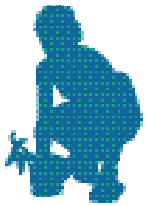
Future Focus: Discovery, Integration, Application, and Education

Energy Choices

Evaluate and communicate the environmental opportunities and consequences of energy production alternatives.

Society is being faced with a number of energy choices that should be informed by knowledge of the environmental, societal, and economic consequences. These choices provide new challenges and opportunities for biotechnologists, landscape and population ecologists, geologists and geochemists, climate and atmospheric scientists, hydrologists, toxicologists, and environmental economists, all of which are represented on the UMCES faculty.



Human Welfare

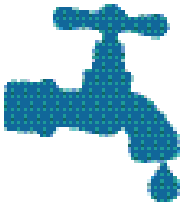
Support resilient ecosystems and human health across the land-ocean continuum.

The vast majority of the world's population is located along the coast. UMCES science has effectively focused on the health of ecosystems and living resources, paving the way for future attention on the causes, impacts, and mitigation strategies that minimize the risks to humans. The faculty is eminently qualified to address this focus through the study of sustainable fisheries management and environmentally compatible port operations, including understanding and managing emerging threats, such as from climate change, sea level rise, and invasive species.

Global Reach

Enhance the capacity for international collaboration and training around the world to develop expertise in environmental research, application, and management.

UMCES scientists are engaged in collaborative research and science application around the world. These activities enhance environmental science and its applications in Maryland, and likewise help extend our highly regarded accomplishments in the Chesapeake region to other regions of the world. UMCES has the potential to build strong institutional partnerships around the world, leading toward robust expert and student exchanges and instructional programs.



Water Security

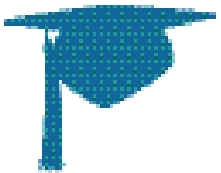
Understand, evaluate, and reduce the environmental consequences of demand for water for agricultural, industrial, and human use.

Population demands for reliable water supplies are likely to increase given ongoing climate and land use changes that influence the quantity and quality of fresh water supplies. These concerns go beyond issues of civil engineering, considering societal impacts on the quality of water available both for human use and to sustain important ecosystem services. Research and assessment to address these issues is inherently multi-disciplinary and would likely lead to increased collaboration among UMCES laboratories, forging new partnerships and collaborations.

Genes to Ecosystems

Understand and apply genetic regulation of key ecological processes.

This interdisciplinary focus brings together researchers with expertise in molecular biology, population and community ecology, fisheries and wildlife science, and biogeochemistry. The emerging knowledge also has significant potential for commercialization for uses ranging from waste remediation to drugs and biofuels.



Graduate Education and Workforce Development

The University System of Maryland Board of Regents has authorized UMCES to seek accreditation for the award of joint graduate degrees in the Marine-Estuarine-Environmental Sciences (MEES) Program, enabling us to operate a joint program with our most significant educational partner, the University of Maryland, College Park.

Additionally, accreditation would enable UMCES to offer professional development courses for credit and certificates. Then UMCES can serve an important and underserved market, thereby contributing to the development of Maryland's workforce and strengthening relationships with private and public sector employers.