

Greg GUANNEL, Ph.D.

University of the Virgin Islands, #2 John Brewers Bay
St Thomas, US Virgin Islands, 00802

PROFESSIONAL EXPERIENCE

2017-Present: Director, Caribbean Green Technology Center, University of the Virgin Islands (UVI), St Thomas, U.S. Virgin Islands (USVI).

Spearheading the strategic direction and expansion of the Center into areas of energy resilience, water security, sustainable material management, infrastructure resilience and hazard risk reduction.

- Co-lead of the Caribbean Climate Action Network, a consortium of researchers from more than 5 Universities that focuses on co-developing climate adaptation solutions with communities in the USVI and Puerto-Rico
- Lead of the development of a Coastal Adaptation Plan for the Virgin Islands
- Co-lead one of the update of the USVI Hazard Mitigation Plan, an innovative project that analyzes in depth the operational resilience of critical infrastructure and essential services to hazards in the Virgin Islands.
- Lead for the creation and adoption of the first Comprehensive Energy Strategy Plan for the USVI, which will establish future energy pathways and associated policies for the Virgin Islands
- Lead of the creation of a Water Security and Resilience Plan for the USVI
- Lead and/or participant in the development and adoption of innovative coursework including a pre-engineering program and a renewable energy degree

2015-2017: Director, Florida Urban Program, The Nature Conservancy, Coral Gables, FL.

Led the creation and launch of The Nature Conservancy's first Urban Program in Florida

- Developed program's business and strategic plans centered around issues of infrastructure resilience and urban adaptation to climate change
- Led the creation, design and implementation of various climate adaptation, stormwater management, and heat management demonstration projects and studies
- Worked with community groups on climate and environmental justice projects that increased green infrastructure for stormwater and urban heat management, and community well-being

2013-2015: Research Associate, The Natural Capital Project; Stanford University, CA.

- Led the development of decision-support models in the InVEST software that incorporate the coastal risk reduction benefits provided by natural systems (coral reefs, mangroves, etc.)
- Led and co-led various multi-disciplinary teams to quantify flooding and erosion risk reduction in various coastal location (U.S., Belize, Barbados, Bahamas, Saudi-Arabia, South Korea, etc.)
- Co-Founded the Hawai'i Shore and Beach Preservation Association, in close collaboration with the Hawaiian government and various private companies

2009-2013: Post-Doctoral Fellow, The Natural Capital Project; Stanford University, CA.

- Created, developed and implemented the design of the Coastal Vulnerability and the Nearshore Waves and Erosion computer models in the InVEST software to quantify flooding risk-reduction benefits provided by coastal habitats
- Lead engineer in multi-disciplinary projects to quantify and value ecosystem services delivery

2001-2005: Coastal Engineer, Anchor QEA; Seattle, WA.

- Developed firm's methodology for underwater cap design to safely bury marine contaminated sediments in Superfund and other hazardous sites
 - Designed a variety of coastal, lake and riverine structures for recreation, fisheries habitats and ecosystem restoration in the U.S.
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- Led and/or supervised the design, cost estimation and preparation of construction plans and contract specifications of riverine and coastal construction and dredging projects
- Assistant construction manager and inspector for several marine construction projects

SELECTED PUBLICATIONS

- Guannel, G.,** Beck, N., Dwyer, J., Buchanan, J., Bove, G., & Hamlin, T. (2023). U.S. Virgin Island Coastal Vulnerability Index (p. 50). Caribbean Green Technology Center, University of the Virgin Islands. <https://dpr.vi.gov/wp-content/uploads/2023/05/Coastal-Vulnerability-Index-for-the-USVI.pdf>
- Ostrow, K., **Guannel, G.,** Biondi, E. L., Cox, D. T. & Tomiczek, T. (2022). State of the practice and engineering framework for using emergent vegetation in coastal infrastructure. *Front. Built Environ.* <https://doi.org/10.3389/fbuil.2022.923965>
- Guannel, G.,** Lohmann, H., Dwyer, J., 2022, The Public Health Implications of Social Vulnerability in the U.S. Virgin Islands, Natural Hazards Center Public Health Grant Report Series 23, <https://hazards.colorado.edu/public-health-disaster-research/the-public-health-implications-of-social-vulnerability-in-the-u-s-virgin-islands>
- Guannel, G.,** Madden, B., Dimino, R., Stolz, A., 2020, U.S. Virgin Islands 2019 Residential Waste Characterization, Report submitted to EPA and VI Waste Management Agency
- Guannel, G.,** 2022. U.S. Virgin Islands Water Use Data Reporting Workplan, Department of Planning and Natural Resources, submitted to and accepted by USGS April 2022 <https://www.usgs.gov/media/files/us-virgin-islands-water-use-data-and-research-wudr-workplan>
- Cox, D., Arikawa, T., Barbosa, A., **Guannel, G.,** Inazu, D., Kennedy, A., ... Slocum, R. 2018. Hurricanes Irma and Maria Post-Event Survey in U.S. Virgin Islands. *Coastal Engineering Journal*, In Press.
- Biondi, Esteban, & **Guannel, G.** (2018). Practical tools for quantitative analysis of coastal vulnerability and sea level rise impacts—application in a Caribbean island and assessment of the 1.5°C threshold. *Regional Environmental Change*. <https://doi.org/10.1007/s10113-018-1397-4>
- Guannel, G.** (2018). Climate Change in the Virgin Islands. In USVI Hurricane Recovery and Resilience Task Force Report. St Thomas, U.S. Virgin Islands.
- Guannel, G.,** Arkema, K., Ruggiero, P., Verutes, G. (2016). “The power of three: Coral reefs, seagrasses and mangroves protect coastal regions and increase their resilience”, *PLOS One 11(7)*
- Guannel, G.,** Ruggiero, P., Faries, J., Arkema, K., Pinsky, M., Gelfenbaum, G., Guerry, A., Kim, C-K (2015). “Integrated modeling framework to quantify the coastal protection services supplied by vegetation”, *Journal of Geophysical Research*, 120(1).

EDUCATION

- **Ph.D., Civil Engineering; Oregon State University; Corvallis, OR (2009)**
Thesis: “Observations and Modeling of Undertow and Sediment Movement on Sandy Beaches”.
- **M.S., Ocean Engineering; Texas A&M University; College Station, TX (2001)**
Thesis: “Observations of Remote and Local Forcing in Galveston Bay, Texas”.
- **M.S., Civil Engineering; Ecole Supérieure des Travaux Publics; Paris, France (2000)**

SYNERGISTIC ACTIVITIES

- Co-Chair, USVI Children and Youth Task Force, an organization supported by the USVI Department of Human Resources
- Board Member, Shoreline Conservation Inc., an NGO based in Hawai`i focused on coastal adaptation of communities
- Advisory Board, Cascadia Coastlines and Peoples Hazards Research Hub, an NSF project looking at the resilience of coastal communities in Washington and Oregon to coastal hazards
- Founding member, Resilient 21, a group of subject matter experts on community resilience and climate adaptation in the US.