

STARS Report 2024 – Public Policy

FEDERAL:

Yes. The University advocates for public policies and funding that support campus sustainability or that otherwise advance sustainability at the national level both formally and informally.

- Through the University of Miami's College of Engineering, advocated for funding and successfully competed in being included as a partner for a National UTCs (University Transportation Centers) through the US Department of Transportation with the focus on Improving the Durability and Extending the Life of Transportation Infrastructure (Coastal Research and Education Actions for Transportation Equity). Given the growing need to extend the service life of infrastructure, the selection of sustainable and durable and resilient transportation, UM's COE is included to help develop and deploy the next generation of durable cement-based materials for infrastructure.
- The University of Miami's College of Engineering and the Climate Resilience Academy will spearhead a \$2.3 million project to advance concrete technologies, train employees to enter the green workforce, and support startups in creating new green technology. This partnership is included within a \$19.5 million package awarded to the South Florida Climate Ready Tech Hub in the region.
- The University of Miami's Rosenstiel School of Marine and Atmospheric Science is a designated Cooperative Institute for Marine and Atmospheric Studies (CIMAS), one of 16 nationally, which is a federally supported, NOAA Center of Excellence that brings together research and educational resources to increase scientific understanding of Earth's oceans and atmosphere within the context of NOAA's mission. Our location is key to addressing these research themes for understanding and tackling sustainable and resiliency plans —we are physically located at the crossroads of tropical meteorology and unique climate-related oceanographic processes, and adjacent to the only living coral barrier reef in the continental United States. CIMAS researchers work closely with two NOAA laboratories located across the street from the Rosenstiel School—the Atlantic Oceanographic and Meteorological Laboratory (AOML), and the Southeast Fisheries Science Center (SEFSC), as well as the National Hurricane Center (NHC) located in West Miami.
- Scientists at the University of Miami Cooperative Institute for Marine and Atmospheric Studies (CIMAS), operating out of the Rosenstiel School of Marine, Atmospheric, and Earth Science, worked with researchers at the National Oceanic and Atmospheric Administration (NOAA) to develop the Hurricane Analysis and Forecast System (HAFS). HAFS ran alongside existing models as an experiment in 2022 and 2023 for the National Hurricane Center, and in 2024 it was made one of NOAA's official hurricane forecast models. It is the latest addition to the National Hurricane Center's suite of models that are used to help forecast the path and intensity of tropical storms and hurricanes.

- The University of Miami's Center for Southeastern Tropical Advanced Remote Sensing (CSTARS) presents scientific institutions, government entities and community organizations with a broad outlook on dangerous environmental phenomena, climate change, and coastal safety issues that can assist in more timely and efficient disaster planning. CSTARS provides pre and post disaster assessments via imaging and analysis.
- Through the Leadership UMiami program (2023 latest), a cohort of 25 students analyze local issues through public policy areas and current affairs and then help strategize sustainable solutions. These students then travel to DC to meet with elected officials on several topics including climate change, sustainability, water quality, and sea level rise.

<https://news.miami.edu/stories/2023/01/canes-experience-democracy-in-action-through-student-program.html>

- UM Students, faculty members participate at UN climate talks. From participating on a panel about nature-based strategies to mitigate sea level rise to developing a policy brief on "blue food," University of Miami students and faculty attended the 28th annual Conference of the Parties, also known as COP28, where United Nations member states convene to review progress and reach agreements on international climate change policies and actions.

<https://news.miami.edu/stories/2023/11/students-faculty-members-participate-at-un-climate-talks.html>

- The University of Miami has advocated for robust federal funding for basic research at various Federal agencies including within the Commerce, Justice, Science (CJS) – NOAA, National Institutes of Health and Occupational Safety (NIOSH), The National Oceanic and Atmospheric Administration (NOAA), the National Science Foundation (NSF) and National Institutes of Health (NIH). These agencies support research and programs at the University and beyond that address, improve, and impact sustainable practices in various facets – from encouraging healthier lifestyles, to the development of new resilient materials, to resource utilization.

Direct funding to the University of Miami for several sustainability initiatives over our advocacy included:

NOAA: Sustainable Estuarine and Marine Protection System (SEAHIVE)

With coastal population density always growing and average annual temperatures projected to also increase, coastlines will likely experience stronger storm events and potentially more devastating disasters. These events include tropical cyclones and hurricanes, which bring extreme winds, rain, storm surge, and waves to the built environment and coastal infrastructure. Storm surge and wave action induce destructive forces to coastal communities that can result in loss of life, shoreline erosion, as well as structural damages to the built environment and infrastructure. This project focuses on

the full deployment of a technology developed by the University of Miami that is ready for scale-up.

NIST: Novel Hybrid Artificial Reefs Test Beds in SE Florida

Hybrid artificial reefs combine the immediate wave-protection benefits of artificial reefs with the added nature-based benefits of coral restoration. This approach produces submerged reef structures that are self-building and self-repairing with the ability to continue to grow after deployment ultimately keeping up with projected sea-level rise, providing habitat for associated reef organisms, and building long-term resilience to storms. This project will design, test, and deploy a hybrid artificial reef approach at test-bed sites in Miami-Dade County and Broward County with the goal of assessing their role in helping protect the urbanized coast of Southeast Florida from the damaging effects of coastal flooding.

NOAA: Expansion of Reef Restoration Infrastructure in SE FL's Urbanized Core

This project will expand reef restoration infrastructure and capacity in Miami-Dade County to boost restoration efforts along the entire urbanized coast of Southeast Florida. It will help establish a Center for Coral Reef Restoration Science at the University of Miami (UM) Experimental Hatchery on Virginia Key and leverage the resources of adjacent research laboratories (UM-Rosenstiel, the NOAA Southeast Fisheries Science Center and the NOAA Atlantic Oceanographic and Meteorological Laboratory) and other nearby marine educational resources (Miami Seaquarium, MAST Academy). This enhanced infrastructure will help provide and concentrate the resources necessary to support a growing restoration industry in South Florida, allowing it to respond to increasing coastal mitigation projects (such as the planned expansion of Port Everglades), and provide the biological resources needed to help build coastal resilience in the region.

NASA: Aircraft Center for Earth Studies (ACES)

ACES focuses on inventing, developing, and testing next generation sensing technologies for studying the natural world. ACES leads NASA's fluid lensing and MiDAR instrument developments, the first technologies that allow aircraft and drones to 'see through ocean waves' to monitor and protect US infrastructure and natural resources. We propose creating the ACES Florida Drone Center of Excellence, within ACES' existing lab, to create 3D-printed autonomous aircraft in Florida, such as our solar drone and multirotor drones, in close collaboration with federal and local government agencies and nonprofit groups. This center will train local students and build capacity to create aircraft and remote sensing systems on site to facilitate rapid assessment of hurricane impacts, among other applications.

Marine Aquaculture Pilot-Scale Grow-out Module

The University of Miami – RSMAS has been spearheading efforts in developing marine aquaculture in the U.S. for decades, with notable advancements made in commercial-scale production technologies for high-value marine fish species. The pilot-scale grow

out project will provide much-needed workforce training opportunities in the sustainable production of marine fish species for the seafood industry while also stimulating further investment and job opportunities in the burgeoning field of marine aquaculture in the region.