

# GANBASE Handbook

Summarizing our shared experience about Nature-based Solutions in Germany and the USA





***Hallig Nordstrandischnoor.  
Halligen are Small Islands of the Wadden Sea that are  
covered with salt marshes where numerous coastal birds  
breed.***

# About the GANBASE Handbook



## Purpose of the Handbook

The German-American Nature-Based Solutions Exchange (GANBASE) offers stakeholders in the field of nature conservation and environmental protection the opportunity to exchange ideas on nature-based solutions (NbS) across the Atlantic.

GANBASE aims to exchange approaches and experiences; to present excellent research and lighthouse projects from Germany; to demonstrate the integration of NbS into local, regional and national policy in Germany, as well as ideas on how these can be anchored in the USA; and to draw attention to the economic and socio-political aspects of NbS.

This takes place in the form of semi-annual visit programs, one program per year in the USA and one in Germany, with 10 people invited from each country. Other local stakeholders take part in individual program items such as workshops, excursions and practical activities like plantings.

This the booklet of our first encounter in Germany in 2025, that included field visits to Bremen, Hamburg and Hannover, and gathered an amazing crew under the Direction of Max Gruenig and Brendan O'Donnell. We hope you enjoy it!



# Acknowledgements

- **Funding:** The project is supported by the Transatlantic Program of the Federal Republic of Germany, funded by the European Recovery Program (ERP) of the Federal Ministry for Economic Affairs and Energy (BMWE).
- This first GANBASE workshop focused on nature-based solutions in coastal environments. It was co-hosted by Leibniz Centre for Tropical Marine Research (ZMT) and POCACITO and took place at ZMT in Bremen: Fahrenheitstr. 6, 28359 Bremen.
- Participants or their teams at their institutions have taken the pictures presented in this booklet unless indicated otherwise.

## POCACITO's mission and purpose:



It is the mission and purpose of POCACITO to create experiential learning opportunities in support of communities building social and environmental equity through regenerative sustainability movements. When connected, these movements produce a dynamic network of people and organizations working collaboratively to envision and realize a world capable of sustaining health and wellbeing for generations to come. POCACITO puts this mission into practice with focused programming along three intersecting tracks.



Address **POCACITO**  
**1004 Fern Ct**  
**Charlottesville, VA 22901,**  
**USA**

Email [info@pocacito.org](mailto:info@pocacito.org)

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GANBASE all together  
Presentations and memories  
The GANBASE experience for us  
GANBASE is ongoing!



# 01

# Welcome!

## Why this booklet matters?

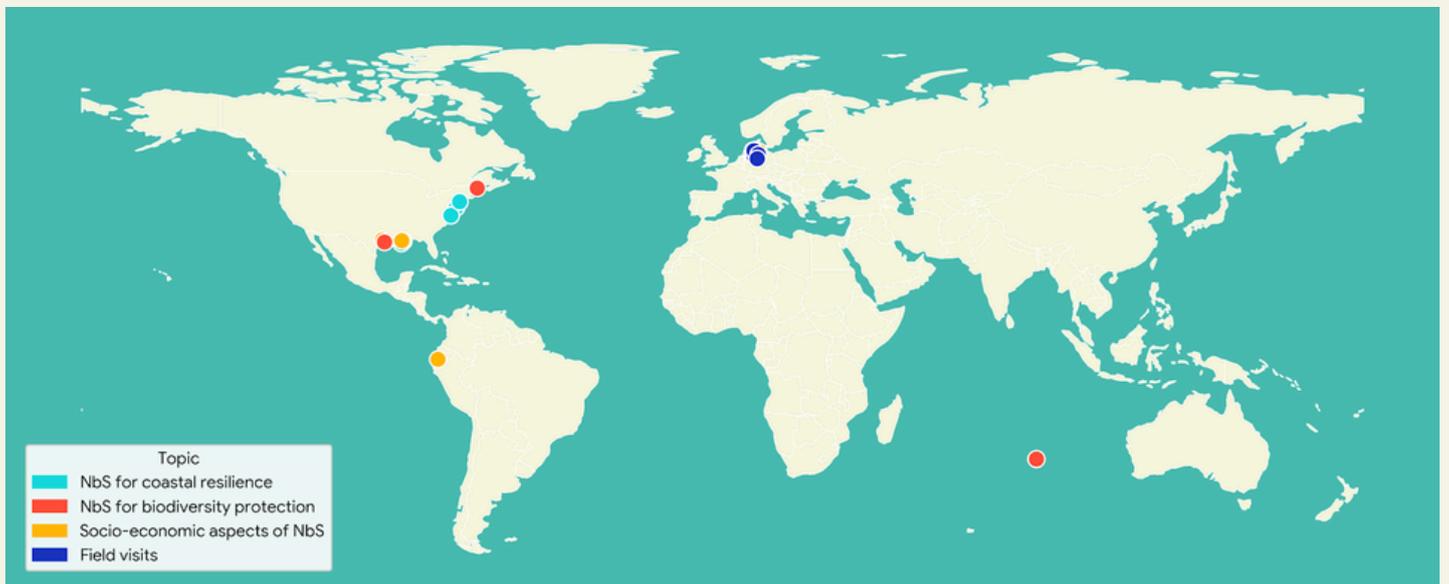
Throughout the booklet we document cases of nature-based solutions for climate change adaptation brought to GANBASE by our group of talented speakers. All these cases have been designed or implemented in Germany or in the United States of America, but as will be seen, we also have participants who work in other parts of the globe, such as the Indian Ocean and Ecuador. With this booklet we want to accomplish to:

- Communicate** The work of the professionals of our group
- Inspire others!** We want our collection of experiences to inspire other talented people from the Academia, practitioners, public and private sectors and NGOs to join us in sharing their experiences in designing and applying NbS.

The booklet has been edited by Wendy Chávez-Páez and Max Gruenig with constant feedback of the POCACITO/GANBASE group.



# GANBASE case studies and field visits



# 02

## NbS for coastal resilience: coastal protection against erosion, sea-level rise and storm events



## 2.1 Interreg MANABAS COAST Pilot project ECOHAL

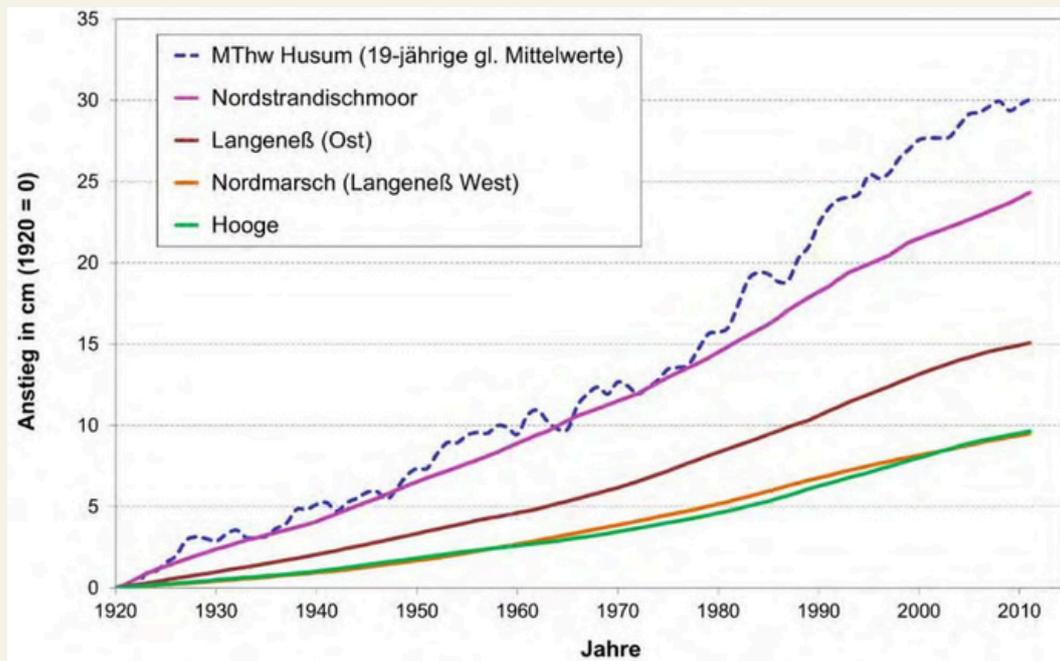
*Luisa Rieth - North Frisian Wadden Sea - Germany*



North Frisian Wadden Sea

<https://maps.app.goo.gl/fjnhbdrx3Bbz3Pr5A>

The North Frisian Halligen are increasingly threatened by rising sea levels and coastal erosion. These islands rely on periodic flooding to deposit sediments for surface growth. Currently sedimentation can not keep pace with sea level rise, leading to increased erosion of the shoreline and shelf.



The ECOHAL pilot project (part of the Interreg project MANABAS COAST) is investigating nature-based solutions to improve sedimentation and mitigate erosion. The project combines scientific analyses with local knowledge to assess the effectiveness and acceptance of alternative coastal protection measures. Preliminary results indicate that nature-based solutions can play a crucial role in preserving the ecological integrity and habitability of the Halligen in times of climate change.



[luisa.rieth@lkn.landsh.de](mailto:luisa.rieth@lkn.landsh.de)

***“It’s exciting to exchange about the similarities we have in our coasts so far away from each other and inspiring and motivating to see how enthusiastic people work on innovative ideas to protect the landscape they love”***

Luisa Rieth, M.Sc. in Hydrology, is the project manager of the pilot project, ECOHAL. This initiative focuses on developing nature-based solutions to prevent erosion of marsh islands and enhance their growth, enabling them to adapt to rising sea levels. Within the EU-funded MANABAS COAST project, she shares their insights to promote the adoption of nature-based solutions along the North Sea coast.

## 2.2 Leeville Living Shoreline: Recycled Oyster Shell Reef and Native Marsh Grass Restoration

*Andrew Ferris - Coalition to Restore Coastal Louisiana.  
Leeville, Louisiana, USA.*



As part of its mission to preserve and restore the Louisiana coast, The Coalition to Restore Coastal Louisiana (CRCL) built an oyster reef and planted marsh grass in Leeville in February 2025.

The project, whose goal was to help improve water quality and buttress the Louisiana coastline against further erosion, engaged 100+ volunteers in installing 59 tons of recycled oyster shells from New Orleans restaurants.



Behind the oyster reef, volunteers planted an additional layer of marsh grass to help fortify the shoreline against potentially devastating storm surge.

Leeville was chosen as the project's site because it is a "poster town" for land loss in Louisiana. Since 1932, over 80% of Leeville has been devoured by the Gulf, including the town's cemetery which now lies completely submerged.



[andrew.ferris@crcl.org](mailto:andrew.ferris@crcl.org)

***"This experience was amazing! I learned so much about what coastal communities are doing to adapt in the face of climate change and socio-political turmoil, and I am energized to continue working towards sustainable land management and environmental justice in south Louisiana."***

Andrew Ferris lives in New Orleans, Louisiana where he works at the Coalition to Restore Coastal Louisiana. In his role, he manages the Native Plants Program, a volunteer program that plants native trees and grasses across the Louisiana coast to act as shoreline protection, erosion control and essential habitat for fish and wildlife in the face of the coastal land loss crisis.

## 2.3 Constraining Salt Marsh Carbon Cycling at the Seven Mile Island Innovation Laboratory

*John (Jake) Supino - Stone Harbor, New Jersey, USA*



Tidal wetlands play an outsized role in global carbon cycling and carbon sequestration, but are currently facing rapid changes in response to sea level rise and human development. Long-term monitoring of these ecosystems is needed to improve constraints on baseline carbon cycling processes, as well as identify their susceptibility to changes.



Here we present an introduction to our water quality monitoring program and initial metabolism results from three long-term water quality monitoring platforms, five salt marsh ponds, and a dredged sediment placement from the Seven Mile Island Innovation Laboratory (SMILL). Data from the water quality monitoring program established here will provide baseline data to evaluate productivity rates and local carbon and nutrient mass balance budgets.



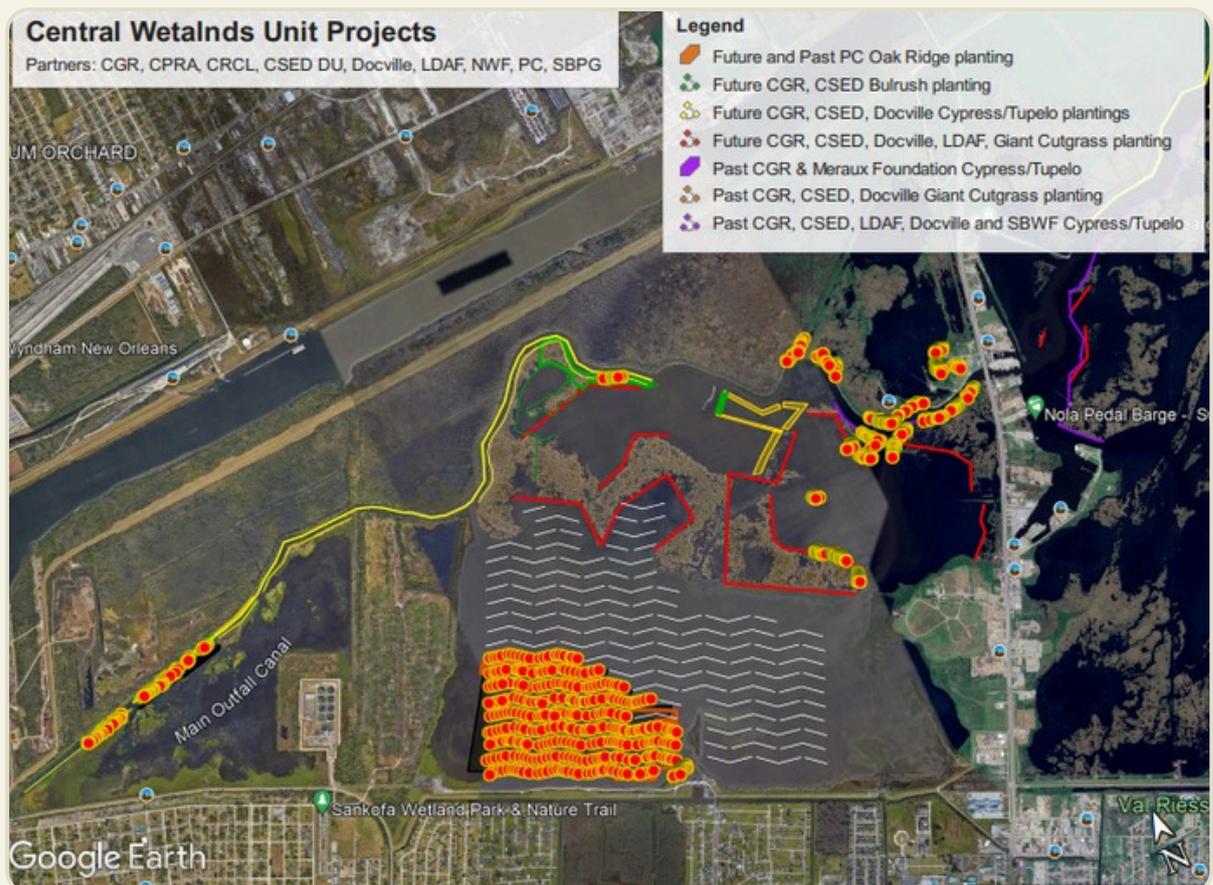
***“GANBASE inspired me by taking us to and talking about places where I didn't think there were open questions for NbS anymore. The community that occurred over the week showed me that we need to work together to answer these questions”***

Jake Supino is a chemical oceanographer interested in fundamental ecosystem processes and land-ocean-atmosphere dynamics at the coastal interface. His doctoral research uses biogeochemical sensors in tidal wetlands to assess carbon and oxygen cycling.

[supinoj@bc.edu](mailto:supinoj@bc.edu)

## 2.4 The Central Wetlands Reforestation Collective

*Blaise Pezold, Meraux Foundation  
St. Bernard Parish, Louisiana, USA*



The Central Wetlands Reforestation Collective (CWRC) is a group of organizations that are re-establishing a bald cypress and water tupelo bottomland hardwood forest near New Orleans. The partners in the collective are: CRCL, Common Ground Relief, CSED of the Lower 9th Ward, Arlene & Joseph Meraux Foundation and Pontchartrain Conservancy.

The project is also supported by the St. Bernard Wetlands Foundation, a critical land owner, financial supporter, and founder of the efforts to reforest the Central Wetlands; the Louisiana Department of Agriculture and Forestry, which provides expertise and boats, the state's Coastal Protection and Restoration Authority, and the National Oceanic and Atmospheric Administration. Working alongside community stakeholders.

This group utilizes native plant restoration projects to reforest the wetlands, resulting in improved ecosystem services, including the mitigation of hurricane impacts, higher-quality habitats, and a stronger connection between communities and the landscape.



***“It was amazing to speak to NBS practitioners from other countries. I love that we are exchanging ideas across the globe”***



Blaise Pezold has been instrumental in advancing the Meraux Foundation's mission to improve the quality of life in St. Bernard Parish through the preservation, protection, and restoration of the area's natural environment. His work encompasses field projects, strategic partnerships, community engagement, and public awareness, all aimed at preserving and restoring Louisiana's vulnerable coast. He was honored with the 2024 Coastal Stewardship Award by The Coalition to Restore Coastal Louisiana (CRCL).

[blaise@merauxfoundation.org](mailto:blaise@merauxfoundation.org)

## 2.5 Advancing Coastal Restoration Outcomes and Building Capacity for Nature-based Solutions in the Chesapeake Bay

*Sierra Hildebrandt - Old Dominion University.  
USA - Norfolk, Virginia*

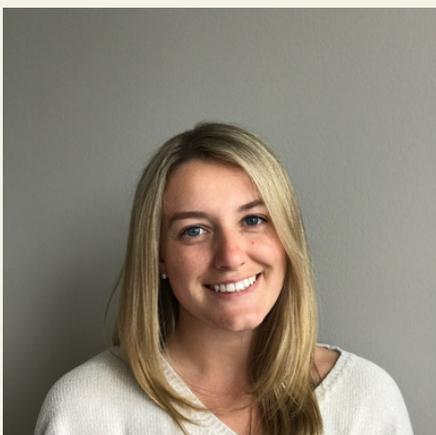


Living shorelines have become an important nature-based approach to protect coastal communities from coastal hazard risk and enhance ecological function of coastal ecosystems. In the Chesapeake Bay, top-down (e.g., state legislation) and bottom-up (e.g., support from non-profits) approaches have increased the rate of living shoreline installations in recent years.



This presentation provides insight on current barriers to wider implementation and discusses ongoing living shoreline research with capacity building programs aimed to address barriers.

***“My hope was that someone would pick up on one of the topics and it would spark further conversation and connect me with others working on similar projects. What was inspiring to me was to see so much support and love for NbS in one room!”***



Sierra Hildebrandt is a coastal ecologist with six years of experience leading applied ecological research and a deep commitment to advancing the science of living shorelines. Sierra is currently a Ph.D. Candidate in the Ecological Sciences Program at Old Dominion University where her dissertation research focuses on the role of living shorelines as a shoreline stabilization strategy and habitat restoration technique.

[shild005@odu.edu](mailto:shild005@odu.edu)

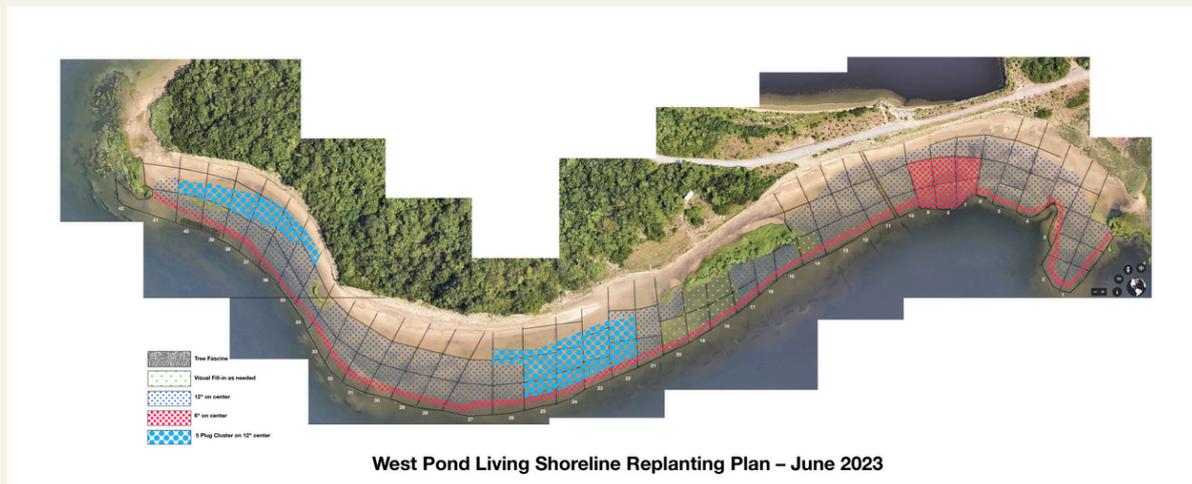
## 2.6 Plan, Fail, Adapt, Repeat: Adaptive Innovation in Urban Shoreline Restoration

*Elizabeth Stoehr - Jamaica Bay.  
Rockaway Parks Conservancy. USA*



Jamaica Bay Wildlife Refuge, West Pond; 175-10 Cross Bay Blvd, Broad Channel, NY 11693; Queens, New York City.

At Jamaica Bay's West Pond Living Shoreline, storms, tides, wind, and ice drove rapid post-construction decline; first-year monitoring recorded ~90% plant mortality, exposing the limits of set-it-and-forget-it restoration.



We report an adaptive-management approach: a public-private partnership with community engagement; a locally hired youth workforce (Jamaica Bay Wetlands Fellowship); a rapid assessment survey; and micro-pilots. Treating failure as feedback enabled real-time adaptive decisions that can be scaled quickly when successful. Nature-based solutions require long-term commitment, flexible design, planned maintenance, and permitting that allows for adjustment. Adaptive management is not a backup plan, it is the plan, and restoration does not end at installation, it begins there.

***“I met inspiring people, and the program strengthened my confidence in a transatlantic, collaborative approach to resiliency. I left with concrete tools to try, colleagues I can call, and a sense we can move real solutions forward. It means a lot to be part of that”***



Elizabeth Stoehr is the Deputy Director of the Jamaica Bay-Rockaway Parks Conservancy, leading initiatives that integrate Nature-Based Solutions into urban climate resilience, restoration, and community engagement. She oversees projects that connect people to coastal ecosystems through stewardship, workforce development, and innovative partnerships that merge science, technology, and nature.



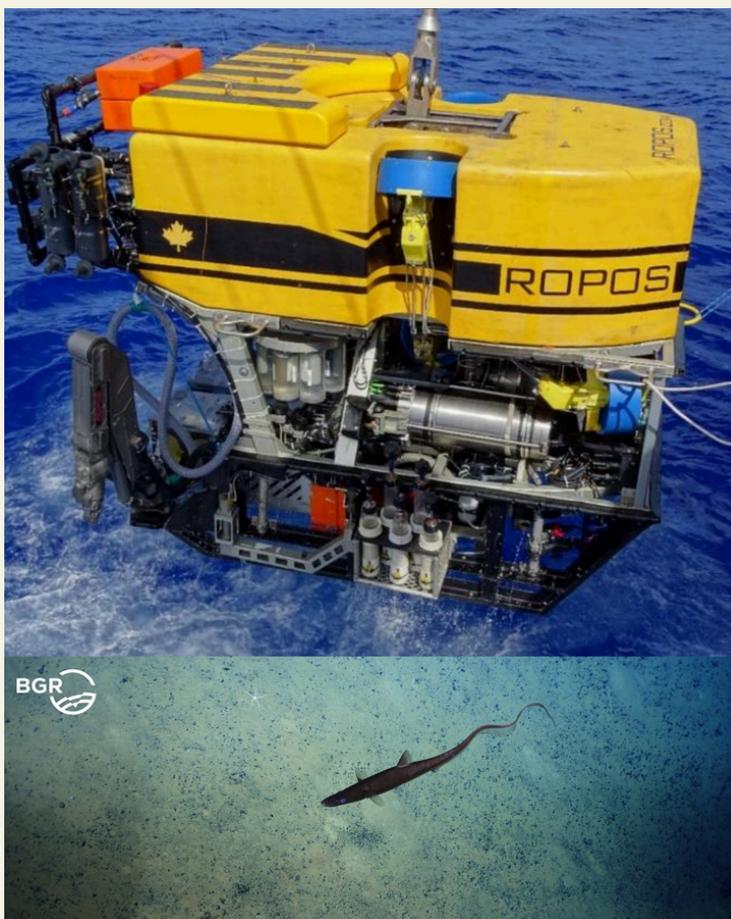
# 03

**NbS for biodiversity protection - creating space for species, countering invasive species and adapting to climate change**



## 3.1 From Image to Insight: Unlocking the potential of marine imagery with AI and Photogrammetry

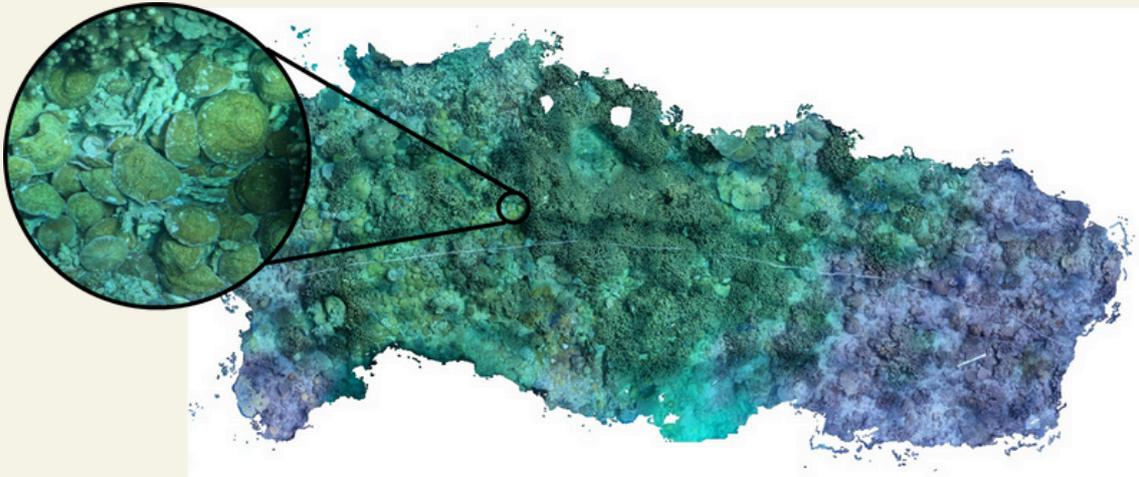
*Gerrit Meiners - Indian Ocean, Central Indian Ridge*



Imaging methods make it possible to gather huge volumes of visual data across reefs, seafloors, and deep-sea habitats at relatively low cost. However, extracting detailed ecological information — identifying animals, counting them, and mapping habitats — can be slow, inconsistent, and time-consuming.

My research combines artificial intelligence (AI) with photogrammetry (stitching photos into accurate 3D maps) to automatically detect and identify animals in imagery and create high-resolution 3D reconstructions of the seafloor.

Photograph source: <https://www.ultralytics.com/blog/using-computer-vision-for-underwater-detection>



These techniques accelerate monitoring and make it easier to spot trends and rare species, which is essential as oceans face mounting threats such as coral reef decline and the emerging pressures of deep-sea mining. By turning images into reliable, quantitative data, we can provide clearer evidence to guide conservation and management.



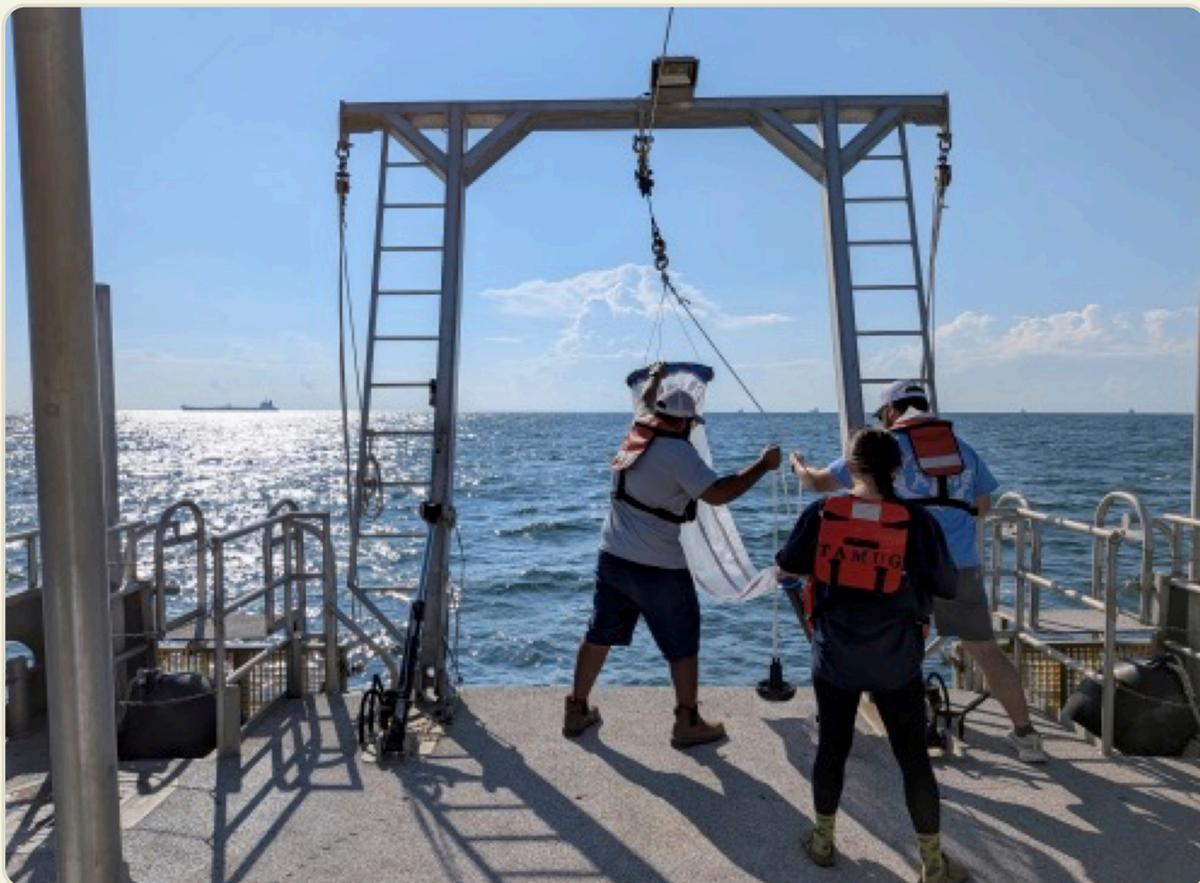
***“I was inspired by the positive feedback and genuine interest in my work. Input from researchers using spectral cameras in coral reef ecology gave me new ideas and helped me advance my project”***

I work at INES-Solutions and recently started my PhD at GEOMAR, studying deep-sea habitats in the Central Indian Ocean, including hydrothermal vents. My research uses AI and photogrammetry to extract ecological insights from marine imagery. I aim to make image-based surveys more efficient and to better understand biodiversity in these remote ecosystems.

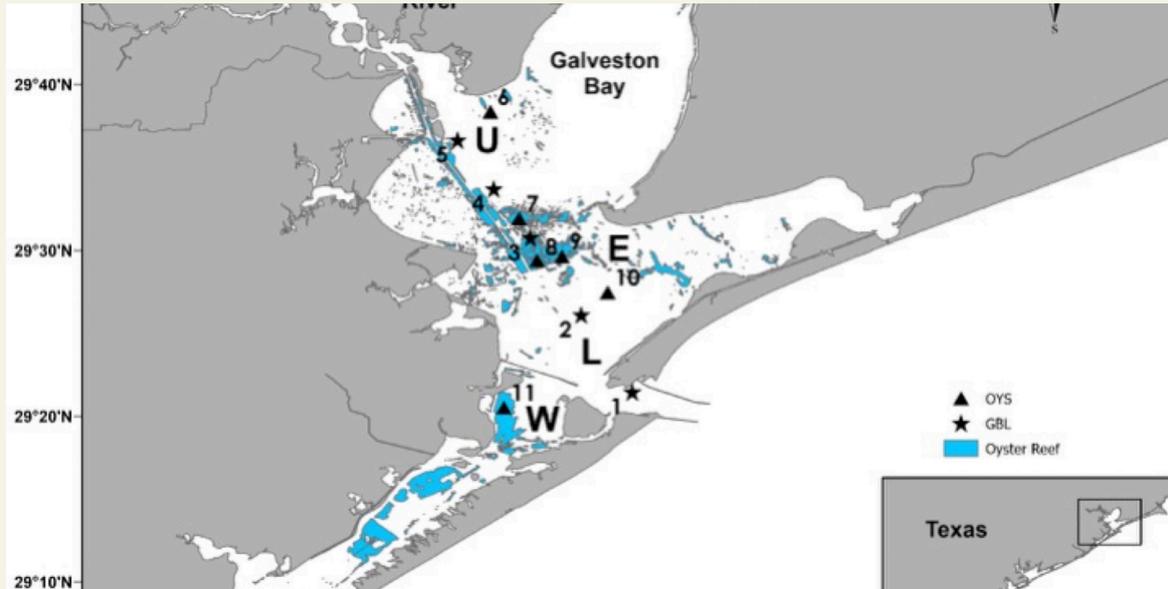
**[gerrit.meiners@ines-solutions.eu](mailto:gerrit.meiners@ines-solutions.eu)**

## 3.2 Scientific Research Fostering Nature-based Solutions for Oyster Restoration

*Hui Liu - Texas, USA*



Nature-based solutions (NbS) are appealing to address diverse socio-environmental issues through the development and use of natural processes with minimal direct human intervention. Sciences play a key role in conceptualization, design, operation and validation of the NbS actions. A recent dramatic decline in oyster reefs has drawn considerable public attention to the societal issues on conservation and restoration of oyster fisheries. So far, most efforts have primarily targeted their benthic phase leaving the pelagic oyster larvae largely elusive. While research on modeling and data collection has improved our understanding of some strategies for enhancing oyster production, uncertainties still exist regarding the appropriateness of model application and the overlooked pelagic oyster larvae in relevant studies.



Recently we have conducted integrated research through developing population models assisted by field surveys targeting overlooked pelagic oyster larvae. This talk will illustrate a mechanistic population model of pelagic oyster larvae, introduce a long-term monitoring program of oyster larvae and environmental factors in Galveston Bay, Texas, then display the research for informing resource managers on the strategic placement of oyster sanctuaries and the effectiveness of restoration efforts for this economically and ecologically important marine living resources.



liuh@tamug.edu

***“GANBASE provided a chance to know that Pacific oysters in Germany are considered invasive species to be removed, while eastern oysters in the USA are valuable fisheries resources to be restored, the sciences behind the two different situations are similar.”***

As an Associate Professor of Texas A&M University at Galveston, Dr. Hui Liu’s research focuses on zooplankton and fisheries for better management and conservation of marine ecosystems. His research is far-reaching, diverse-distributing and long-lasting with citations from 34 countries around the world. So far, Dr. Liu has served on a working group of North Pacific Marine Science Organization, and as an associate editor for Canadian Journal of Fisheries and Aquatic Science.

## 3.3 Intersecting Change: Where Economic Democracy Meets Ecological Restoration

*Shri A. Verrill*

*The Narrows, Islesboro, Maine, USA; and Hendricks Head, Southport, Maine, USA*



People are an essential part of coastal ecosystems, and their involvement is key to successful restoration. Integrating human needs with ecological function reflects a natural unfurling of the relationship between people and the watershed. This process helps people strengthen their connection to the natural world and with each other, creating space for neighbors to make collective decisions about shared resources.



Hendricks Head and The Narrows illustrate how communities can engage in adapting critical coastal infrastructure to rising seas and more frequent storm surges while preserving adjacent salt marshes. While physical infrastructure may last only 75 to 100 years, the practice of working together for the common good must endure across generations if resilience is to be lasting.

***“Sharing practitioners’ knowledge in ways that empower communities to choose solutions that fit their needs is critical. Whether from government, academia, or local experts, people should be offered viable options – vetted by trustworthy expertise – so they can make confident, informed decisions”***



Shri Verrill works at the intersection of ecological restoration, nature-based solutions, and economic democracy, advancing projects that strengthen both ecosystems and communities. With a background in salt marsh biology and coastal infrastructure adaptation, Shri brings scientific expertise and collaborative leadership to initiatives that address climate resilience while fostering equitable, community-driven decision-making.

[Shri@sunriseecologic.com](mailto:Shri@sunriseecologic.com)



# 04

## Socio-ecological aspects in NbS



## 4.1 Envisioning the Future: Exploring Innovation in a Living Lab

*Ryan Bare*

*The Woodlands, Texas, United States*



Urbanization has fragmented natural systems, degraded water quality, and intensified flooding, biodiversity loss, and sustainability challenges. Addressing these concerns requires integrative approaches that combine ecological restoration with sustainable design. The HARC campus was developed as a model for multi-functional energy, natural, and social systems.

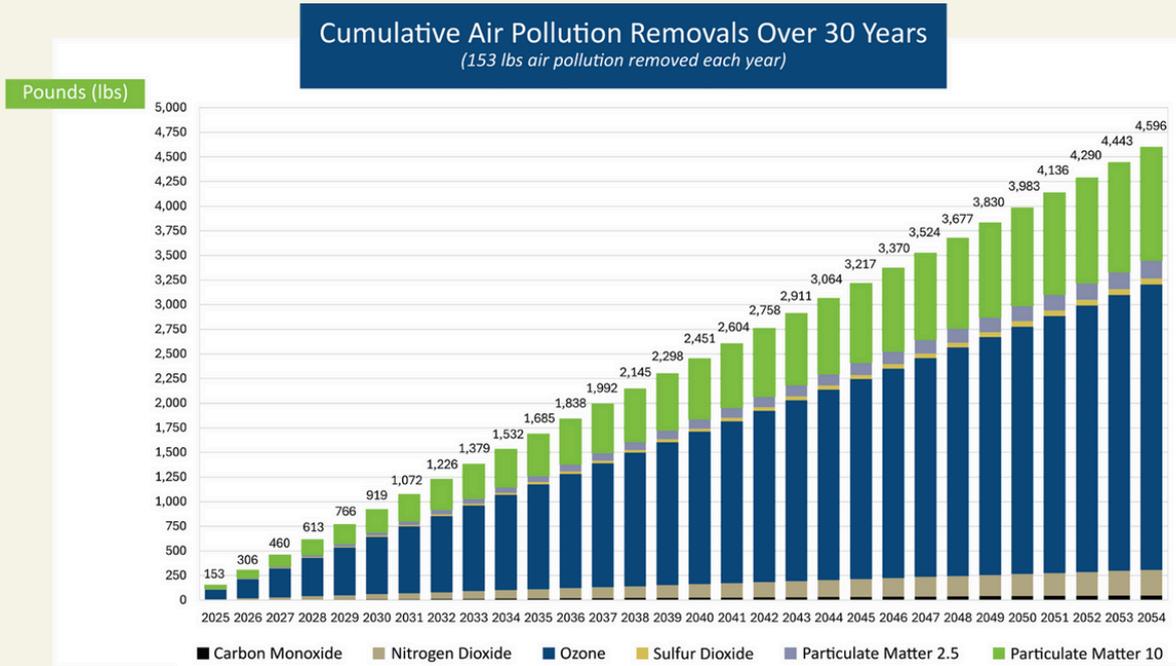


Figure 2 Cumulative Air Pollution Removals over 30 Years.

A geothermal system with 36 wells and a 252-panel, 88-kW rooftop solar array, enables Net Zero energy operations. Sustainable stormwater management is achieved through an ecologically engineered system that treats and manages runoff on-site via bioswales. Built environments are able to restore ecological function, enhance resilience, and provide measurable environmental and community health benefits.



rbare@harcresearch.org

***“What inspired me about GANBASE was the chance to hear from others about the diverse research, projects, and outreach efforts advancing the practice of nature-based solutions”***

Dr. Bare earned a Doctorate in Water Management and Hydrological Science from Texas A&M University’s College of Agricultural and Life Sciences. He obtained a Master of Science in Marine Resource Management from Texas A&M University at Galveston, and a Bachelor of Science in Environmental Science with a concentration in Marine and Coastal Resources from Texas A&M University – Corpus Christi. He is a Program Director in Water and NBS at HARC applying an interdisciplinary background in hydrology, ecology, and natural and water resource management to conduct applied research.

## 4.2 Nature-based solutions brought to you in the Tiny Townhall

*Alicia Wach - Kiel Wik, Kiel Gaarden*



The Baltic Sea is under pressure due to climate impacts but also bears great potential for mitigation and adaptation measures ranging from carbon storage in the sea bed to sea weed plantations in the Kiel Fjord. Accessible information and public involvement in decision making is key to to sustainable climate adaptation.



The project conducted in Kiel offered low-threshold interdisciplinary scientific voices from GEOMAR, Kiel University and IfW Kiel on nature based solutions to the public. Formatted in small snip-bits, they were built into an audio library offering competent answers to simple questions. The "Tiny Townhall" served as a way to bring knowledge to disadvantaged communities and turned out to be an innovative mobile place to connect people to decisions made in their environment.

***“In GANBASE the spirit among participants is so energetic. The feedback from people of my field who work in different contexts has been overwhelming as you tend to underestimate the impact of your own work. It was great to learn how each community brings its own dynamic to the same problems we see worldwide”***



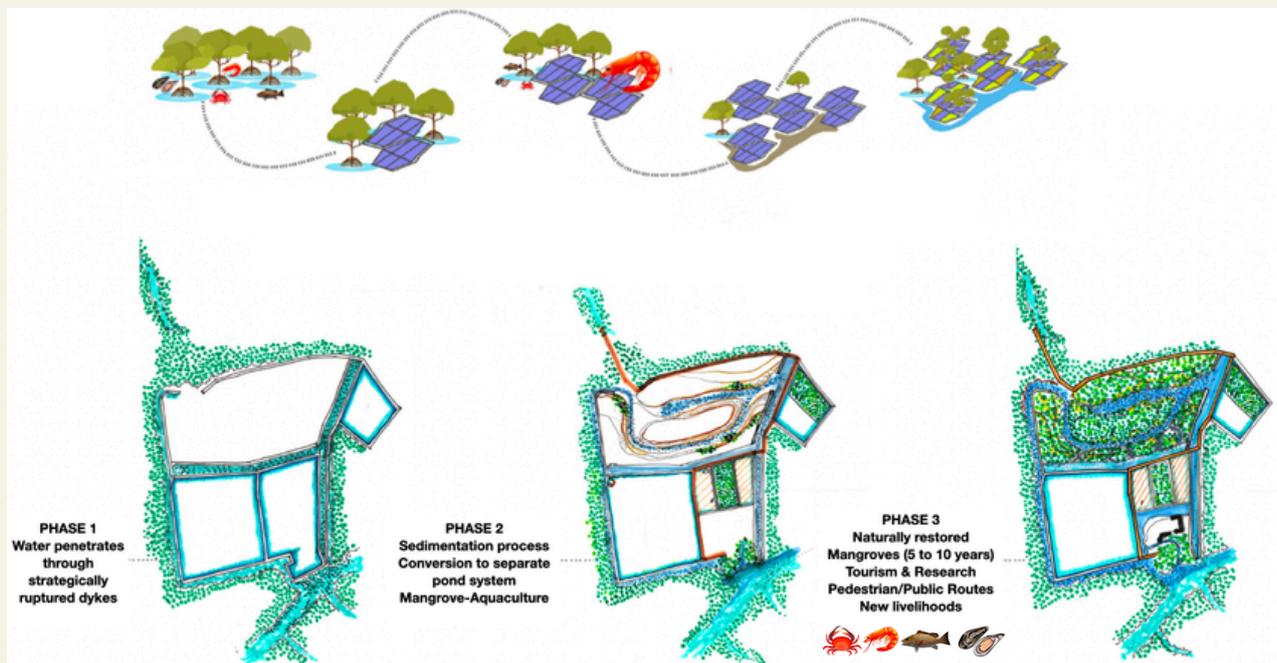
Having a background in environmental sciences my focus shifted from natural sciences towards questions of responsibility and justice in my two masters programs on Environmental Ethics and Sustainability Science. Having studied in Lima, Lisbon and Kiel, I am passionate about coastal regions and inter- as well as transdisciplinary knowledge transfer. During my time at Potsdam Institute for Climate Impact Research, I was able to broaden my view connecting climate issues with migration, agriculture and biodiversity with partner countries from three continents. I will be a PhD Candidate at Vienna University, in a project in Ethics, from November 2025 onwards.

[aliciamwach@gmail.com](mailto:aliciamwach@gmail.com)

## 4.3. Socio-Ecological Conflicts and the Challenges of Climate Change

**Wendy Chávez-Páez**

**Case Study: Cerrito de los Morreños, Gulf of Guayaquil, Ecuador**



Between 1970-2000 Ecuador registered massive deforestation of its mangrove forest, due to the installation of shrimp ponds to breed and export this product. The forest was the habitat of ancestral communities, some of which faced displacement, and which means of life have been severely affected. This project, designed by architect Fareeha Shakih, proposes a “reverse colonization” of the mangrove lands to return to the forest, sharing space in a more sustainable way. Though returning completely to the intact mangrove forest is not possible, what can be achievable is to have reduced ponds, and adaptation to climate change events through sedimentation, naturally restored mangrove, tourism and research, pedestrian and public routes and new the generation of new livelihoods.



Another project in the Gulf of Guayaquil is the “floating islands” by Prof. Xavier Cornejo at University of Guayaquil. This project, running since 2017, united academia and civil society in the work to recover certain areas of the Estuary. The initiative involves the creation of 40 floating islands with a variety of plants, mostly mangroves, which seek to oxygenate and purify the estuary waters, eliminating levels of fecal coliforms, excess nitrogen and phosphorus, reducing unpleasant odors, and removing suspended solids (Escafandra news, 2018).

***“GANBASE gave me the opportunity to take my research about the global south to other audiences. I am thankful for having met professionals who have passion for natural and social sustainability”.***



Wendy Chávez-Páez is an economist (Polytechnic School of Guayaquil, Ecuador) and holds a master's degree in public administration (New York, USA) and a master's degree in human settlements (KU Leuven, Belgium). She is a junior researcher and PhD student in Cultural and Political Change at the Center for Development Research of the University of Bonn. Wendy has worked in the Ecuadorian academia, government sector, and civil society organizations.

**lachavez34@yahoo.com**

Sources:

Cornejo, Xavier (2018). Pictures of the floating islands project.

Rodríguez-Pontón, Peter (2018). *Islas flotantes que descontaminan los esteros de Guayaquil*.

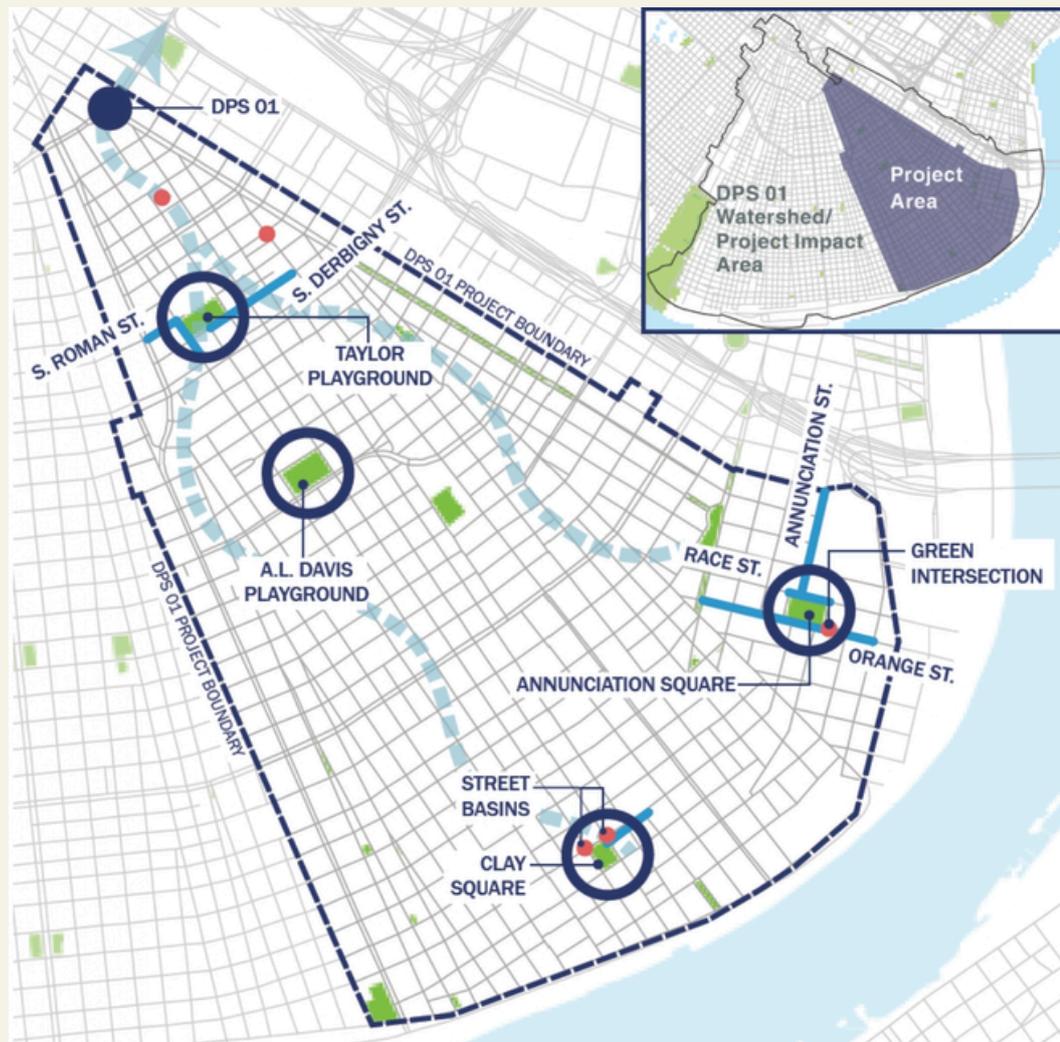
<https://escafandra.news/islas-flotantes-que-descontaminan-los-esteros-de-guayaquil/>

Sheikh, Fareeha (2018). *Guayas Diagrams and Sections that are part of her Master thesis at KU Leuven*.

## 4.4 Drainage Pump Station (DPS) 01 Watershed Drainage Upgrades and Green Infrastructure project

*Erika Boerr*

*Municipality of New Orleans*



This project involves work in 9 neighborhoods: Central City, Broadmoor, Garden District, Lower Garden District, Irish Channel, St. Thomas, East Riverside, and Milan. Properties in these neighborhoods experience frequent localized flooding and repetitive losses due to regular weather events. Phase I will implement Green Infrastructure, along with new pipe connectivity, to manage stormwater on selected vacant lots and public parks, and provide widespread benefits to the project area and the adjacent upriver neighborhoods.



The four fields in the parks will have subsurface storage, the two lots will have surface storage. Each is designed to collect water off of the streets and temporarily store it, thus relieving pressure on the pumping system. Three green intersections are also included.

***“What made GANBASE inspiring was meeting excellent professionals and connecting/sharing their energies, experiences, and knowledge from diverse backgrounds into a common purpose worldwide”***



[eboerr@nola.gov](mailto:eboerr@nola.gov)

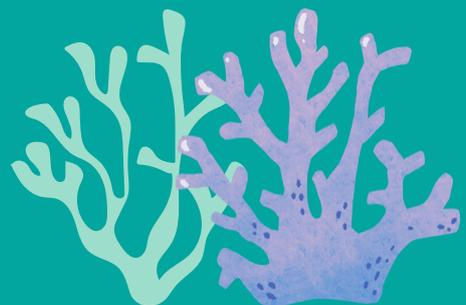
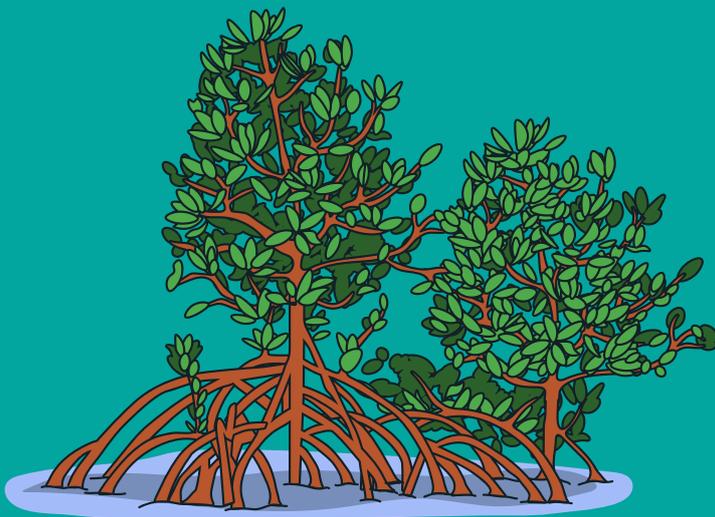
Erika Boerr is currently employed as a Senior Project Manager in the Stormwater and Green Infrastructure Department of the City of New Orleans, and for the past 6 years has been focused on Stormwater Management projects. She has recently launched the construction of the largest flood mitigation project, both geographically and financially, in New Orleans. Erika's passion is to advocate for Project Management in all business disciplines. She strives to continue to work on Green Infrastructure, Nature-based Solutions, and Resilient projects for Climate Action worldwide.



# 05

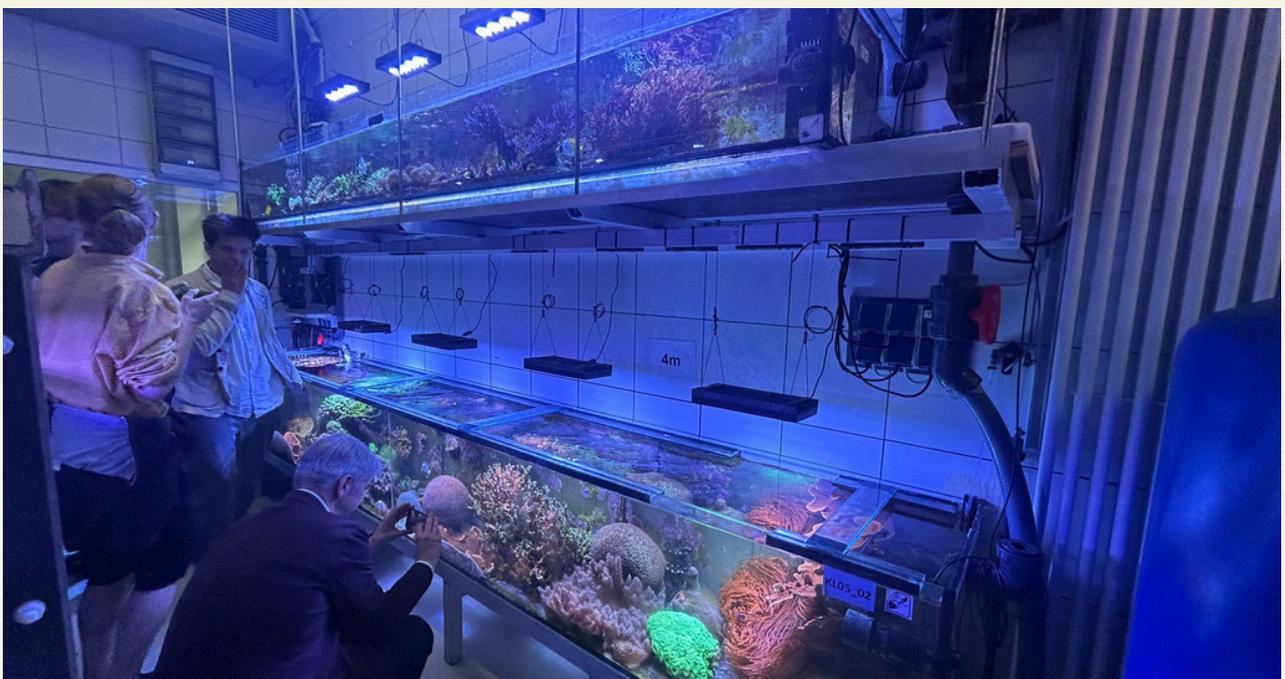
## Experimental Marine Laboratories at ZMT, Bremen

### Mangroves and Coral Reefs





GANBASE visited the Experimental Marine Laboratory at ZMT. We were welcomed by professors Martin Zimmer and Verónica Helfer. Mangroves are planted and maintained in pots with a special illumination, while corals are in tanks. This Laboratory is unique in Germany and reminds us of the important of these species for the equilibrium and health of the coastal ecosystems and for climate change adaptation.





# 06

## First day of field visits:

Living Lab Teufelsmoor.  
ZukunftMoor.  
The Wadden See.  
*Bremen*



## 6.1 LivingLab Teufelsmoor: *Climate and nature protection-oriented re-wetted grassland management.*



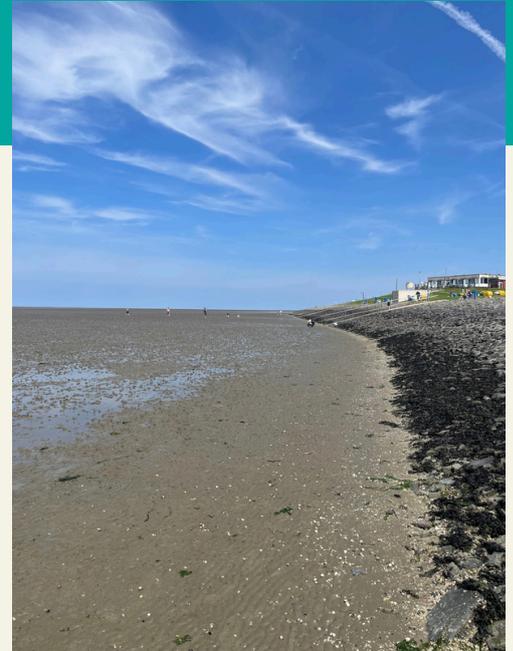
## 6.2 ZukunftMoor: *The Future of Peatlands - rewetting drained peatlands and cultivating sphagnum moss.*

<https://www.zukunftmoor.de/>





**6.3 The Wadden Sea National Park:  
Listed by UNESCO as World Heritage based on its globally  
unique geological and ecological values.**





## Having fun at the Wadden See National Park with GANBASE!



## 6.4 Langwarder Groden.

Birding, muddy, and shallow water areas and salt marshes.  
Part of the Wadden See National Park.



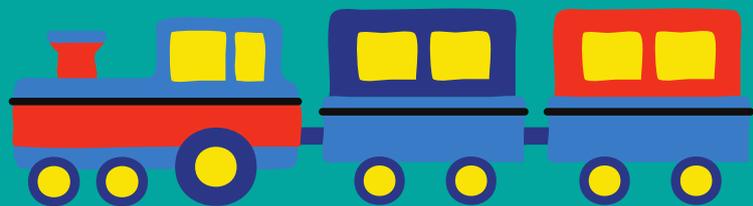




# 07

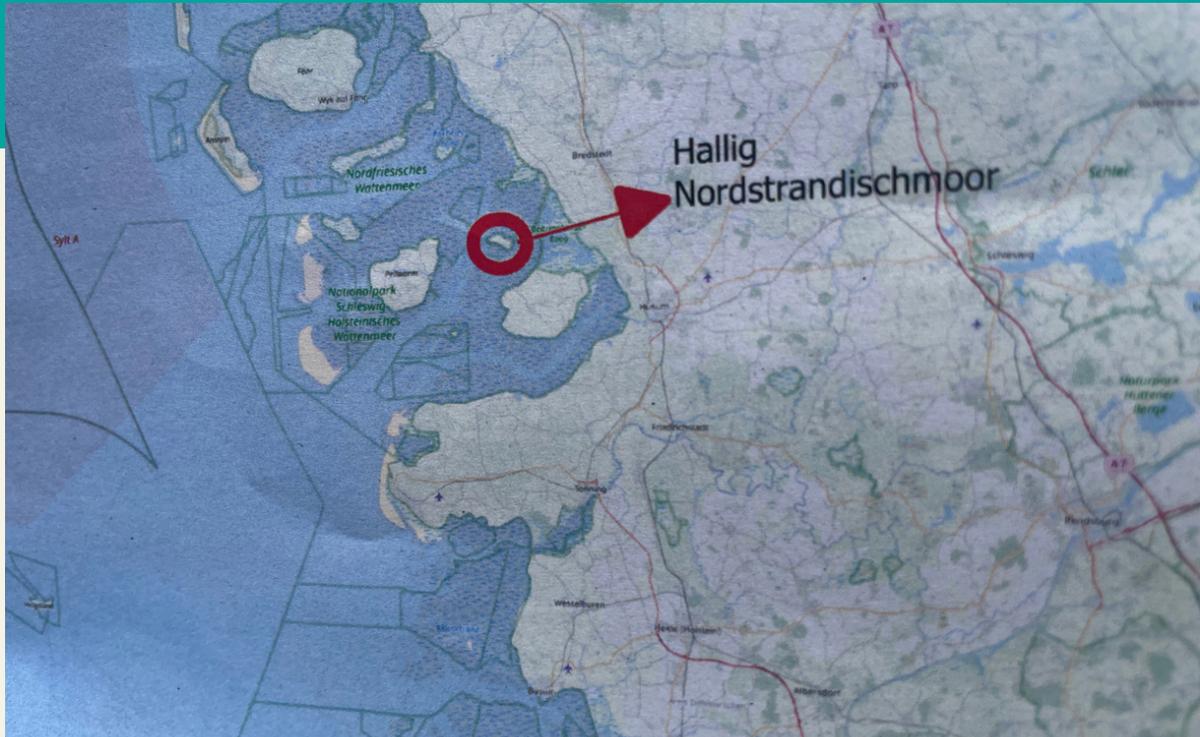
## Second day of field visits:

Hallig Nordstrandischmoor



## 7.1 Hallig Nordstrandischnoor.

Halligen are Small Islands of the Wadden Sea that are covered with salt marshes where numerous coastal birds breed.







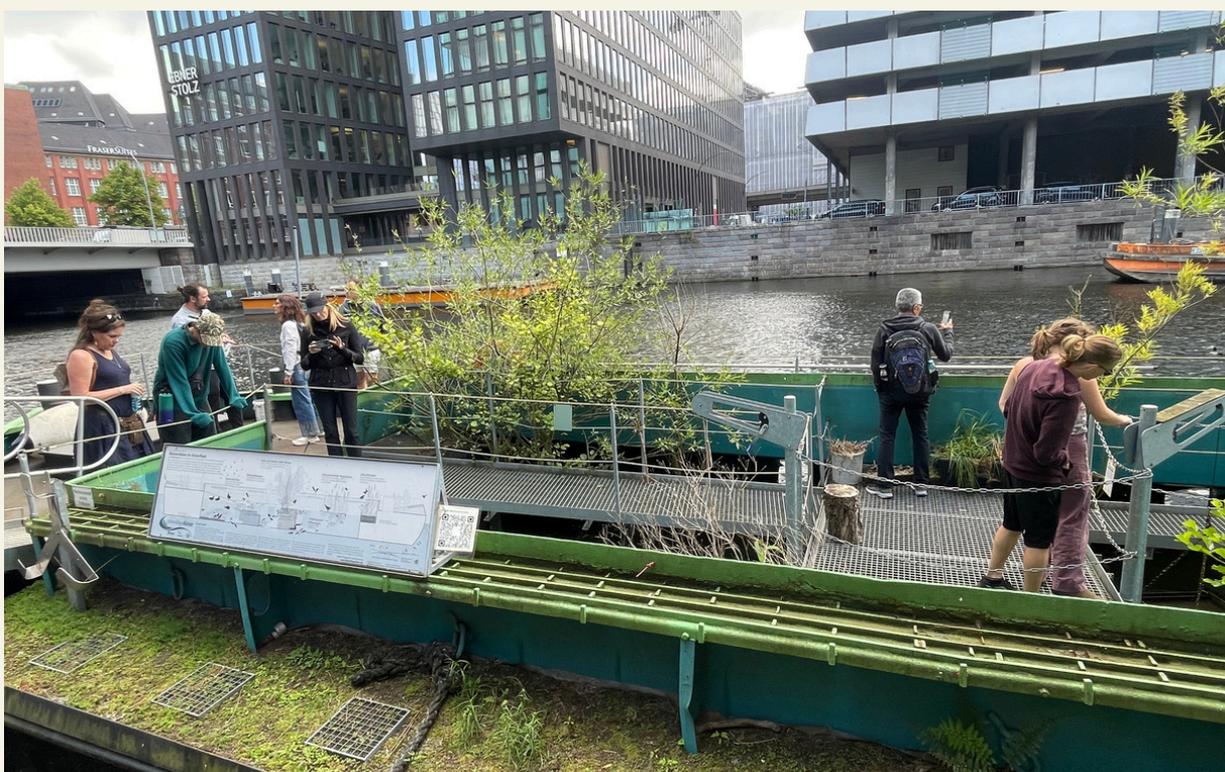
# 08

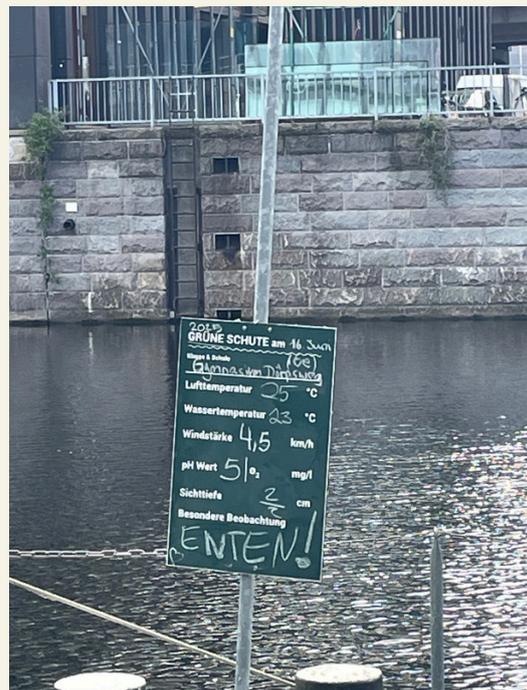
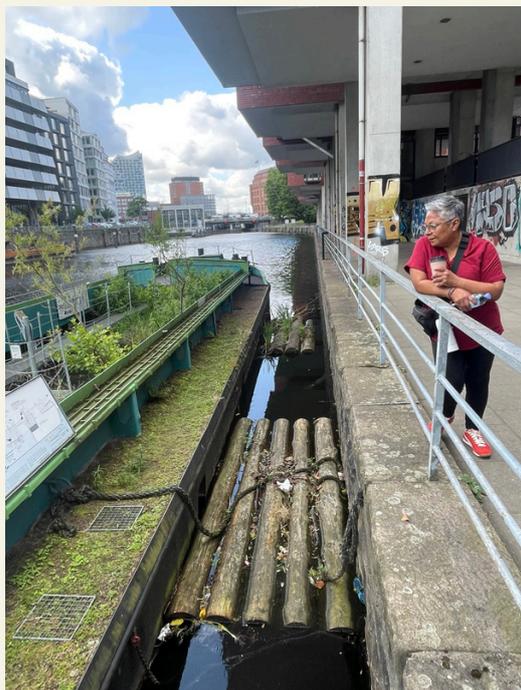
## Third day of field visits:

**Lebendige Alster - Grüne Schute, Hamburg.  
New Large Wave Current Flume GWK,  
Hannover.**

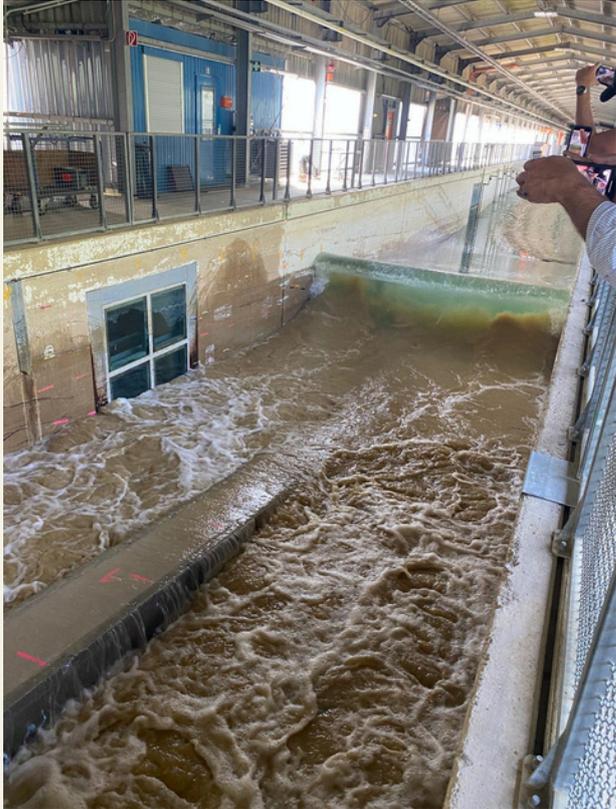


## 8.1 Lebendige Alster. Grüne Schute BUND Hamburg, Aktion Fischotterschutz and NABU Hamburg.





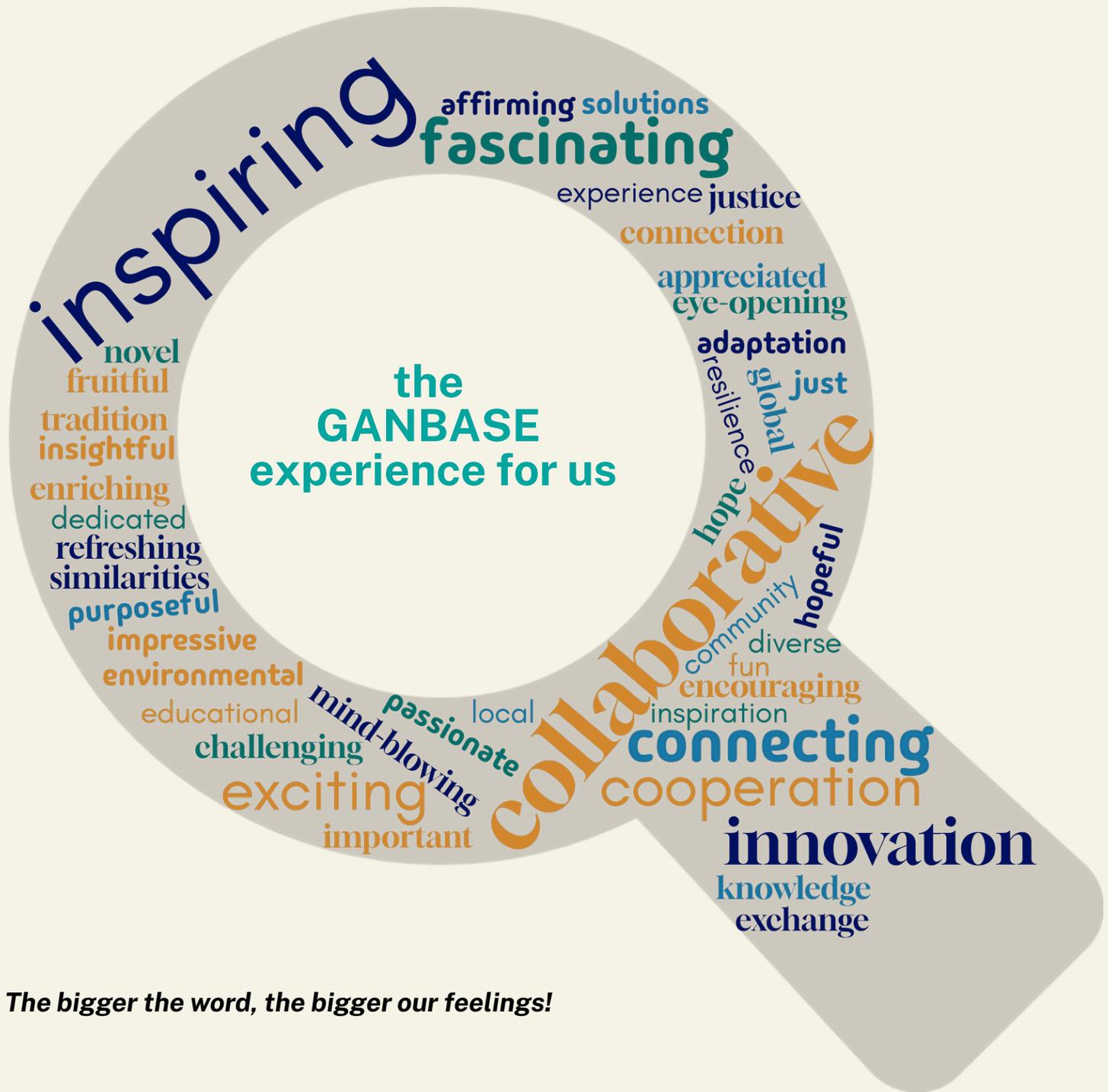
# 8.2 New Large Wave Current Flume GWK. Hannover. Marine technology - Powerful Wave Machine



# 09

## Closing remarks

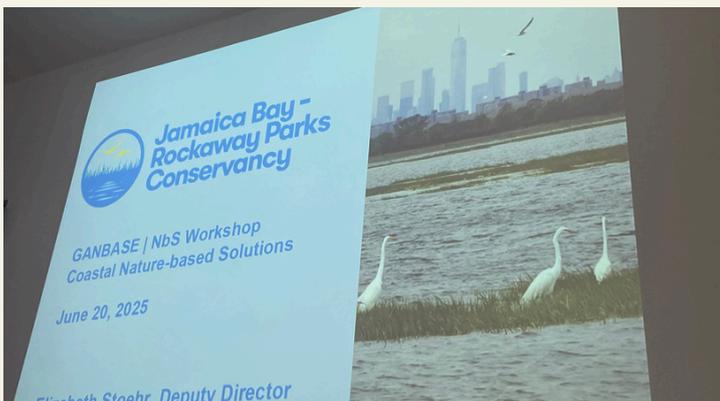
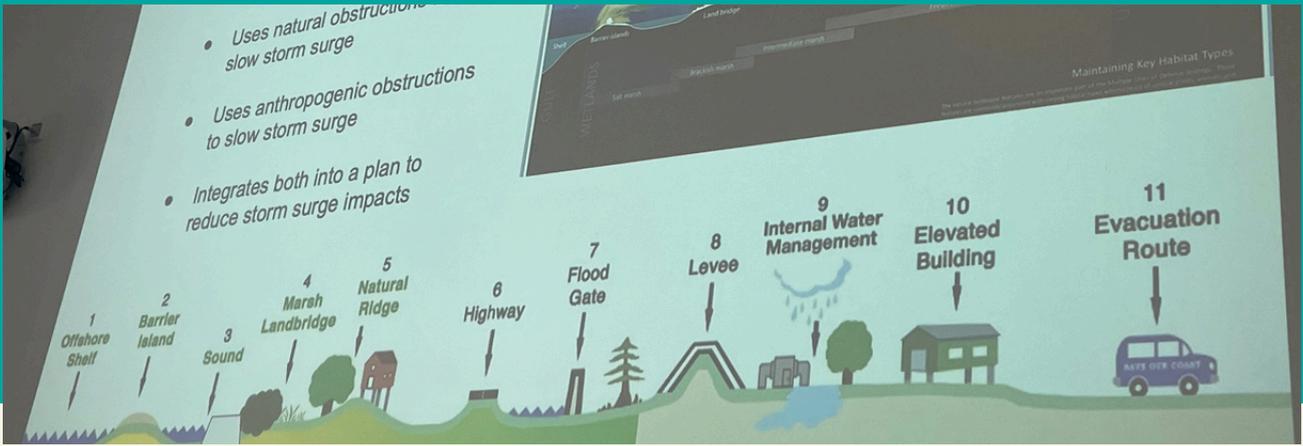
**GANBASE  
is ongoing!**



**The bigger the word, the bigger our feelings!**













# GANBASE 2025

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## Contact Information

Address **POCACITO**  
1004 Fern Ct  
Charlottesville, VA 22901,  
USA

Email [info@pocacito.org](mailto:info@pocacito.org)

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