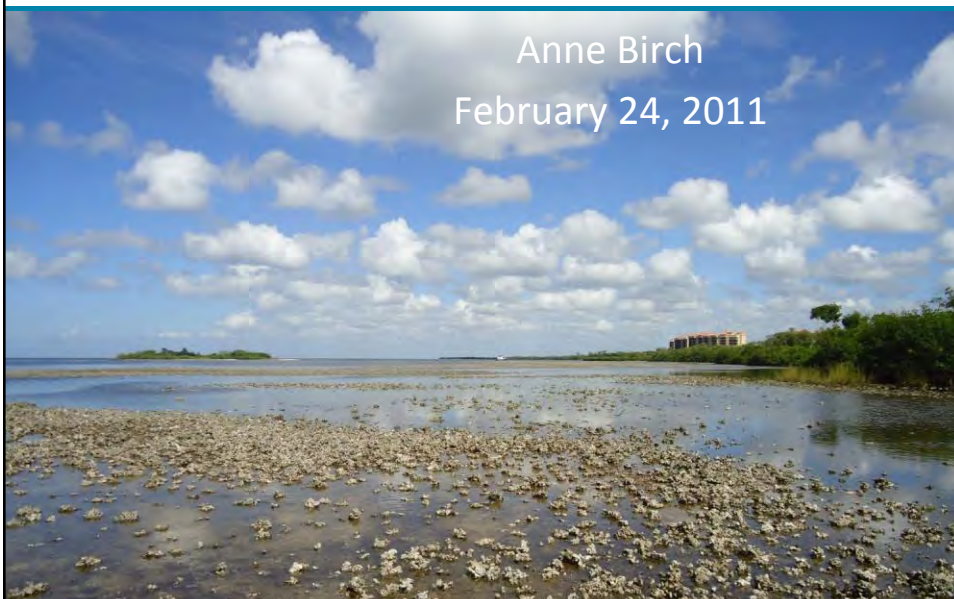


Importance of Ecological Oyster Reef Restoration

Anne Birch
February 24, 2011

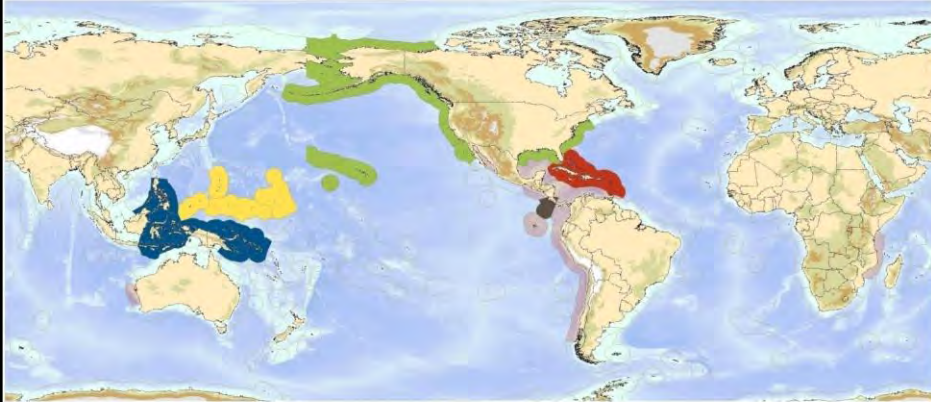


Our Mission

The mission of The Nature Conservancy is to **preserve** the plants, animals and natural communities that represent the **diversity of life on Earth** by protecting the lands and waters they need to survive.





Current TNC Geographic Priorities for Marine Conservation

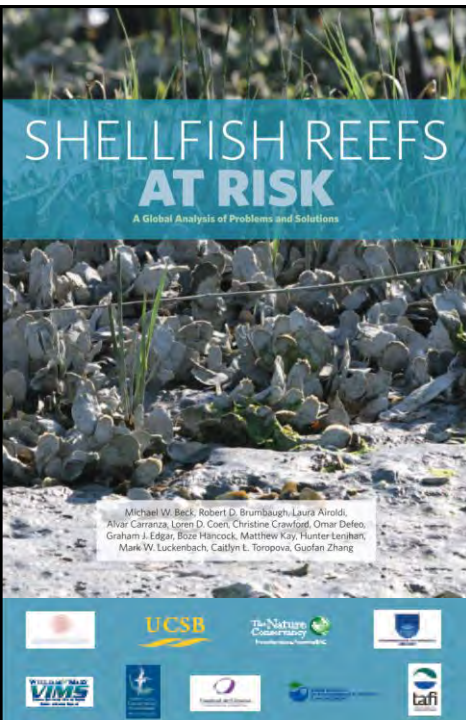


Current TNC Priority Marine Projects

-  U.S. Coasts and Oceans
-  Costa Rica
-  Caribbean
-  Pacific Islands
-  Coral Triangle

Additional TNC Marine Programs

-  Mexico Mosaics, Western Caribbean, Eastern Tropical Pacific,
-  Humboldt Current, Mozambique, Western Australia



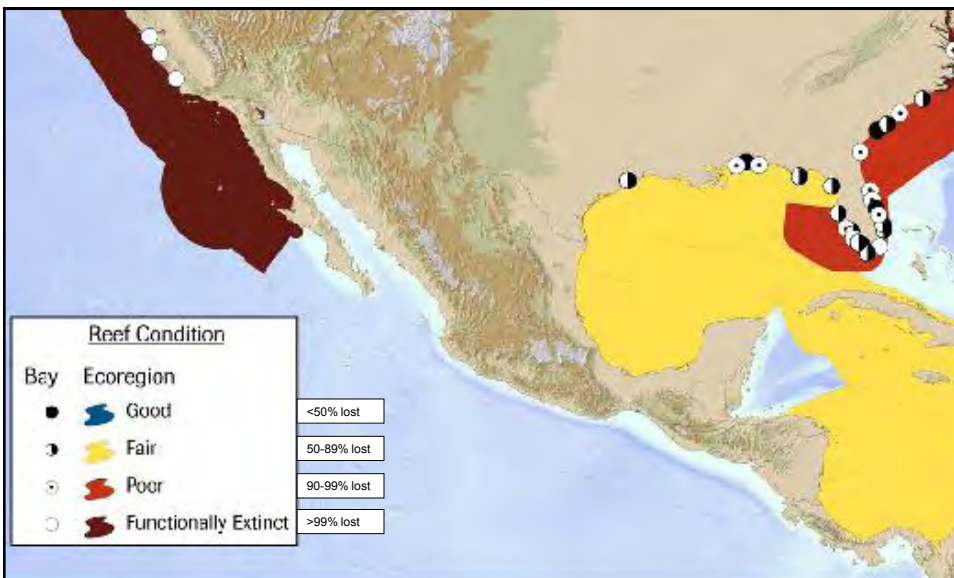
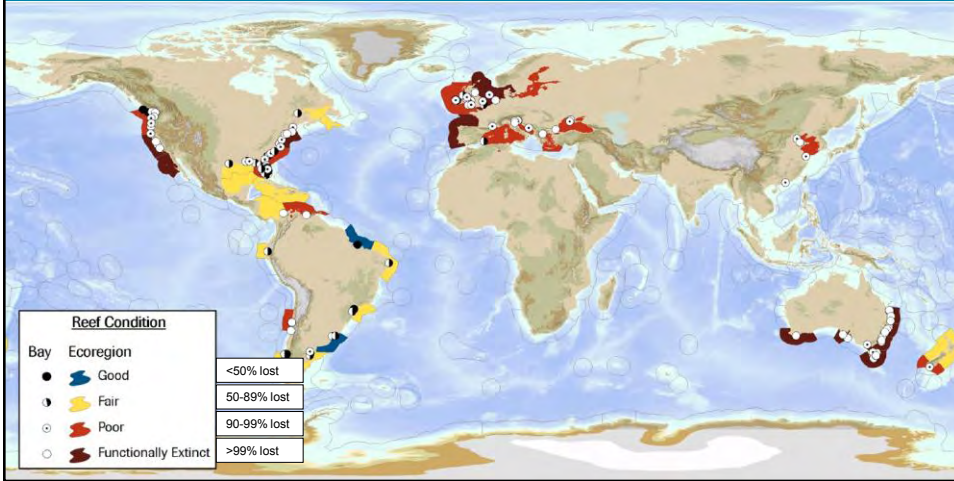
First Global Assessment

Ecosystem condition based on % of shellfish reefs remaining compared to baselines measured from 20-130 years ago



Shellfish Reefs at Risk Global Analysis

Oyster Reefs are functionally extinct in 37% of estuaries



GOM is the only region in the US that is ranked FAIR for oyster reefs

Coral Reefs – 20% loss globally

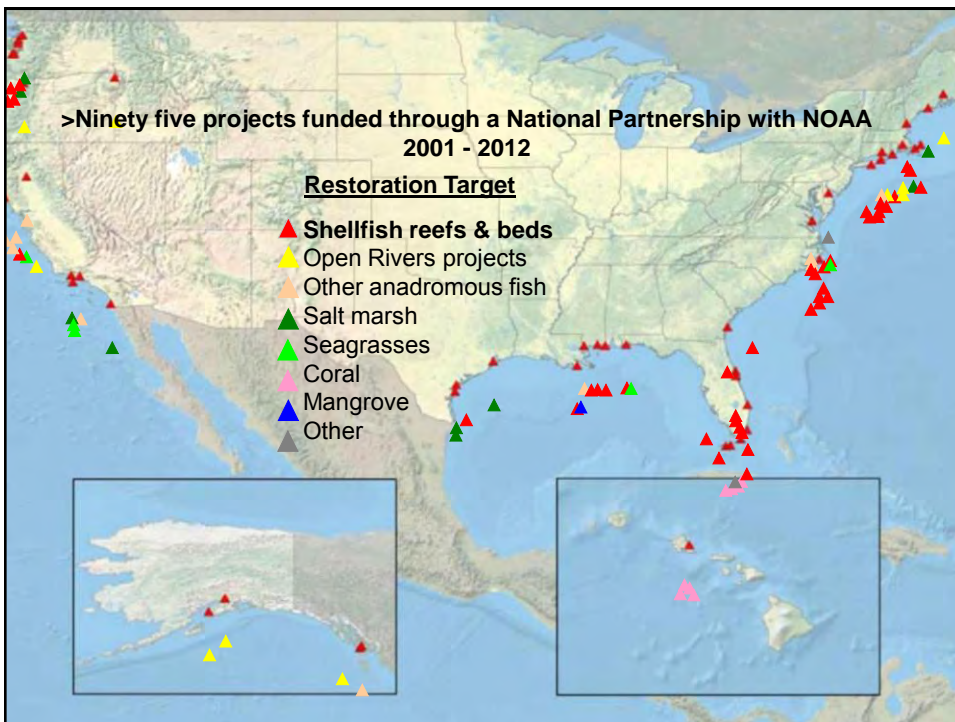
(Wilkinson 2002)

Marshes and Mangroves – 50% loss globally

(Burke et al. 2001; Valiela and Bowen 2001; Zedler and Kercher 2005)

Oyster Reefs – 85% loss globally

(Beck et al., 2011)



- Marine/Estuarine Site Assessment for Florida, 2005
(part of the Florida Comprehensive Wildlife Strategy)
- Assessing gaps in Florida’s marine and estuarine conservation network, 2008
(assess the current area-based protection status of FL marine and estuarine resources)
- Charlotte Harbor Feasibility Study, 2010
(identify potential for marine and estuarine restoration in the Greater CH system)
- Florida Marine Habitat Blueprint
(guide land protection priorities that benefit marine priorities)
- Gulf Decision Support Tool, 2011
- National-scale oyster reef restoration goals, *in progress*
shellfish ecosystems are restored to levels that deliver ecologically meaningful services



**Bivalve Reef
Statewide Habitat Threat Rank
VERY HIGH**

**Current condition...
Poor and declining**

Percent Oyster Reefs by Gap Status in Region 6

- <10% in Gap Status 1 & 2
(1 & 2 = highest protection)

Assessing gaps in Florida's marine and estuarine conservation network
The Nature Conservancy, 2008



To improve the condition we need to...

The Nature Conservancy
Protecting nature. Preserving life.

Oyster Restoration

Restoration connects fragmented areas and allows for natural flowways.

Native Reef Restoration in a SW Florida Sanibel Bayou

Sanibel Island, Lee County, Florida, is the targeted area and is within the boundary of the Charlotte Harbor National Estuary Program (CHNEP) and immediately adjacent to the J.N. "Ding" Darling National Wildlife Refuge (NWR), Clam Bayou. The area includes over 225 acres of public parks (Silver Key and Bower's Beach Regional Park) and 14 miles of mangrove shoreline (12 miles publicly- and 2 miles privately-owned).

Clam Bayou (a 400-acre impoundment with extreme salinities) was once connected to the Gulf of Mexico and Pine Island Sound through natural flow-ways. Storm events (hurricanes) and human activities (road construction in the 1950s and 1960s) isolated this water-body from natural tidal exchange and resulted in loss or degradation of mangrove, seagrass and oyster reef habitats (estimated loss of 150 acres of mangroves, 20 acres of oyster habitat, and 120 acres of seagrass).

In February 2008, the City of Sanibel, with funding from the South Florida Water Management District (SFWMD), NOAA's Community Restoration Program, NFWF's Challenge Cost Share, USFWS Flats Funds, Partners for Wildlife, the South Florida Coastal Ecosystems Program, the US EPA and NOAA Gulf of Mexico CR Programs began a restoration effort by installing a flow-way.

Fast Facts:

- Oysters filter large quantities of water, removing silt, nutrients and sediments.
- Oysters were once abundant in many of the habitats located throughout the bayou and the bayou will be able to filter the water.
- Restoration of flow in 2008 allowed to reverse natural tidal flows and associated salinity, and increase by mangroves and other marine species.
- By using resources at the appropriate tidal height we are enhancing, influencing and/or restoring, an existing food web and as well as back-up regulatory sites to sediment traps, waterbodies, birds, and mangroves.

- 1. Raise Awareness
- 2. Enhance Conservation
- 3. Enhance Restoration
- 4. Improve Management

Marine Priority Areas

Why Charlotte Harbor?

- High biodiversity
- Charlotte Harbor is restorable
- History of Conservancy engagement in land conservation
- Aligns with our GOM Initiative
- Strong local interest and great potential for collaboration



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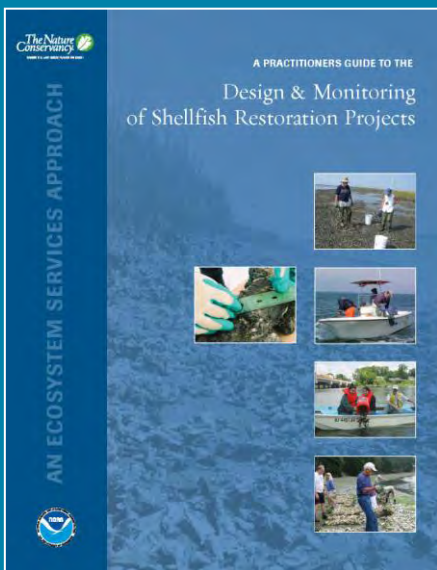


Whole-estuary science

- Determine how much restoration is needed to get to scale & where and what kinds of restoration will make the biggest difference

Strategic demonstration & test projects

- Pilot partnerships & collaboration – CHNEP, CH Aquatic Preserves, Bonefish-Tarpon Trust, Mote Marine Lab, recreational & commercial fishers
- Test “ingredients” for scaling up – restoration methods, sustainability, ecosystem services



Reference:

Brumbaugh, R.D., M. W. Beck, L. D. Coen, L. Craig and P. Hicks. 2006. A Practitioners' Guide to the Design and Monitoring of Shellfish Restoration Projects: An Ecosystem Services Approach. The Nature Conservancy, Arlington, VA.