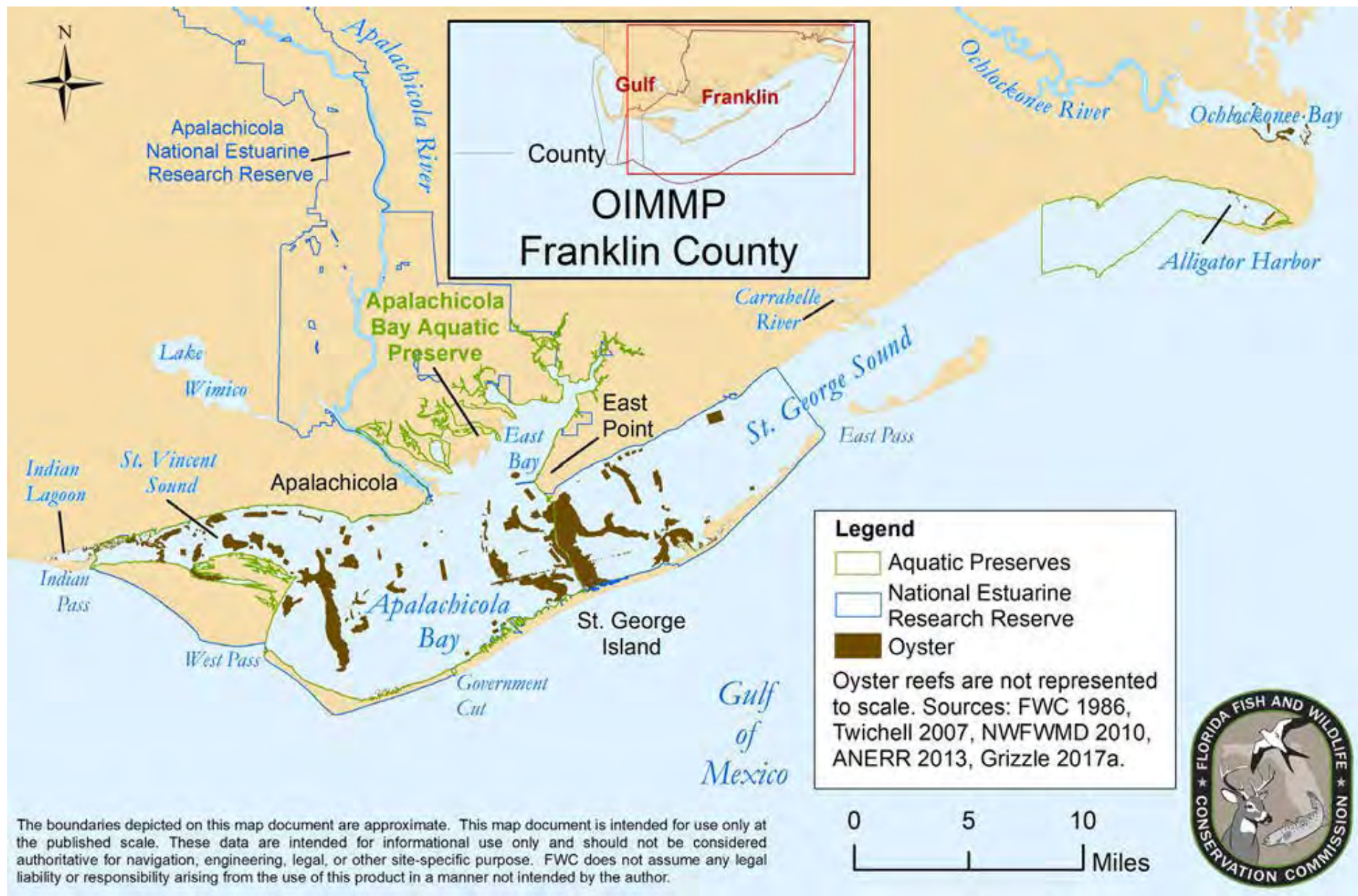




Oyster Reef Management in Apalachicola Bay

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Major features of Franklin County, including the Apalachicola Bay estuarine system and oyster reef areas. Oyster map source: *Oyster Integrated Mapping and Monitoring Program Report for the State of Florida*, Florida Fish and Wildlife Conservation Commission (2019).



Oyster Restoration

- To promote reef development for oysters by restoring existing oyster reef habitat that had been degraded, depleted, or reached its productive life span.
- The placement of suitable cultch material on existing oyster bars for the setting of native oyster larvae and oyster colonization is a widely accepted management practice.
 - Cultch – any suitable hard substrate suitable for the attachment of settling oysters (spat).
- Placing cultch material in areas where natural reproduction occurs:
 - Creates three-dimensional reef structure
 - Stimulates spat setting
 - Accelerates the recovery process
 - Increases natural productivity
 - Sustains oyster fisheries
 - Enhances ecosystem community functions



Photo Credit: FDACS



Benefits of Restoration



Photo Credit: FDEP/CPAP

- **Ecological benefits**
 - Increased fishery and wildlife habitat
 - Increased biodiversity and trophic dynamics
 - Filtering capacity to improve water quality and recycle nutrients
 - Improved structural stability to reduce coastal erosion and protect nearshore resources.
- **Economic benefits**
 - Harvesting, processing, and marketing fishery products
 - Commercial fisheries provide employment and income



Historical Cultch Deposition

- Shell additions to the bay were first recommended around 1885.
- The Florida Division of Agriculture planted the first known shell, 15,000 barrels' worth, in 1913.
- Shell distribution increased substantially around 1925 (P. Zajicek, FDACS).
- As the result of a State-mandated program requiring that harvested oyster shell (sometimes augmented with limerock) be returned to public oyster beds, shell distribution regularly occurred after 1949.
- As of 1977, more than 4 million bushels of shell and rock had been deposited over 400 ha (1,000 ac) of bottom in Apalachicola Bay (Whitfield and Beaumariage, 1977).
- Shell buy-back programs were implemented to pay dealers for collected shell; however, these programs rely on grants and do not have a permanent source of funding.



Photo Credit: Florida Memory

Source: *Cultch Deposition Locations, Volumes and Population Assessments of Oyster Reefal Complexes in Apalachicola Bay (Draft)*, Florida Department of Agriculture and Consumer Services, Division of Aquaculture (2018).



Cultch Deposition

- **1999-2004**: 44,674 yds³ of processed shell (179 acres @ 250 yd³/acre)
- **2005-2007**: Cultching activities only occurred in Escambia, Santa Rosa, and/or Bay counties
- **2008-2012**: 44,556 yds³ of processed and fossilized shell (178 acres @ 250 yd³/acre)
- **2013**: No contractual cultching activities
- **2014**: 6,125 yds³ of fossilized shell (30.5 acres @ 200 yd³/acre)
- **2015**: Natural Fish and Wildlife Foundation (NFWF) Cultch Density Study
 - 3,000 yds³ fossilized shell at three experimental sites
 - Five 2-ac parcels were cultched at different shell densities (0, 100, 200, 300, & 400 yd³/ac)
- **2015**: Natural Resource Damage Assessment (NRDA) Oyster Cultch Recovery Project
 - 24,840 yds³ fossilized shell on 16 debilitated oyster reefs (124 acres @ 200 yd³/acre)
- **2017**: Gulf Coast Ecosystem Restoration Council (GCERC or RESTORE)
 - 95,500 yd³ lime rock aggregate on 14 debilitated oyster reefs (317 acres @ 300 yd³/acre)



Photo Credit: New York Times



Cultch Deposition



Photo Credit: University of Florida/IFAS



Photo Credit: FDACS



Cultch Deposition



Photo Credit: FDACS



Photo Credit: FDEP/ANERR



Cultch Deposition



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Cultch Deposition



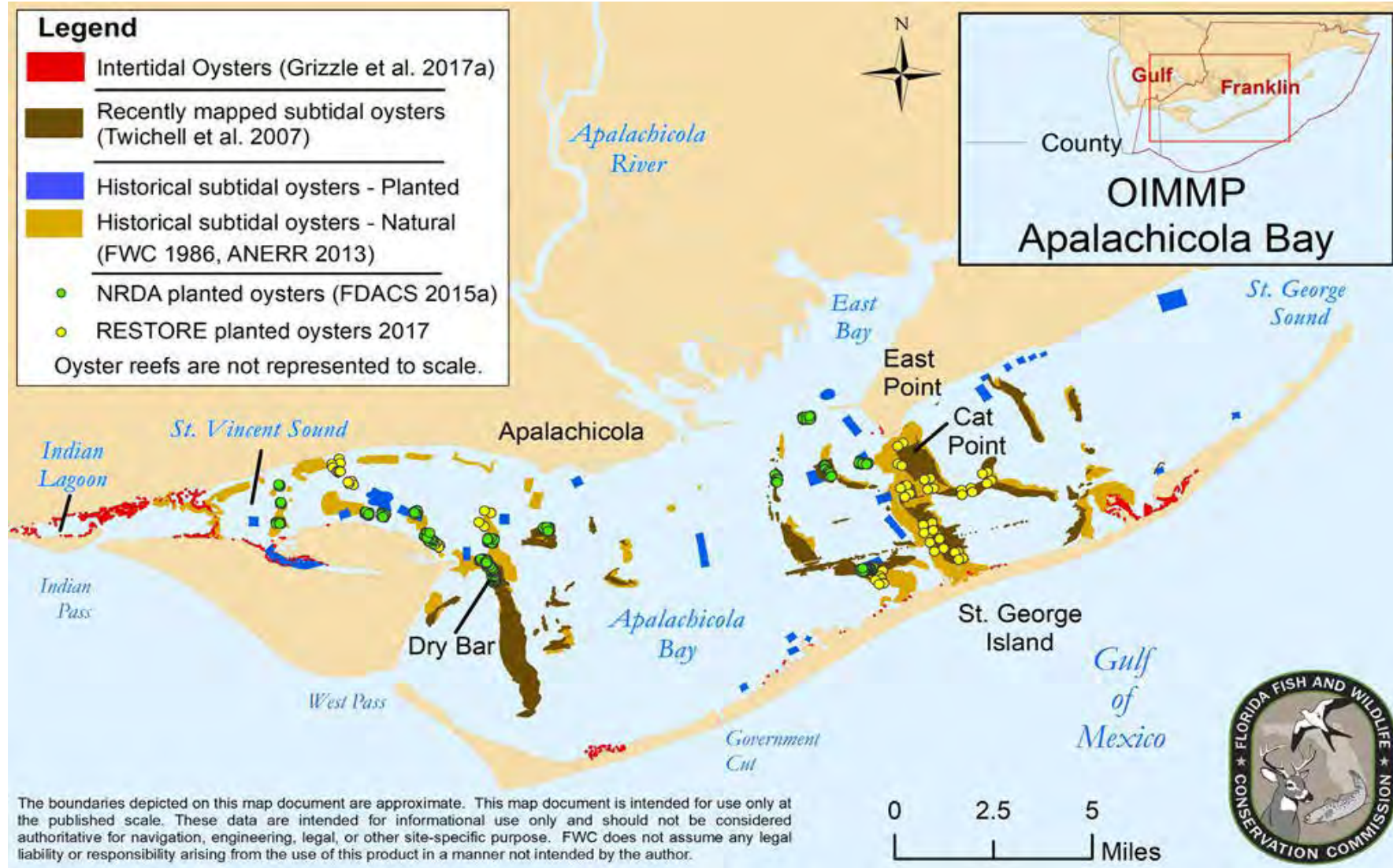
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- **2015: Natural Resource Damage Assessment (NRDA) Oyster Cultch Recovery Project**
 - 24,840 yds³ fossilized shell on 16 debilitated oyster reefs (124 acres @ 200 yd³/acre)
 - Mapping and monitoring
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Looking Ahead

- Adding cultch material should be considered as an essential management action if the current shell budget is deficient.
- Replacing cultch material should not be exclusively expected to guarantee recovery of the fishery.
- If oyster spat recruitment remains low, even large amounts of cultching may not lead to rapid oyster reef recovery.
- All restoration actions, including shelling, should be as carefully managed, monitored, quantified, and tracked.
- Examine past and current restoration efforts to maximize potential future efforts.



Photo Credit: FDEP/CPAP



Thank you!

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