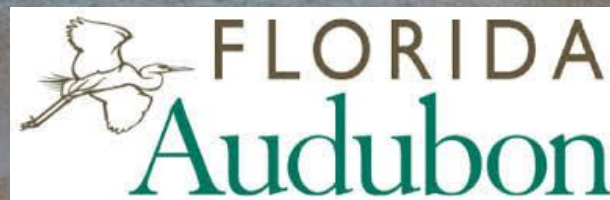


Building Resilience into Gulf Restoration

Jessica Bibza, National Wildlife Federation
Janet Bowman, The Nature Conservancy
Elizabeth Alvi, Audubon Florida



Building Resilience into Gulf Restoration

- Highlight efforts that incorporate resilience into gulf restoration
- Projects that restore marsh, wetland, oyster habitat, AND also make upland communities more resilient to climate change impacts.
- Inland communities also play a role; protect economies and ecologies

Opportunities to Address Resilience in Gulf Restoration

- 2010 Gulf Oil Spill was terrible ecological and economic disaster, but funds from fines presents unprecedented restoration opportunity
- Multiple Sources of Funding:
 - Natural Resource Damage Assessment (NRDA)
 - NFWF Gulf Environmental Benefit Fund (GEBF)
 - RESTORE Act:
 - Federal Council, State Plans, County Plans

GOALS



**Restore and
Conserve Habitat**



**Restore Water Quality
and Quantity**



**Replenish and Protect Living
Coastal and Marine Resources**



**Restore and Revitalize
the Gulf Economy**



**Enhance
Community Resilience**

RESTORE Council Goals

Restore and Conserve Habitat: Restore and conserve the health, diversity, and resilience of key coastal, estuarine, and marine habitats.

Restore Water Quality and Quantity: Restore and protect the water quality and quantity of the Gulf Coast region's fresh, estuarine, and marine waters.

Replenish and Protect Living Coastal and Marine Resources: Restore and protect healthy, diverse, and sustainable living coastal and marine resources.

Enhance Community Resilience: Build upon and sustain communities with capacity to adapt to short- and long-term changes.

Restore and Revitalize the Gulf Economy: Enhance the sustainability and resiliency of the Gulf economy.

RESTORE Council Objectives

Restore, Enhance, and Protect Habitats: Restore, enhance, and protect the extent, functionality, resiliency, and sustainability of coastal, freshwater, estuarine, wildlife, and marine habitats. These include barrier islands, beaches, dunes, coastal wetlands, coastal forests, pine savannahs, coastal prairies, submerged aquatic vegetation, oyster reefs, and shallow and deepwater corals.

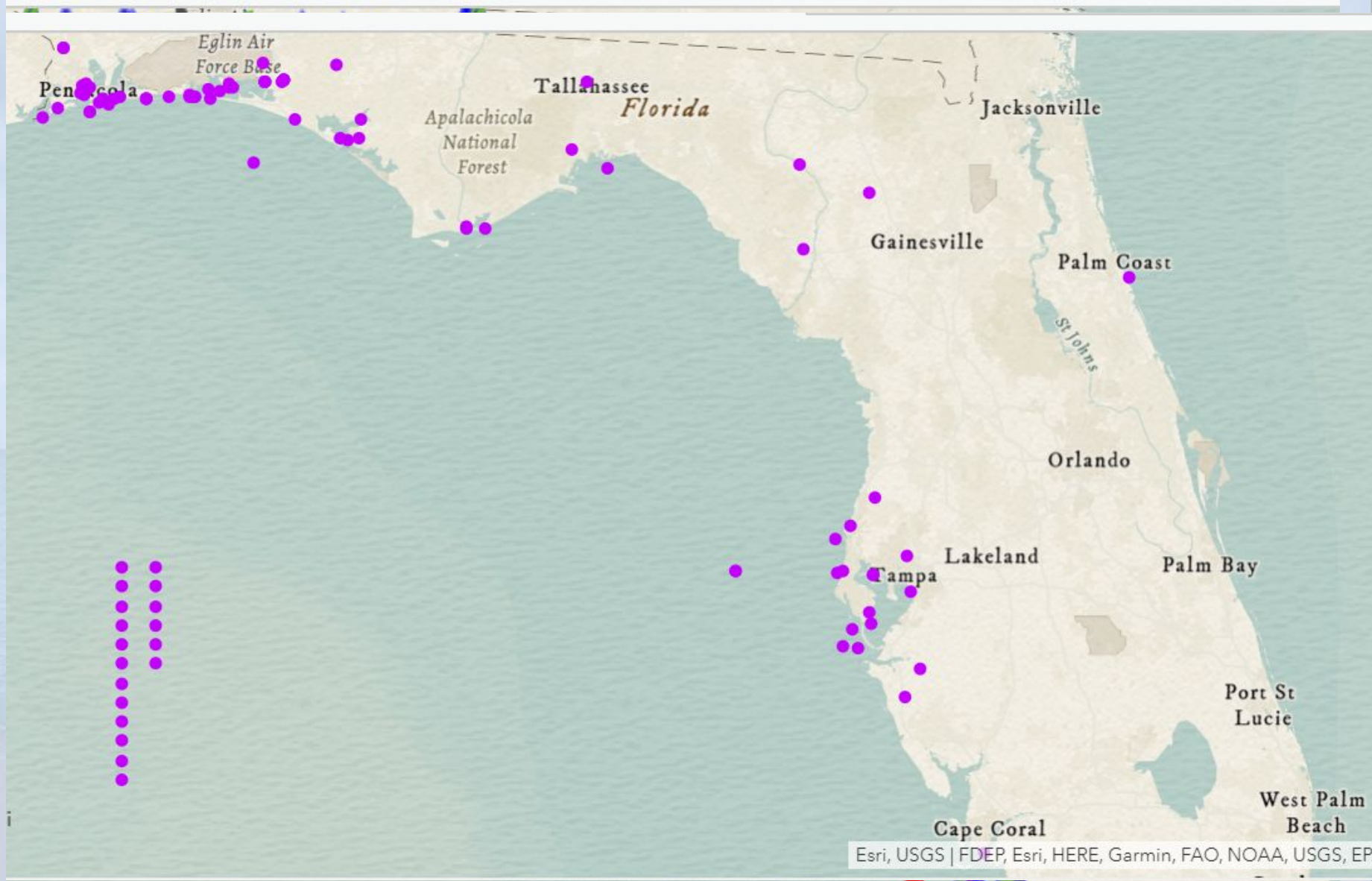
Restore, Improve, and Protect Water Resources: Restore, improve, and protect the Gulf Coast region's fresh, estuarine, and marine water resources by reducing or treating nutrient and pollutant loading; and improving the management of freshwater flows, discharges to, and withdrawals from critical systems.

Protect and Restore Living Coastal and Marine Resources: Restore and protect healthy, diverse, and sustainable living coastal and marine resources including finfish, shellfish, birds, mammals, reptiles, coral, and deep benthic communities.

Restore and Enhance Natural Processes and Shorelines: Restore and enhance ecosystem resiliency, sustainability, and natural defenses through the restoration of natural coastal, estuarine, and riverine processes, and/or the restoration of natural shorelines.

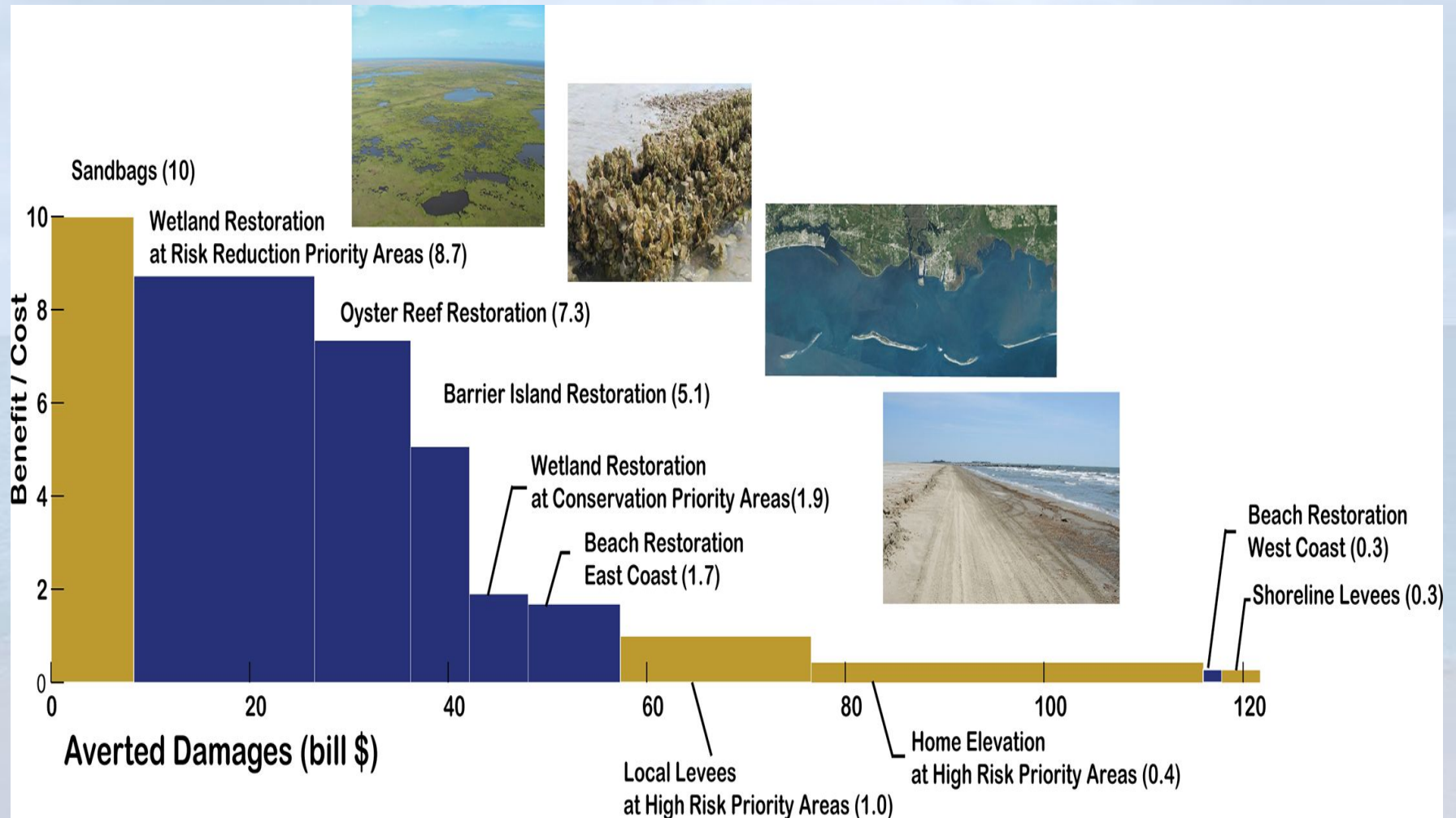
Promote Community Resilience: Build and sustain Gulf Coast communities' capacity to adapt to short-and long-term natural and man-made hazards, particularly increased flood risks associated with sea-level rise and environmental stressors. Promote ecosystem restoration that enhances community resiliency through the re-establishment of non-structural, natural buffers against storms and flooding.

Promote Natural Resource Stewardship and Environmental Education: Promote and enhance natural resource stewardship efforts that include formal and informal educational opportunities, professional development and training, communication, and other actions for all ages.



Esri, USGS | FDEP, Esri, HERE, Garmin, FAO, NOAA, USGS, EP

Economic Value of Risk Reduction from NNBI Projects along the Gulf



Reguero BG, Beck MW, Bresch DN, Call J, Meliane I (2018)

Value of Wetlands and Forests



Wetlands:

Sequester Carbon

Hold Floodwaters

Recharge Groundwater

Forests:

Sequester Carbon

Reduce CO₂ Emissions

Investments in Resilience

Oil Spill Funds Invested in Several Types of Resilience Projects:

- Community Resilience
- Vulnerability Assessments
- Stormwater Improvements; Hydrologic
- Grey Infrastructure
 - Breakwaters
- Natural and Nature-Based Infrastructure
 - Land Acquisition/Floodplain Restoration
 - Dune Restoration
 - Living Shorelines & Oyster Reefs
 - Marsh Creation with BU Dredge Material

Natural Resource Damages

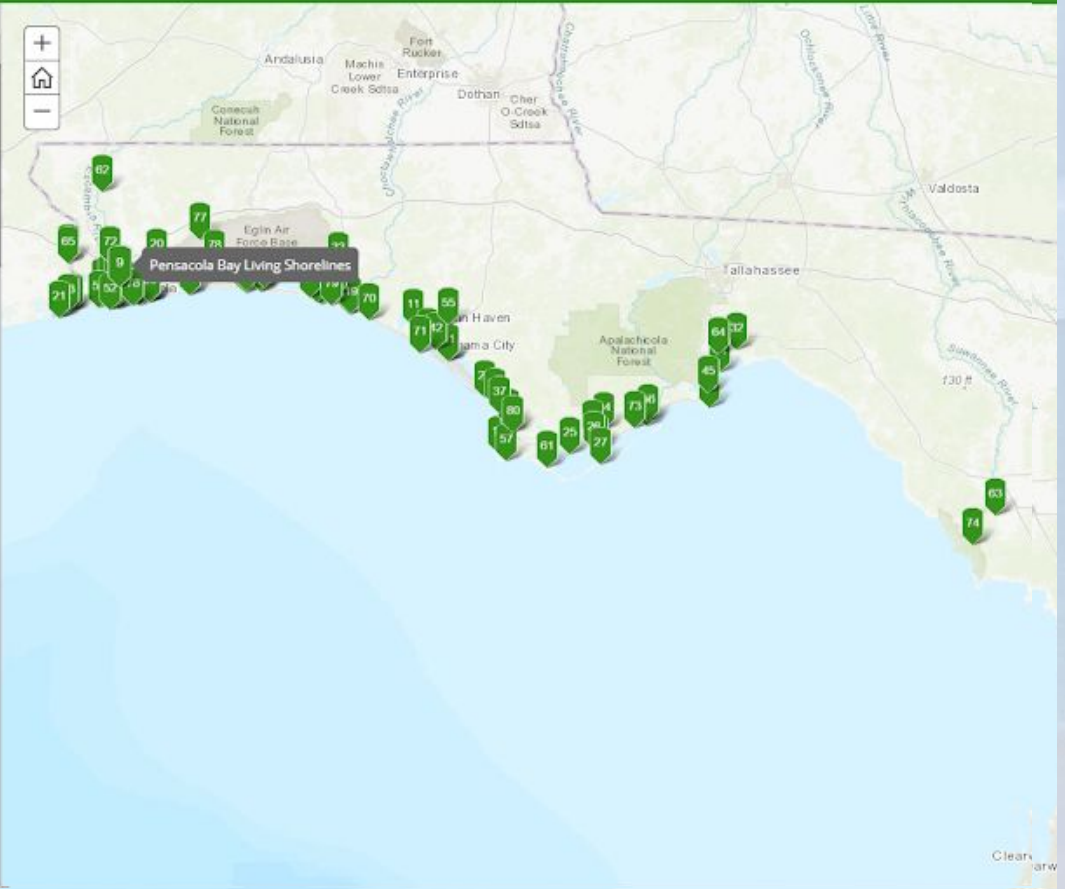
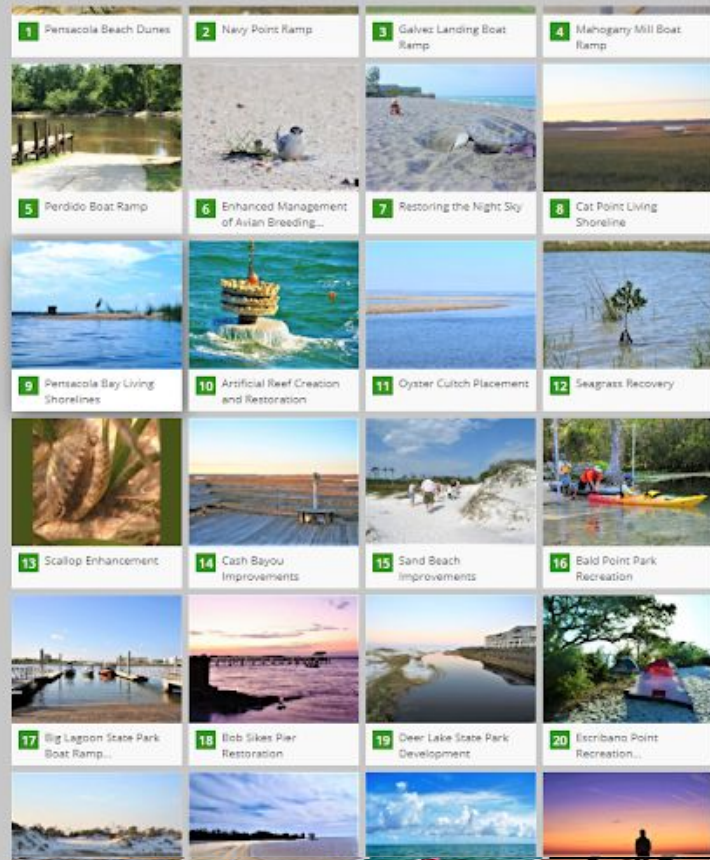
DWH Funded Project Story Map (2019)

Additional Information: www.deepwaterhorizonflorida.com

Email: deepwaterhorizon@dep.state.fl.us

Source: Deepwater Horizon Program (DWH)

ALL NRDA NFWF RESTORE MOEX



NFWF GEBF

DWH Funded Project Story Map (2019)

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Email: deepwaterhorizon@dep.state.fl.us

Source: Deepwater Horizon Program (DWH)

ALL NRDA NFWF RESTORE MOEX



5 Apalachicola Bay Oyster Restoration (NFWF)



6 Enhanced Assessment for Recovery of Gulf of Mexico



7 Florida Shorebird Conservation Initiative



8 Benthic Habitat Mapping



9 Restoration of Florida's Coastal Dune Lakes



10 Bayou Chico Restoration



11 Joe's Bayou and Indian Bayou Water Quality Improvement



12 Boggy Bayou Water Quality Improvement



13 Oyster Reef Habitat Restoration



14 Eastern Pensacola Bay Oyster Habitat



15 Increased Capacity for Marine Mammal



16 Water Quality Improvements to



17 Restoring Florida's Shorebird and Seabird



18 Enhancement of Sea Turtle Stranding



19 Recovery and Resilience of Oyster Reefs in the



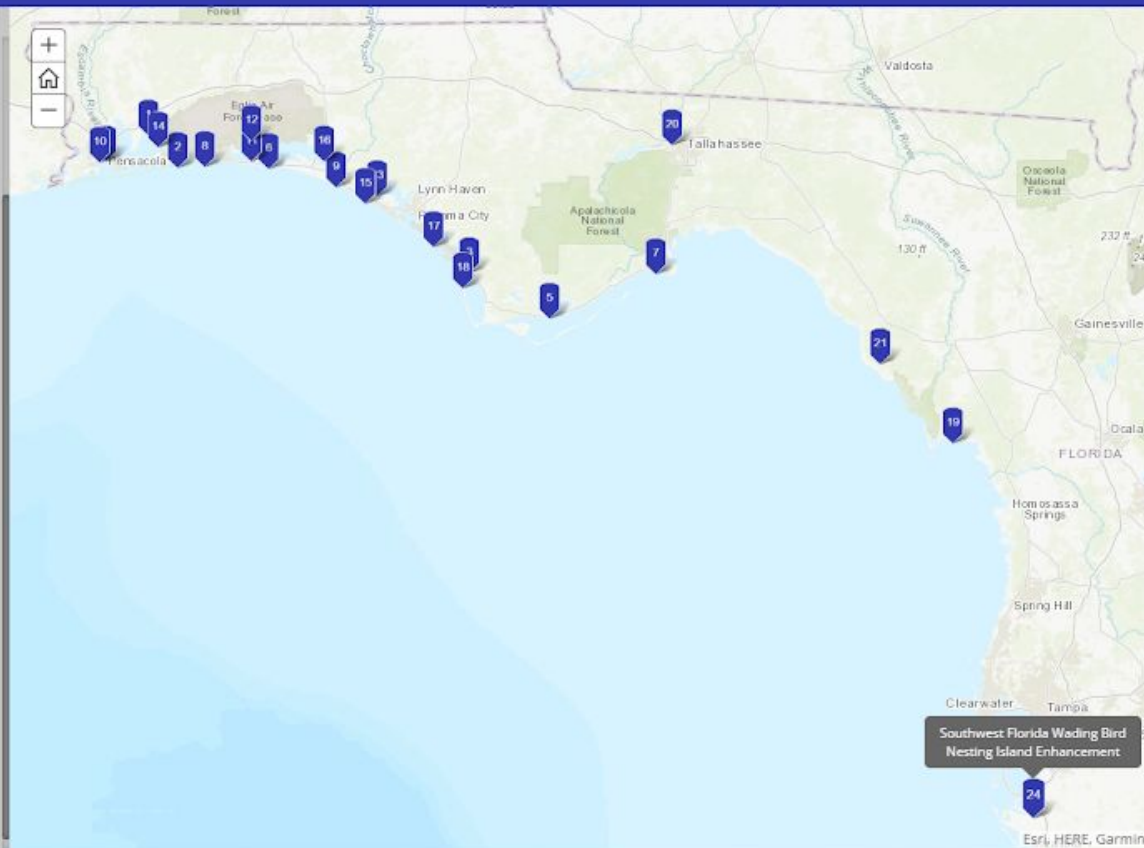
20 Florida Gulf Environmental Benefit



21 Lower Suwannee and Gulf Watershed



24 Southwest Florida Wading Bird Nesting



MOEX

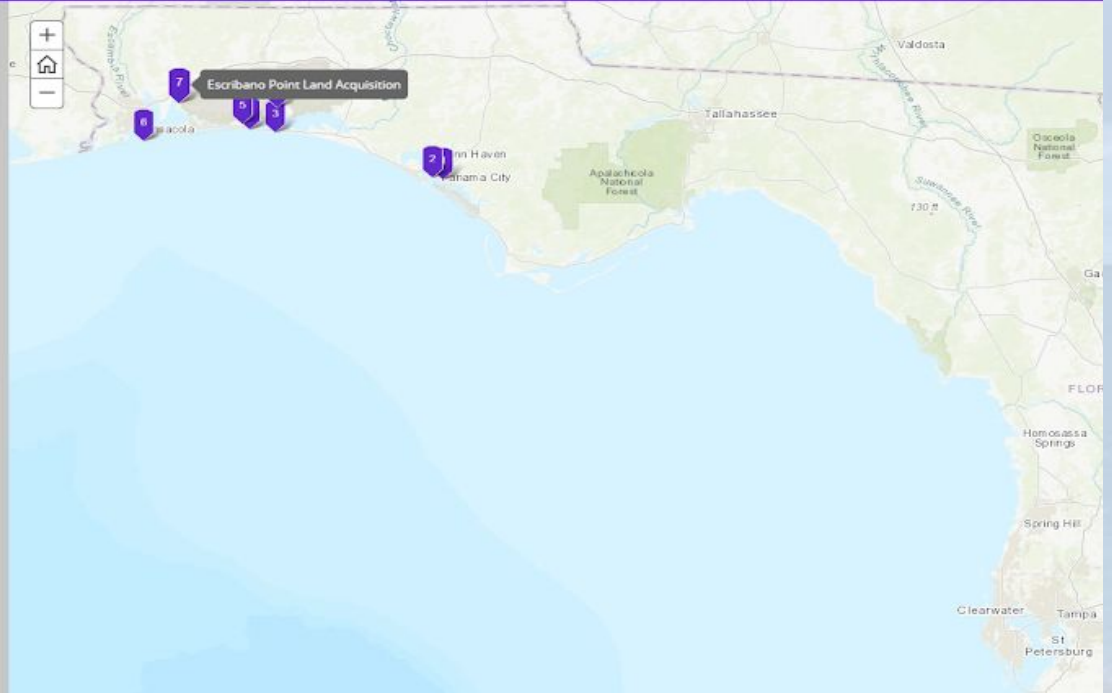
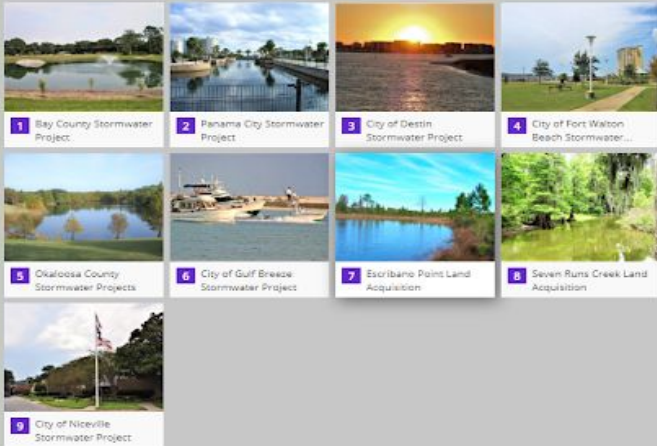
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Source: Deepwater Horizon Program (DWH)

ALL NRDA NFWF RESTORE MOEX



RESTORE: Federal Council

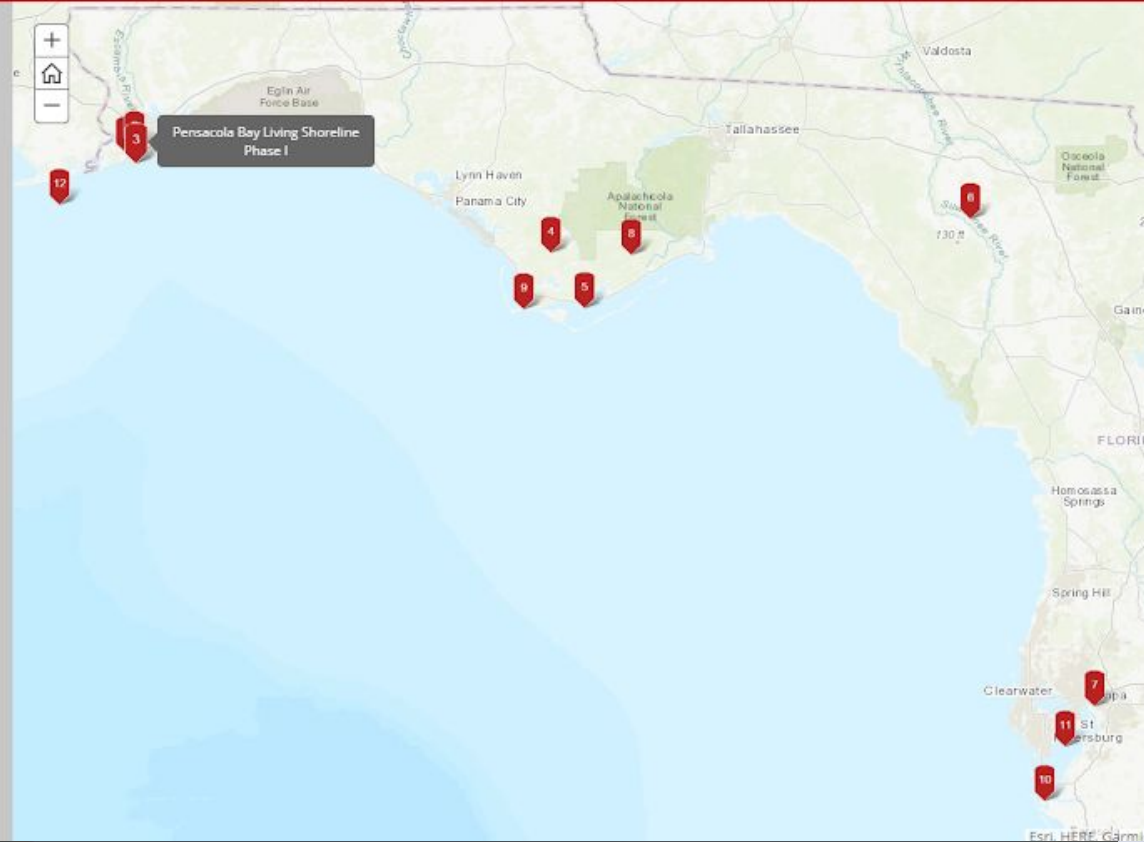
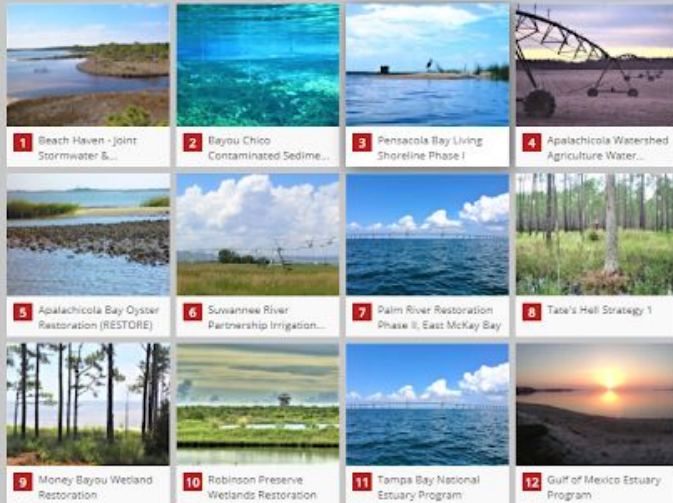
DWH Funded Project Story Map (2019)

Additional information: www.deepwaterhorizonflorida.com

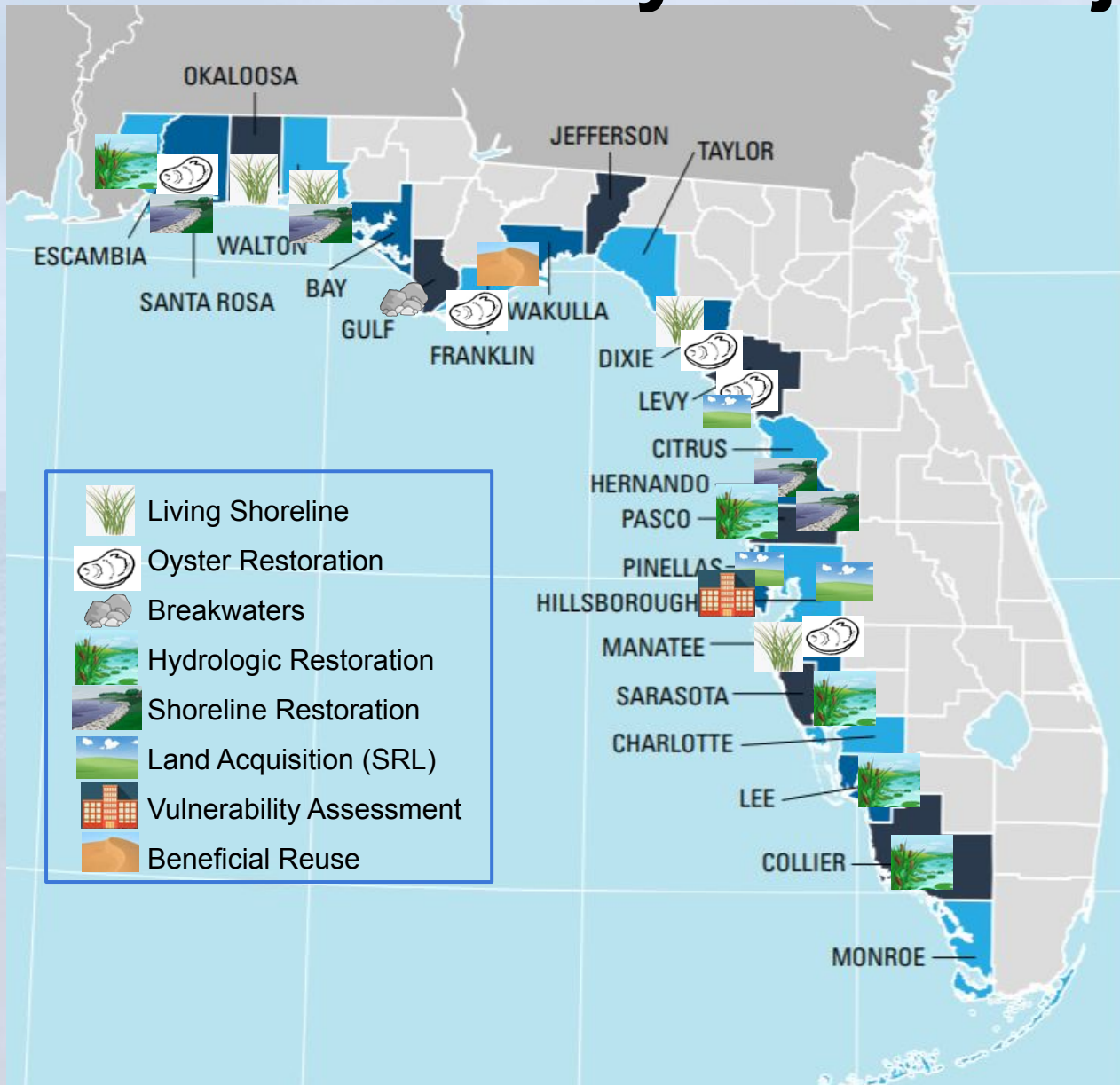
Email: deepwaterhorizon@dep.state.fl.us

Source: Deepwater Horizon Program (DWH)

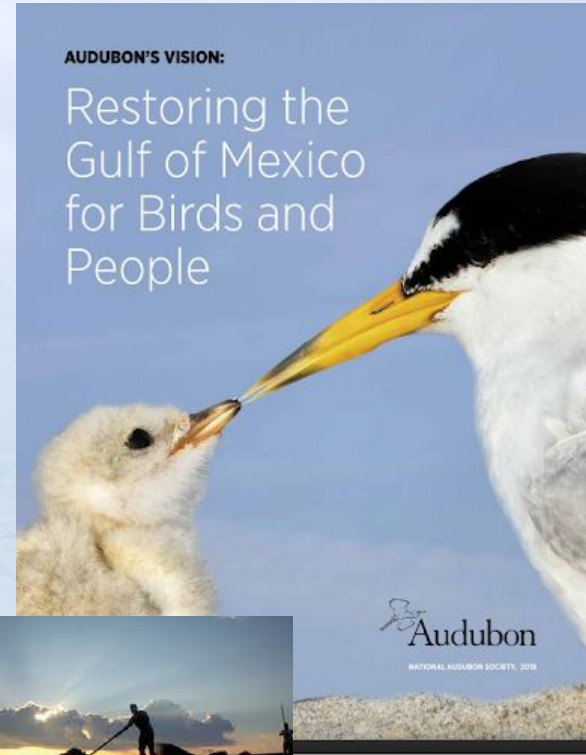
ALL NRDA NFWF **RESTORE** MOEF



RESTORE: County-Level Projects



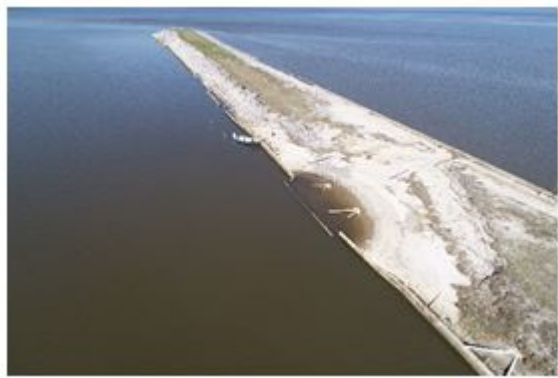
Example Projects



Alafia Banks Breakwater



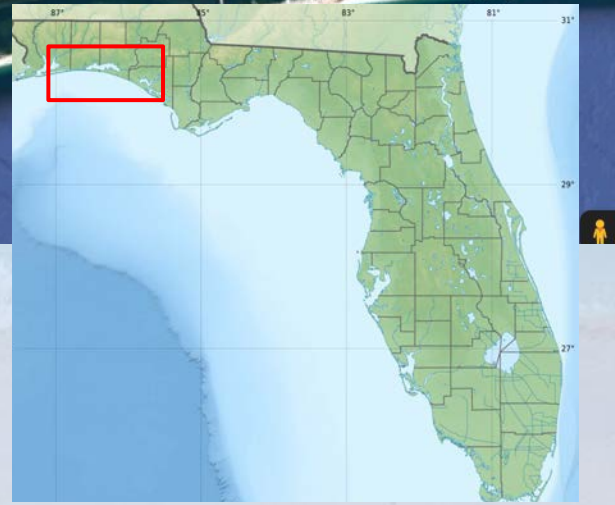
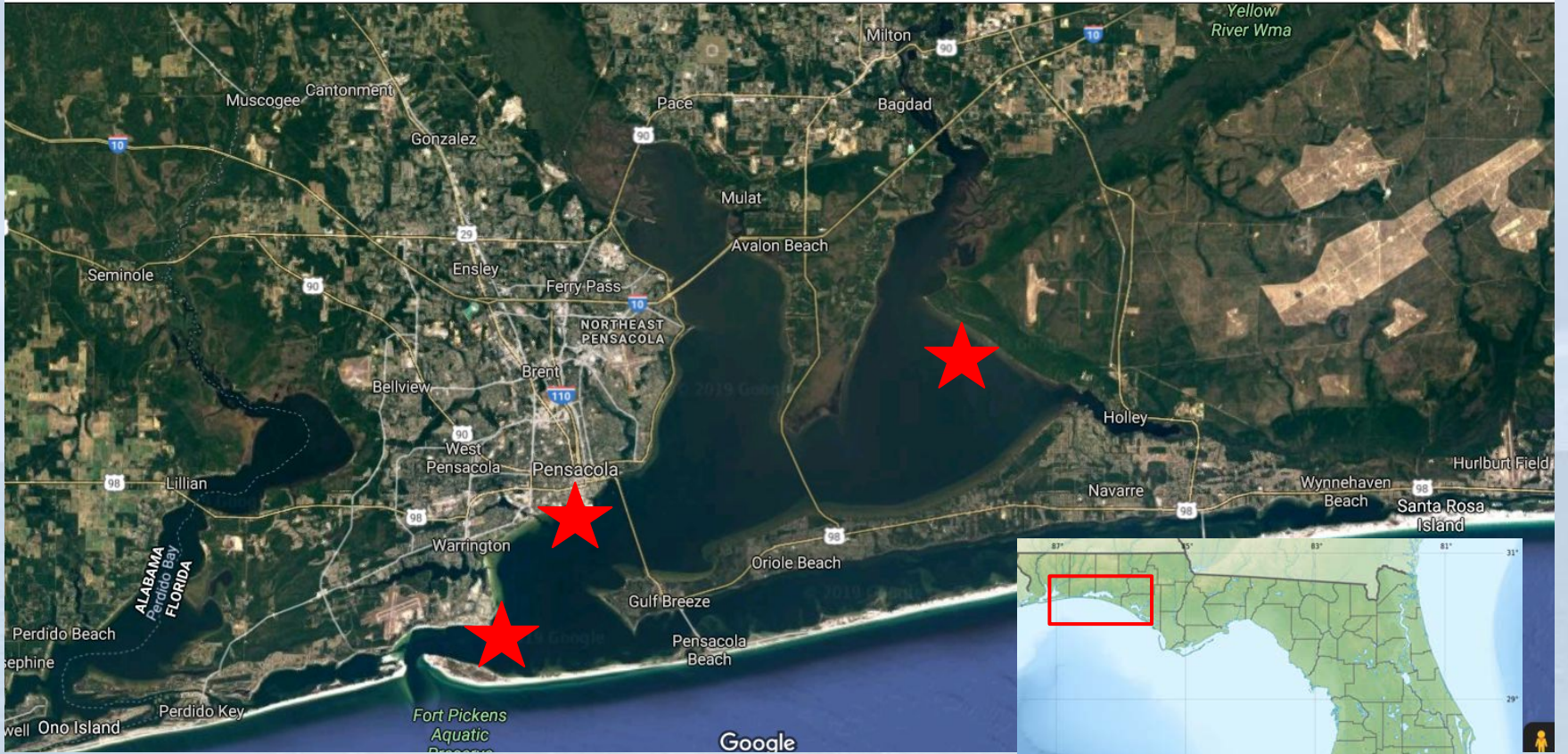
St. George Causeway



Pensacola Bay Living Shoreline and Oyster Restoration Projects



Photo Credit DevinFord Photography



East Bay Oyster Restoration

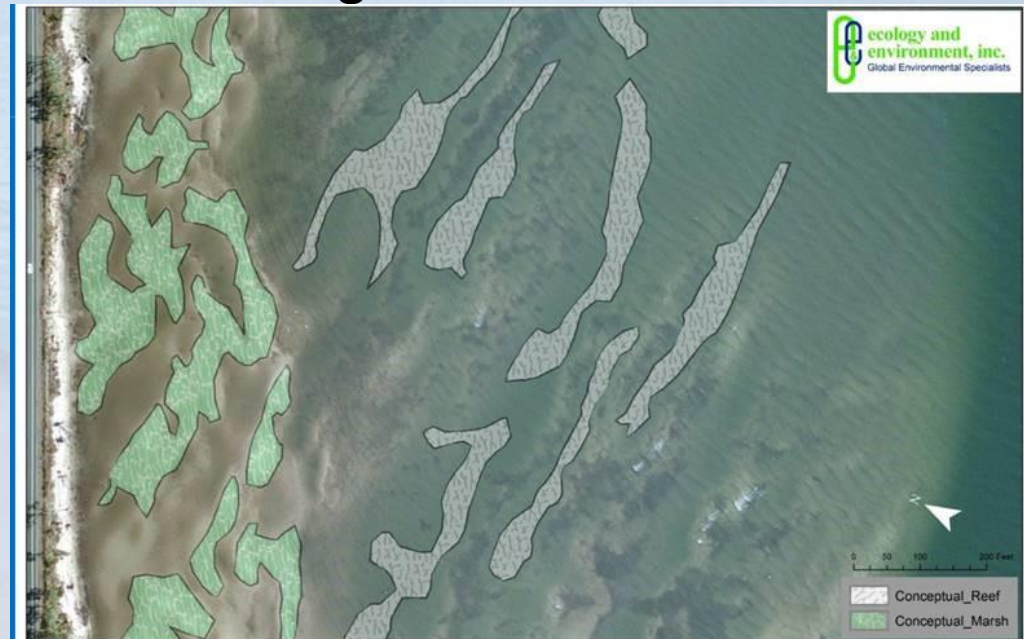
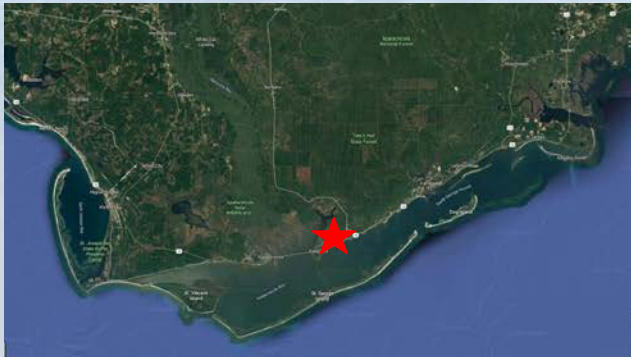


NAS Pensacola/White Island



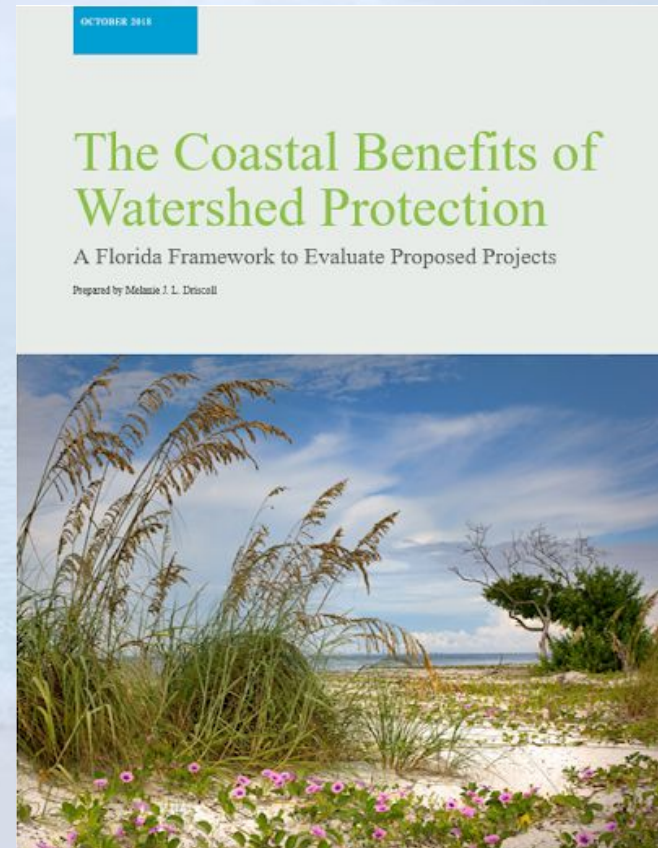
St. George Sound Living Shoreline

- Proposed: 6-12 mi along US 98 Franklin County
- Oyster Reefs & Salt Marsh
- Initial Phase: 1 mi along Tate's Hell State Forest
- Partnership:
 - Ecology & Environment
 - Apalachee Regional Planning Council
 - NERR
 - FDOT
 - FDEP/FWC



Watershed Approach to Resilience Planning

- Governance at Watershed Level
- Upstream Community Actions Benefit Coastal Areas
- Estuary Programs as Resources



Thank you

Questions?





I'll meet you at
high tide.

Shore!

RESTORE: County-Level Projects

