecology dnelson@umces.edu

Mike Sieracki
Director and Professor, Horn Point Laboratory: Biological oceanography, microbial plankton ecology msieracki@umces.edu

Fredrika Moser
Director, Maryland Sea Grant College: Marine science policy, invasive species policy, science eduation, coastal sedimentology, geochemistry moser@mdsg.umd.edu

Headquarters
2020 Horns Point Road
Cambridge, MD 21613
www.umces.edu

Appalachian Laboratory
301 Braddock Road
Frostburg, MD 21532
301-689-7100

Chesapeake Biological Laboratory
146 WIlliams Street / 0038
Solomons, MD 20688
410-326-4281

Horn Point Laboratory
2020 Horns Point Road
Cambridge, MD 21613
410-228-8200

Institute of Marine
and Environmental Technology
701 E. Pratt Street
Baltimore, MD 21202
410-234-8802

Integration and Application Network
429 Fourth Street
Annapolis, MD 21403
41-221-2005

Maryland Sea Grant College
5825 University Research Court, Suite 1350
College Park, MD 20737
301-405-7500

University of Maryland
CENTER FOR ENVIRONMENTAL SCIENCE