

Ridge to Reef (R2R): Processes and Interdependent Drivers of Small Island Resilience

OIA-1946412 (2020 – 2025) $20M

Our current research and education program, Ridge to Reef, explores and develops science-based strategies to understand and mitigate environmental stressors in the USVI Territory. This program also strives to develop the next generation of Virgin Islanders who can help ensure a resilient future for the Territory's natural resources. We accomplish this with our Workforce Development team and a focus on community outreach.

IMPACT OF R2R PROGRAM: 7 Major Research Areas

Watershed Monitoring and Land Use works to increase our understanding of how terrestrial-based inputs into coastal and marine ecosystems impact offshore habitats and reefs.

Mangrove Ecosystem Function & Recovery studies the current and historic distribution, loss and recovery of mangrove species in the territory.

Emerging Research Areas center on seagrass communities in shallow waters off USVI beaches and their role in shaping the function of coastal habitats.

Fish Ecology examines the beneficial role of herbivorous fishes on coral reef resilience.

Oceanography is the hub that links the marine science-related research activities within the R2R project.

Marine Disease and Restoration researches how diversity mitigates coral disease and may be an important driver of resilience in coral reef communities.

Coral Reef Resilience investigates how biodiversity of ecosystems and populations persist and shift through time.

Education and Workforce Development works to increase STEM at the K-12 and college levels, as part of an effort to meet the need for a highly qualified scientific workforce in the USVI.

PROGRAM OVERVIEW

Research History

RII One: Biocomplexity of Caribbean Coral Reefs
OIA-0346483 (2004 – 2008) $4.5M

RII Two: Integrated Caribbean Coastal Ecosystems
OIA-0814417 (2008 – 2013) $11M

RII *Mare Nostrum* Caribbean: Stewardship Through Strategic Research and Workforce Development
OIA-1355437 (2014 – 2019) $20M

RII Four: Ridge to Reef: Processes and Interdependent Drivers of Small Island Resilience
OIA-1946412 (2020 – 2025) $20M

OUR VISION is to improve understanding of the drivers, processes, interdependencies, and consequences of ecological change driven by natural and anthropogenic disruption in Caribbean coastal and marine ecosystems.

OUR MISSION is to advance science-informed knowledge that guides managers, researchers and communities to more effectively manage the natural resources of the Territory while we adapt and respond to the impacts of climate change.

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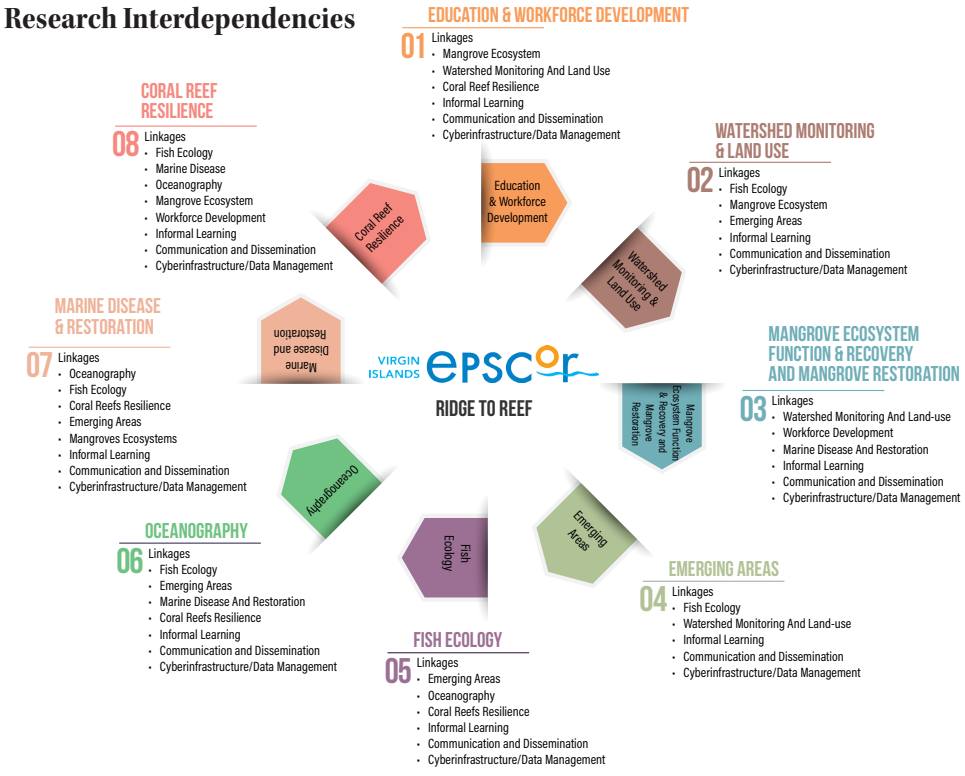
Success Stories

Heavy metals and VOCs detected in USVI streambeds. Our Watershed Team published an article in Scientific Reports which highlights human impacts on guts in the U.S. Virgin Islands. Their report suggests that elevated levels of heavy metals and VOCs in streambed sediments indicate that guts require a more actionable protection plan. This is especially important as streambeds are increasingly contminated yet understudied in the Caribbean.

VI-EPSCoR Marine Disease & Restoration lead researcher ***Dr. Marilyn Brandt received a lifetime achievement award*** at the 47th U.S. Coral Reef Task Force meeting held in the U.S. Virgin Islands. Dr. Brandt received this award for her exceptional work in the territory on coral disease research, restoration, and student mentoring. The U.S. Coral Reef Task Force is comprised of the leads of federal government agencies that manage coral reefs, not just scientists, so receiving this award is a significant validation that our government leaders value and support her work. “This is only the beginning,” says Dr. Brandt “the territory has shown itself to be a leader in cooperative work to combat coral disease and perform effective reef restoration.” She hopes to see the Virgin Islands also become a leader amongst small island communities in the overall fight for sustainable conservation.

The VI-ISERP Team was selected to organize a town hall with the National Academies of Science, Engineering, and Medicine on November 16, 2023 to represent the holistic approaches at UVI in developing the STEM workforce of tomorrow. They were afforded an amazing opportunity to showcase this ‘hidden gem by the sea’ and represent the critical work happening at HBCUs throughout the nation in preparing African American students to enter and persist in STEM careers. Presentations showcased a sample of faculty and staff innovations used to engage students throughout their academic journey. These programs boost the economic possibilities for students.

Research Interdependencies



Proposals & Publications

Proposals	Yr 1	Yr2	Yr3
Awarded	13	14	25
Totals $	4.7M	10.6M	12.3M
Publications	Yr1	Yr2	Yr3
Published	14	14	10