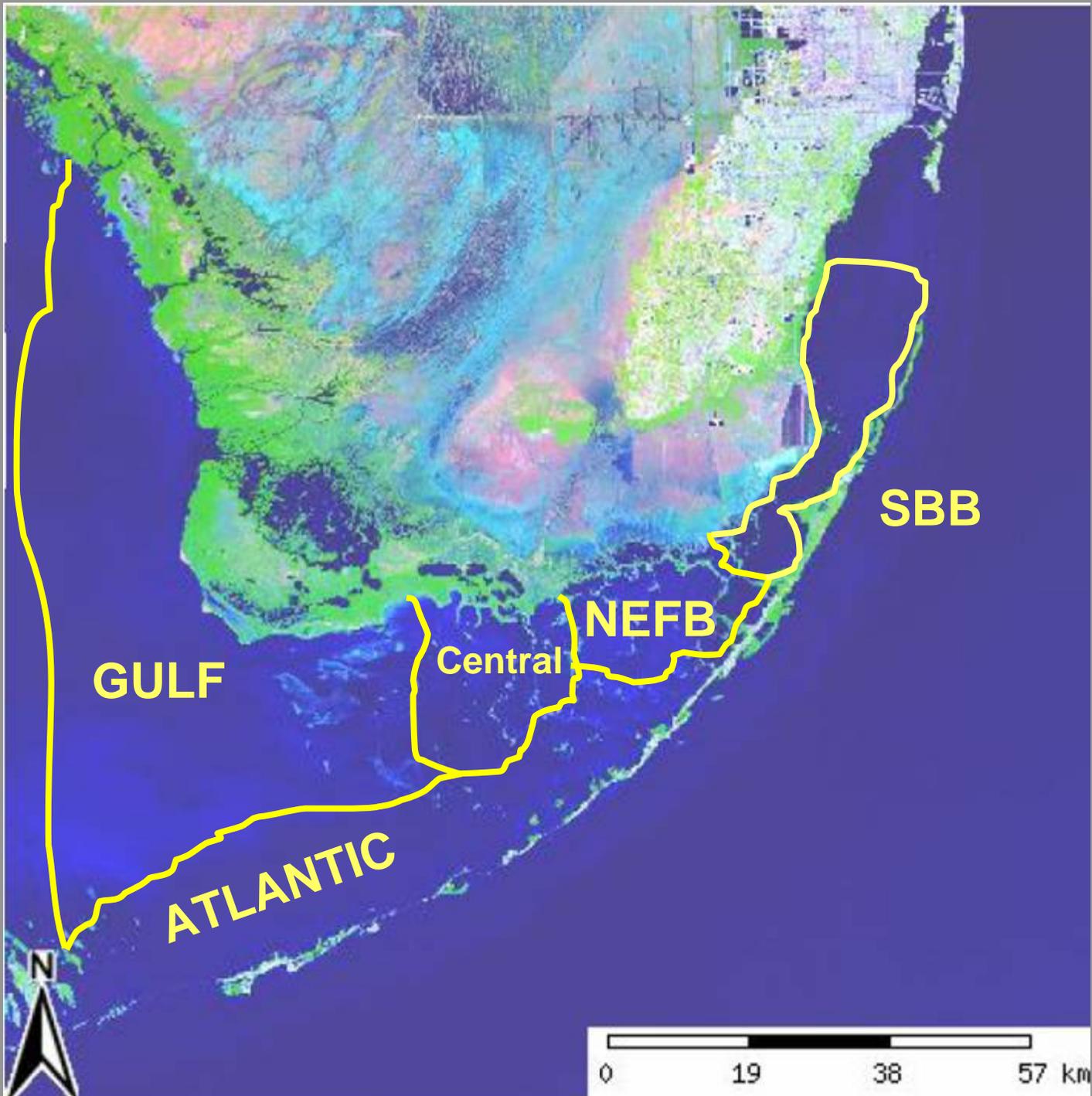
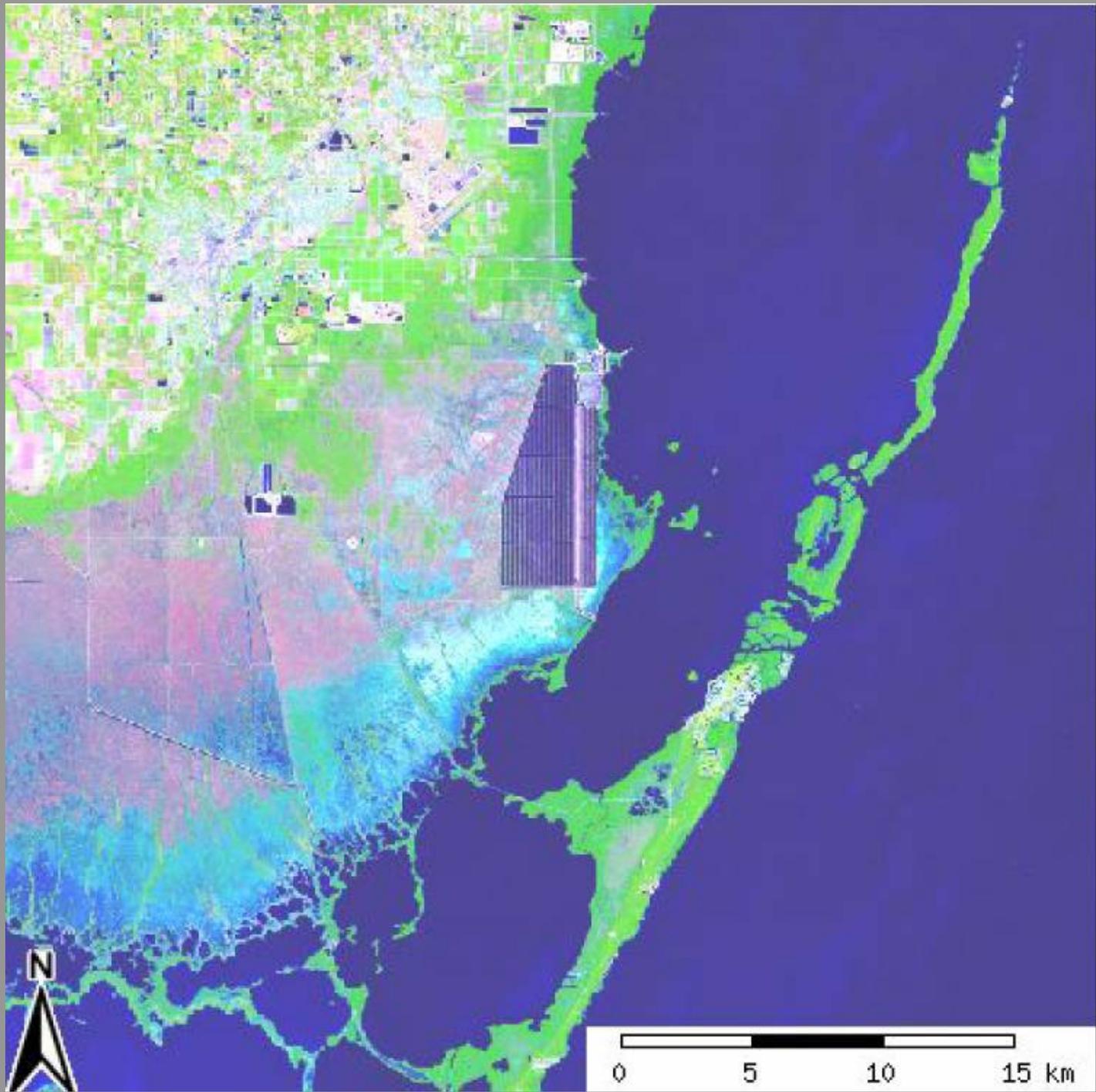


Ecological Impacts of Everglades Restoration on the FKNMS and Adjacent Waters

Jerome J. Lorenz, Ph.D.





Human Impacts on Flow

- Impoundments by US-1 and Card Sound Road Beds
- Chanalization of Transverse Glades
 - Point source rather than sheet flow
- Construction of Cooling Canals
- Isolation of Remaining Coastal Wetlands by Water Management and Urban Development



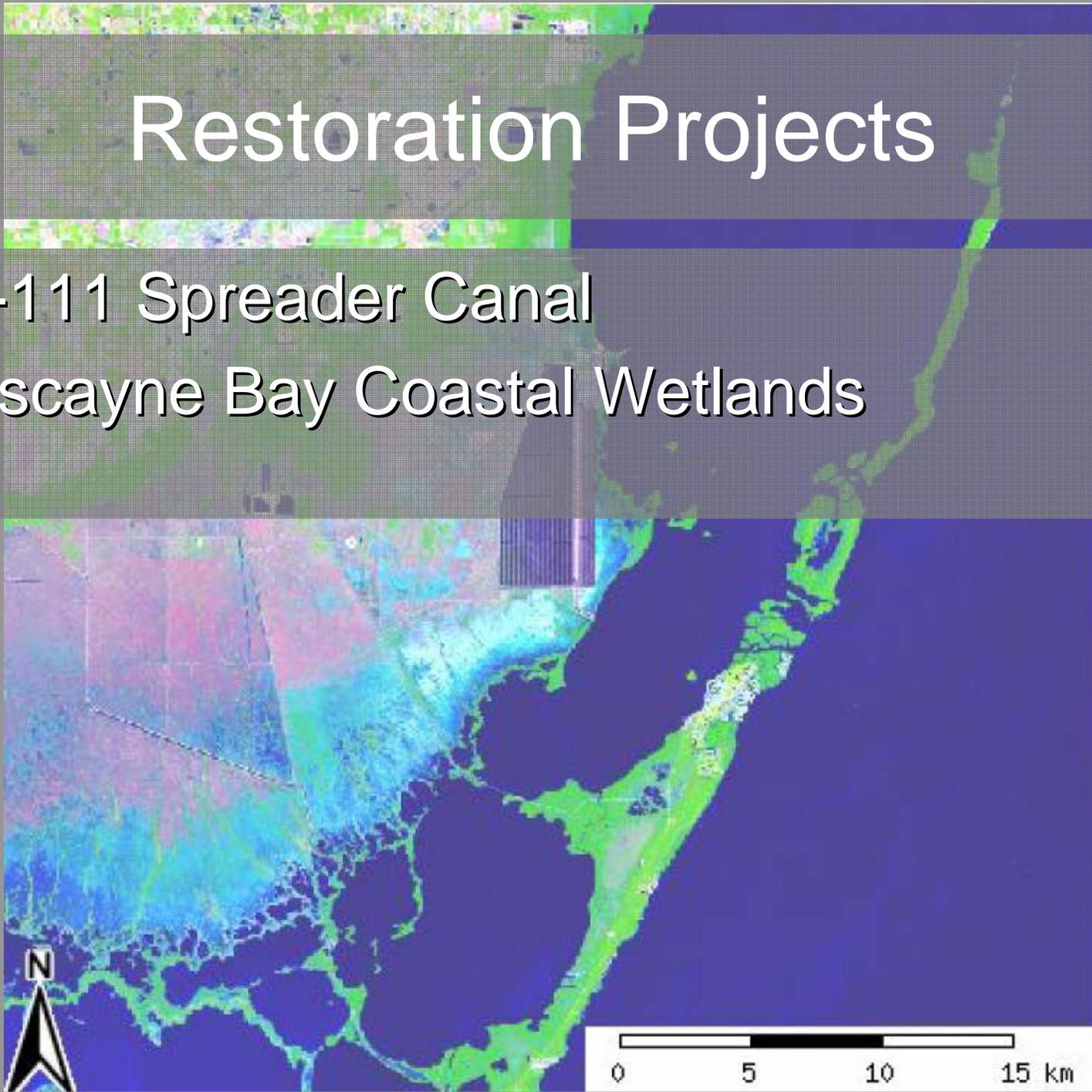
Resulting Ecological Effects

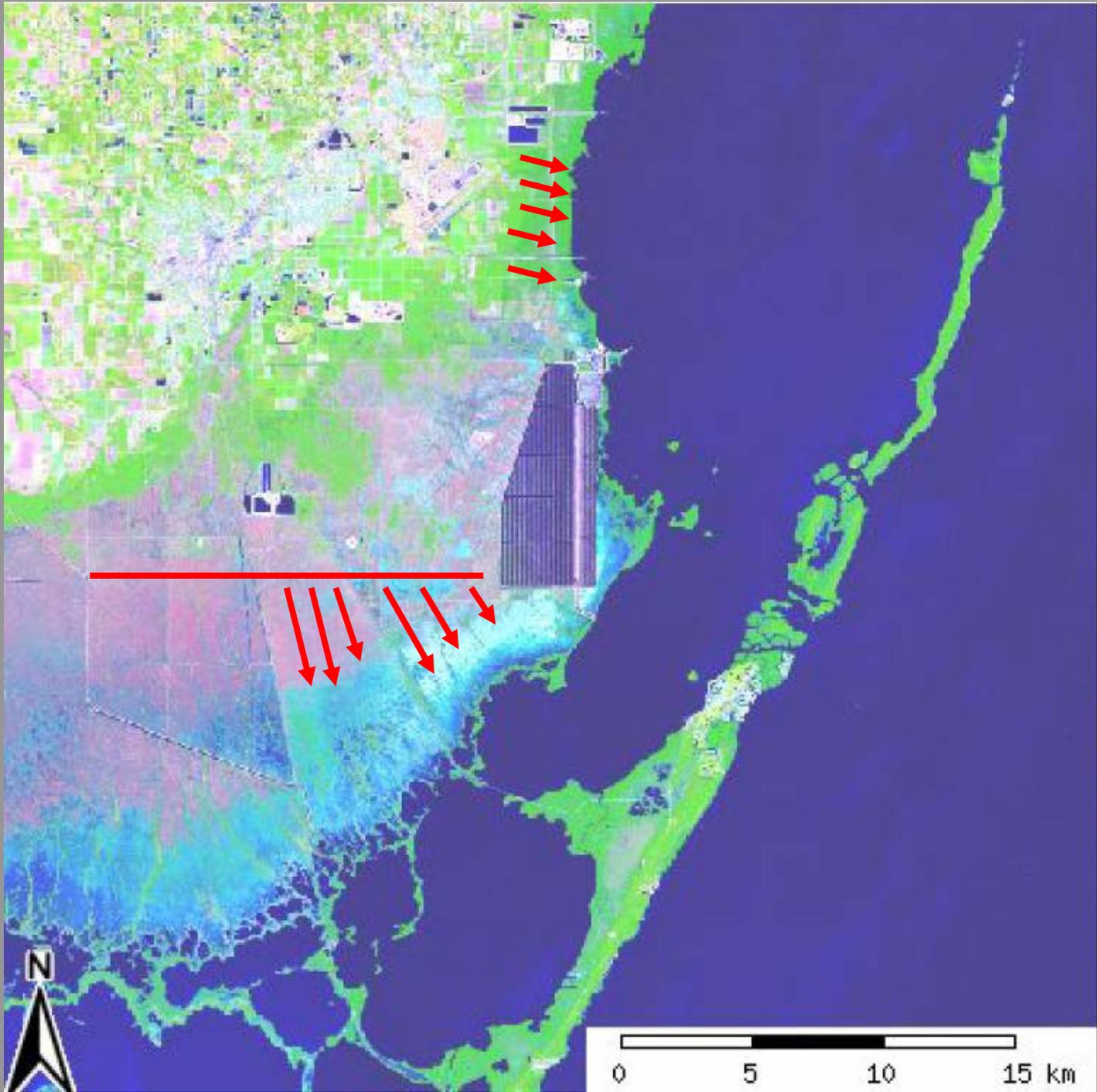
- Change in SBB from Estuarine Conditions to a Lagoonal Environment with Point Source Freshwater in Flows
- Switch from More Productive Estuarine Prey Base Fish Community to a Less Productive Higher Salinity Community
- Decline in Species of Economic Importance (Shrimp, Game Fish)
- Loss of Benthic Communities near Canal Outlets due to Pulse Releases



Restoration Projects

- C-111 Spreader Canal
- Biscayne Bay Coastal Wetlands

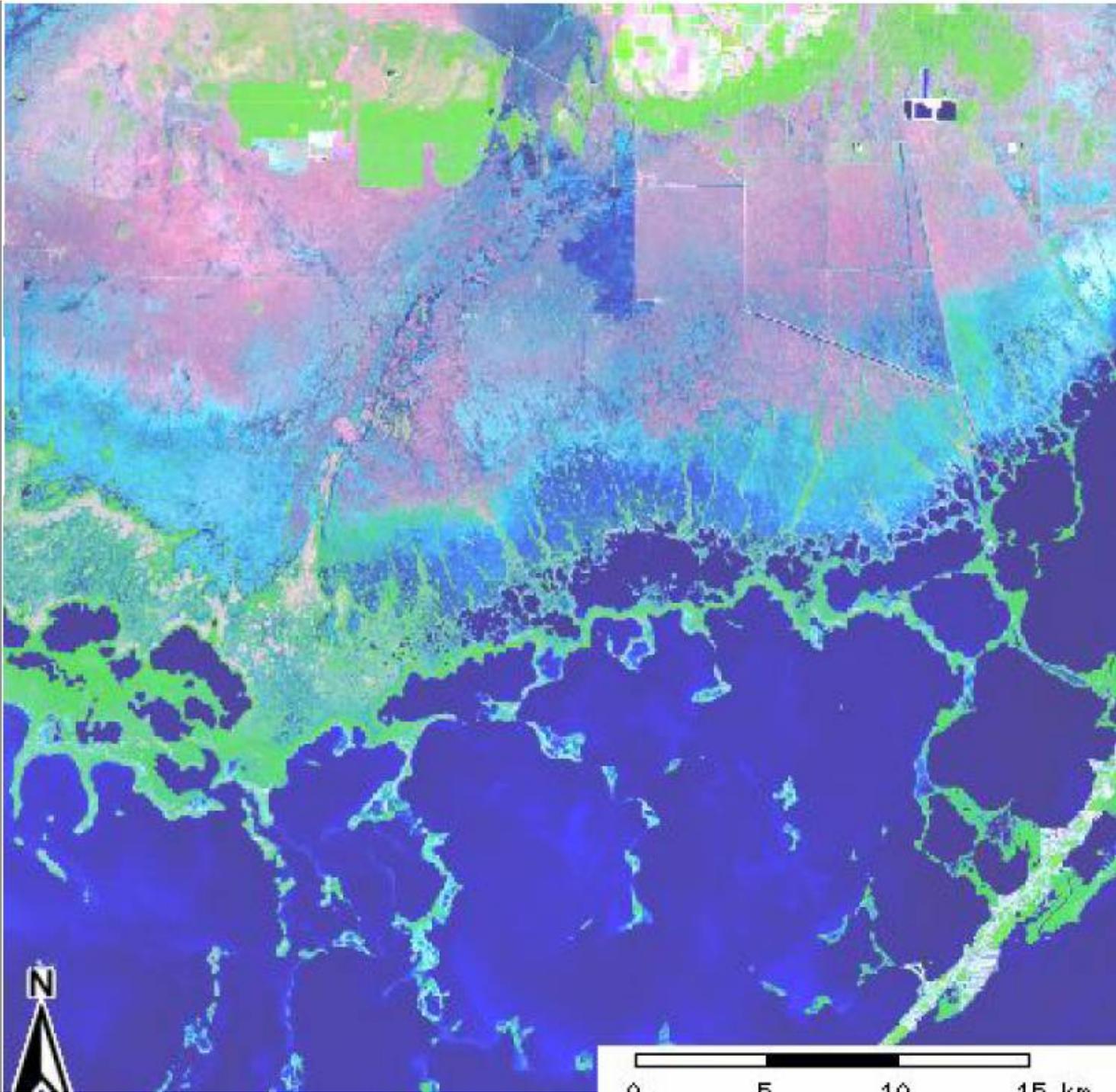




Examples of Ecological Indications for Restoration

- Stabilization of Benthic Community
 - Return of Seagrasses and SAV that tolerate lower salinities
- Return of Highly Productive Estuarine Prey Base Fish Community
- Stabilization of Shrimp Nursery
- Change in Game Fish Species

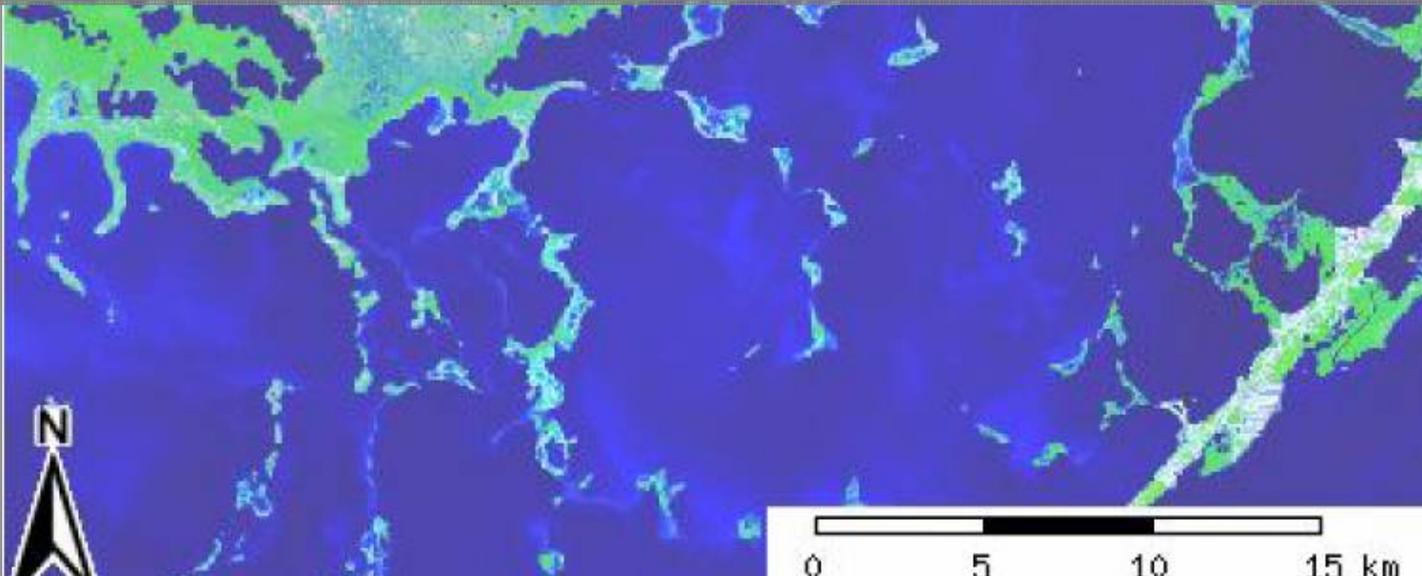




0 5 10 15 km

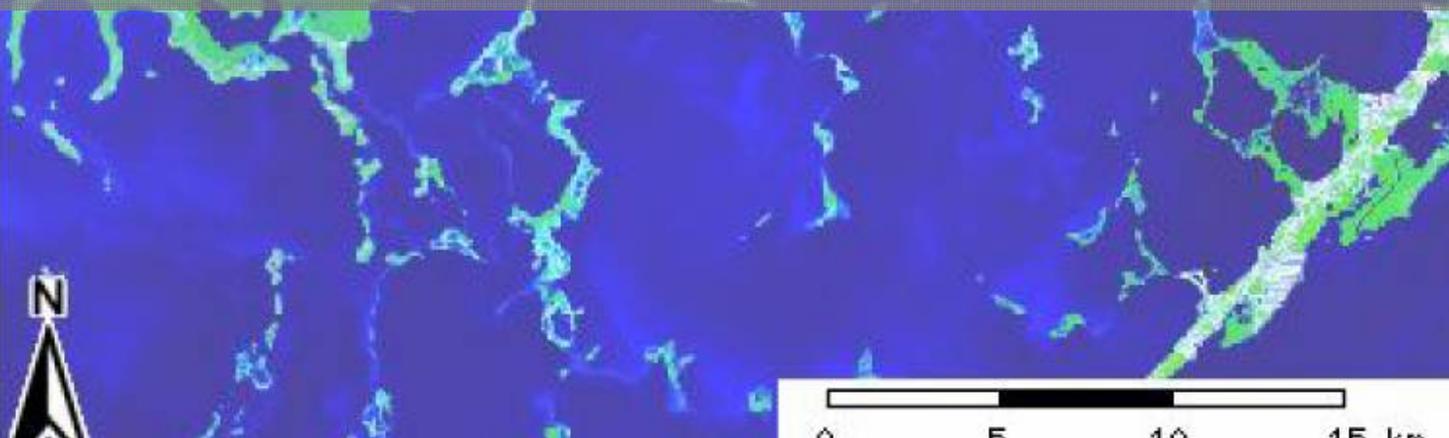
Human Impacts on Flow

- Diversion of Flow From Taylor Slough to the C-111 Canal
- Increase in Salinity and More Variability in Salinity



Resulting Ecological Effects

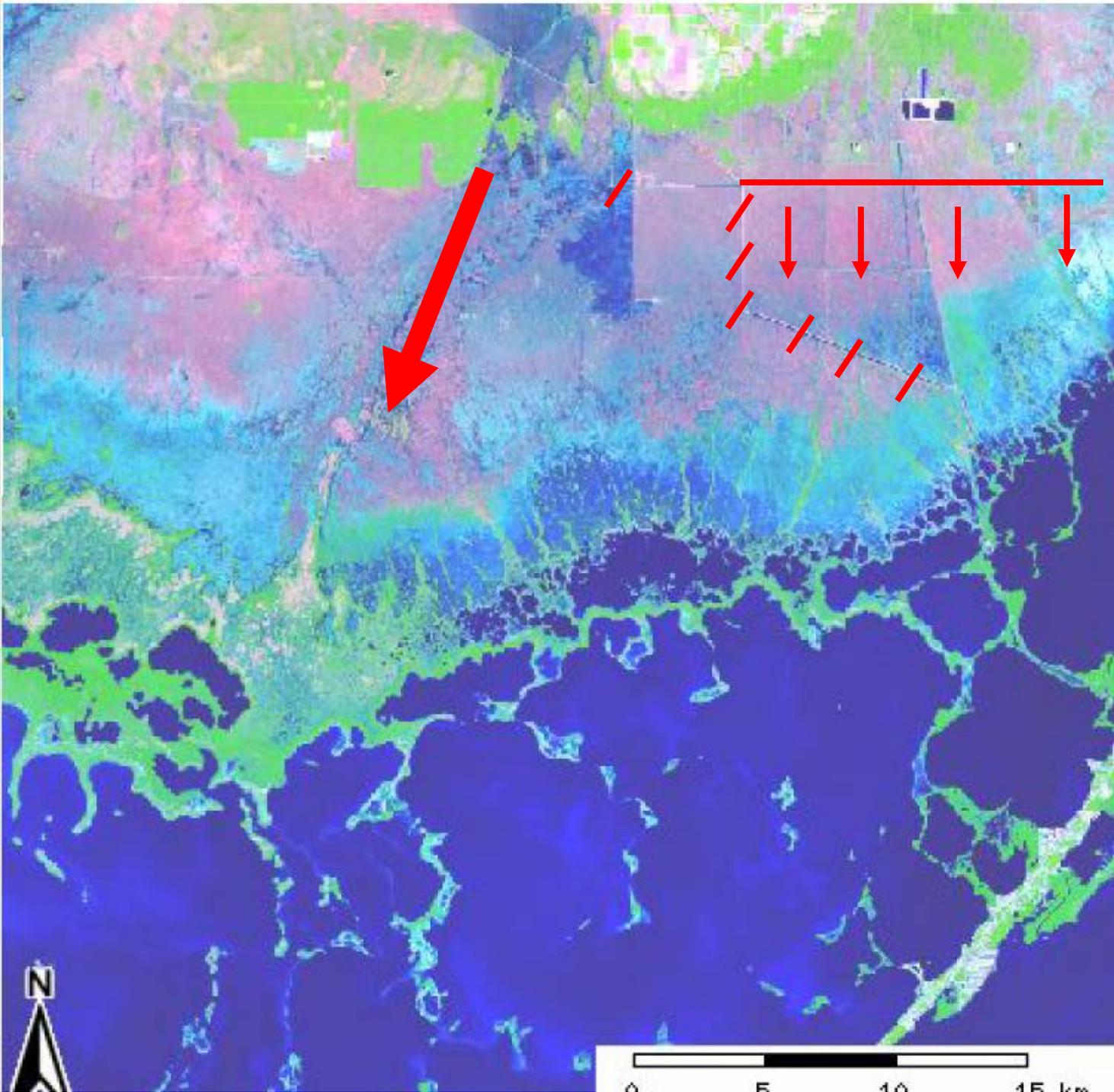
- Changes and declines in SAV
- Lower Production in Prey Base Fishes
- Declines in Game Fish Abundance
- Degradation of Nursery for Pink Shrimp
- Lower Production and Abandonment of Nesting Sites by Colonial Water Birds



Restoration Projects

- Modified Water Deliveries (Mod Waters) ?
- Combined Structural and Operational Plan (CSOP) ?
- C-111 Spreader Canal
- Seepage Control Project
- Florida Bay Florida Keys Feasibility Study





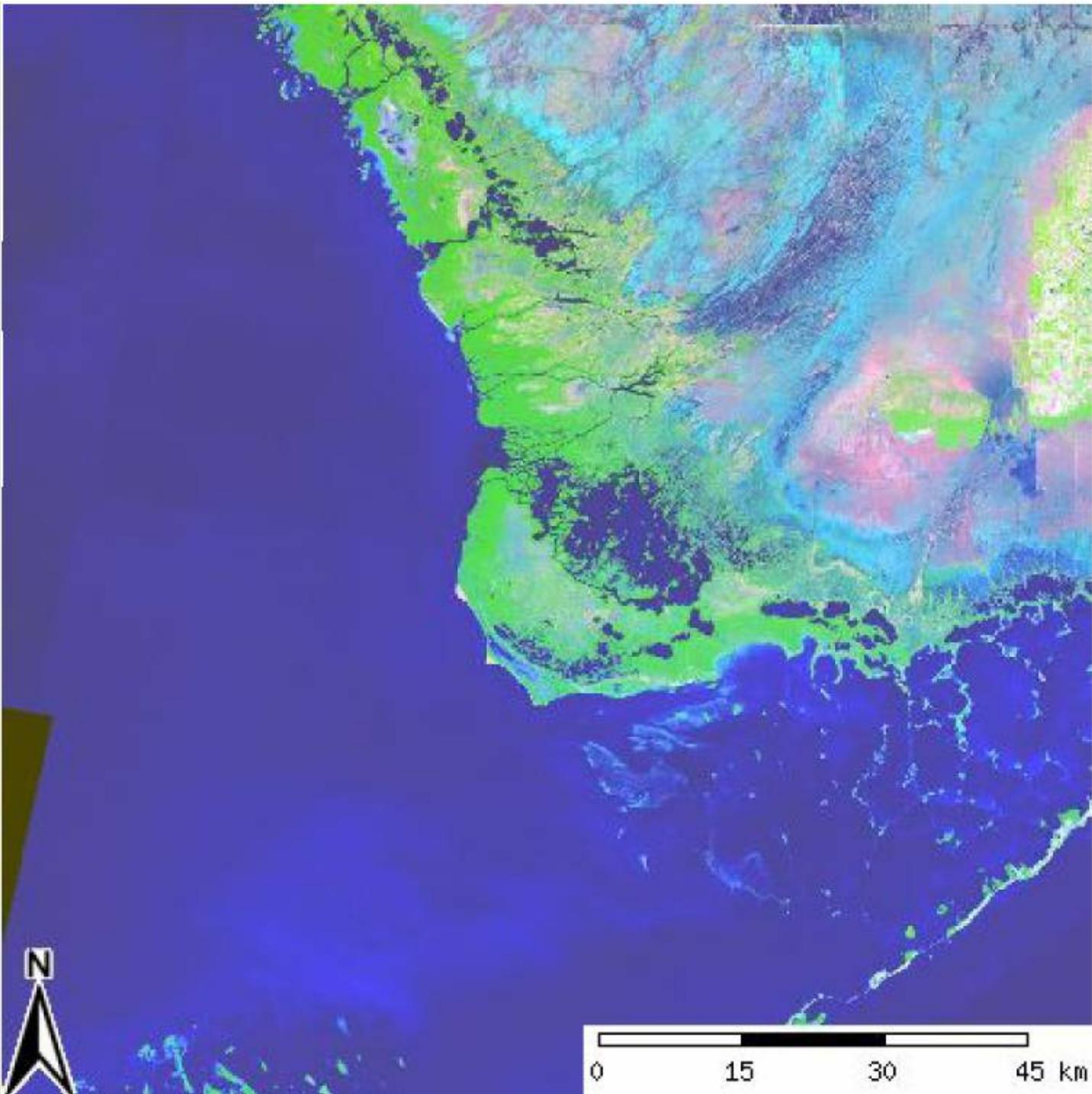
0 5 10 15 km

Examples of Ecological Indications for Restoration

- The Increase in Number of Roseate Spoonbill Nest and Increase in Nest Production
- Stabilization of Benthic Community
 - Return of Seagrasses and SAV that tolerate lower salinities
- Return of Highly Productive Estuarine Prey Base Fish Community
- Stabilization of Shrimp Nursery

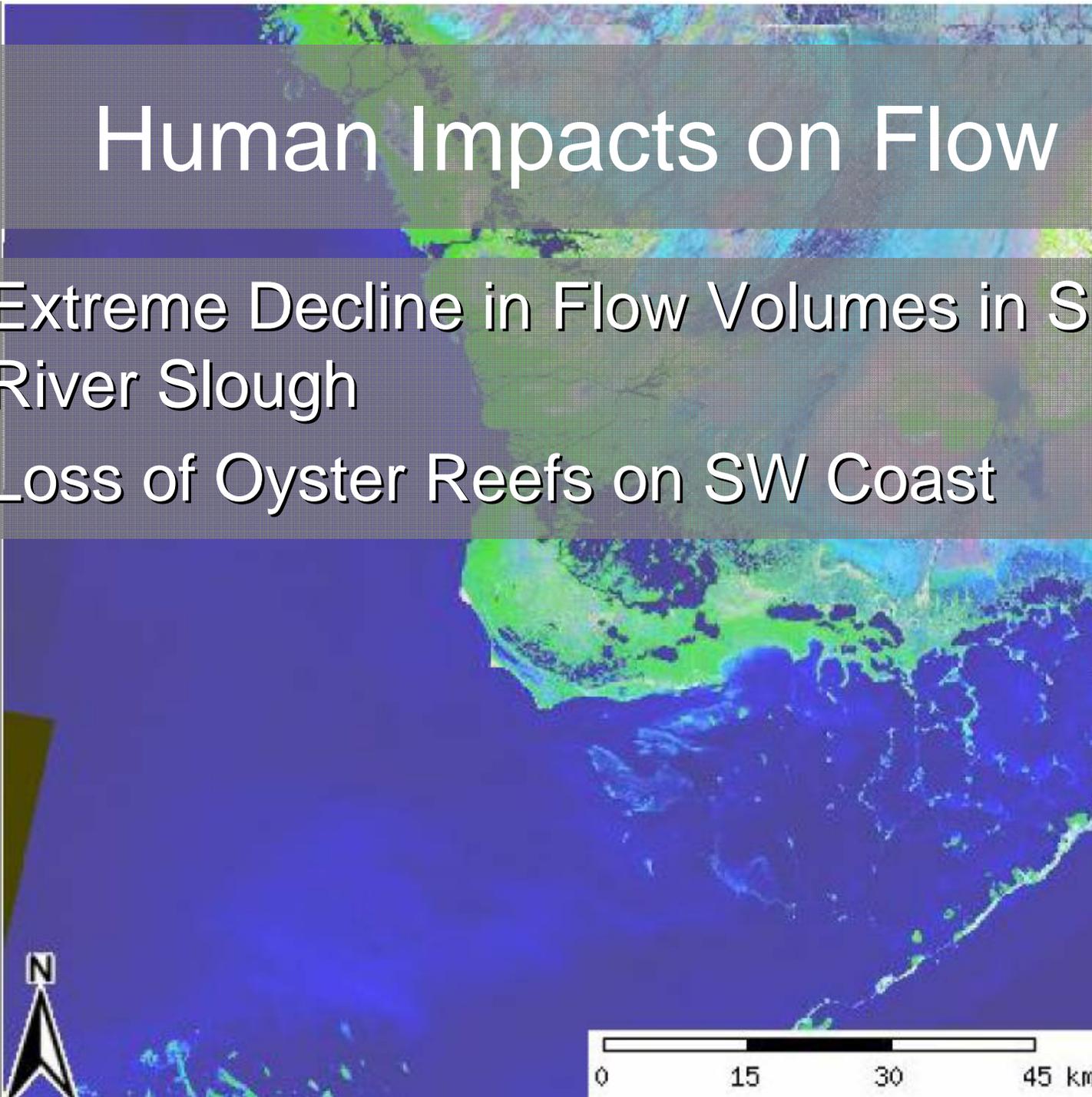






Human Impacts on Flow

- Extreme Decline in Flow Volumes in Shark River Slough
- Loss of Oyster Reefs on SW Coast



Resulting Ecological Effects

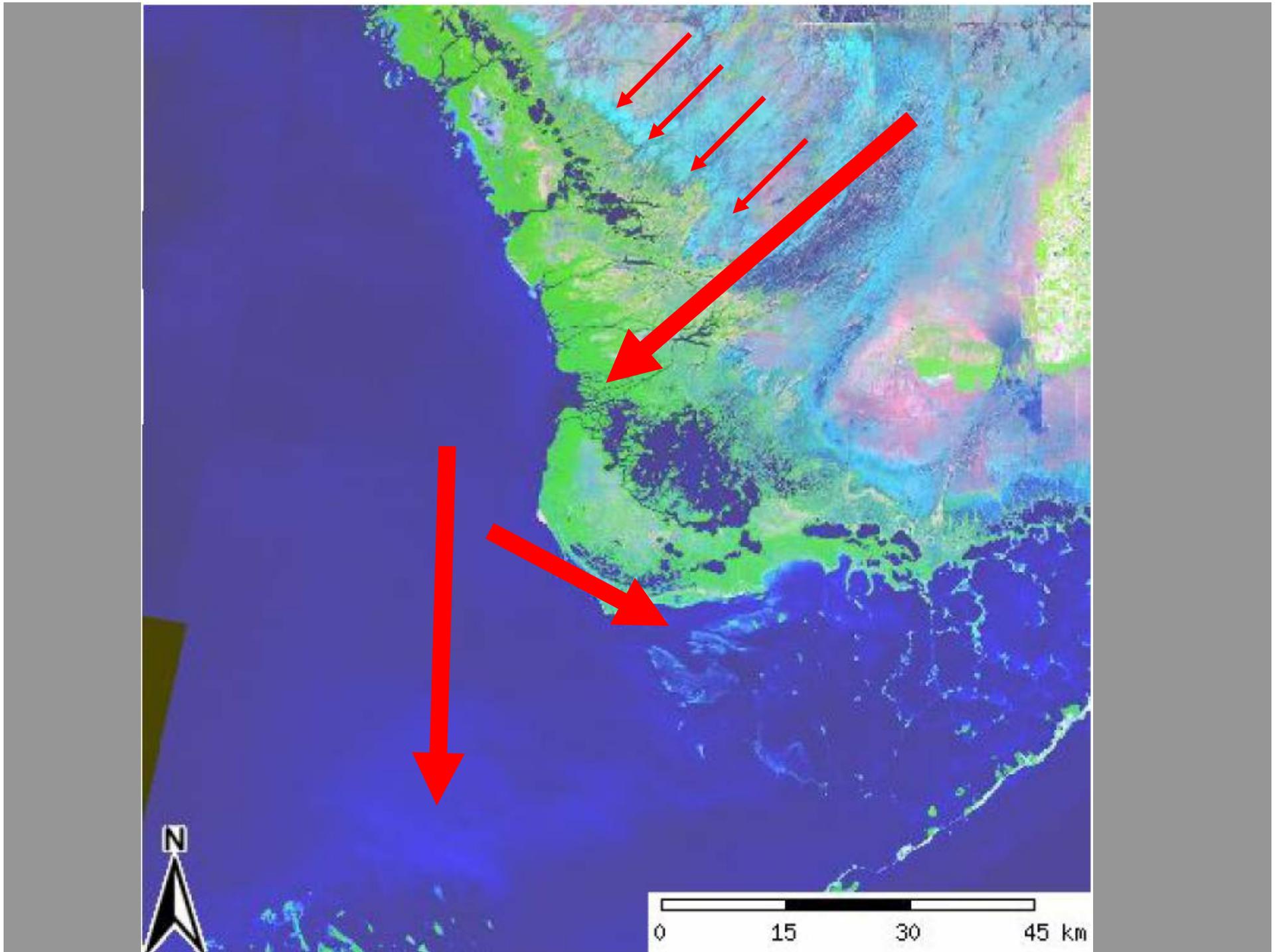
- Alteration of Coastal Vegetation
- Declines in Prey Fish Production in Coastal Wetlands
- Loss of Wading Bird “Super Colonies”
- Complete Loss of Oyster Beds



Restoration Projects

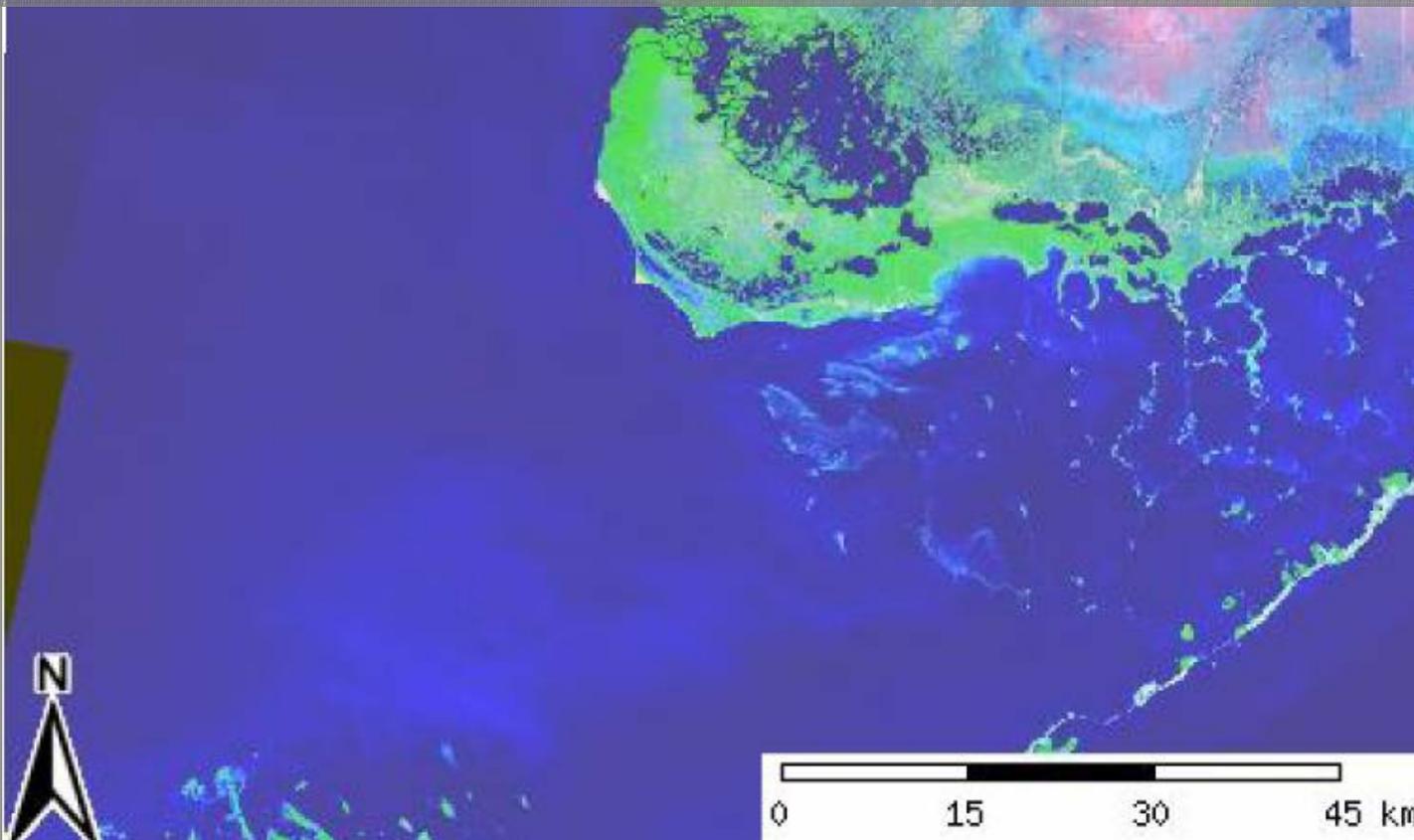
- Mod Waters
- CSOP
- Decompartmentalization (Decomp)

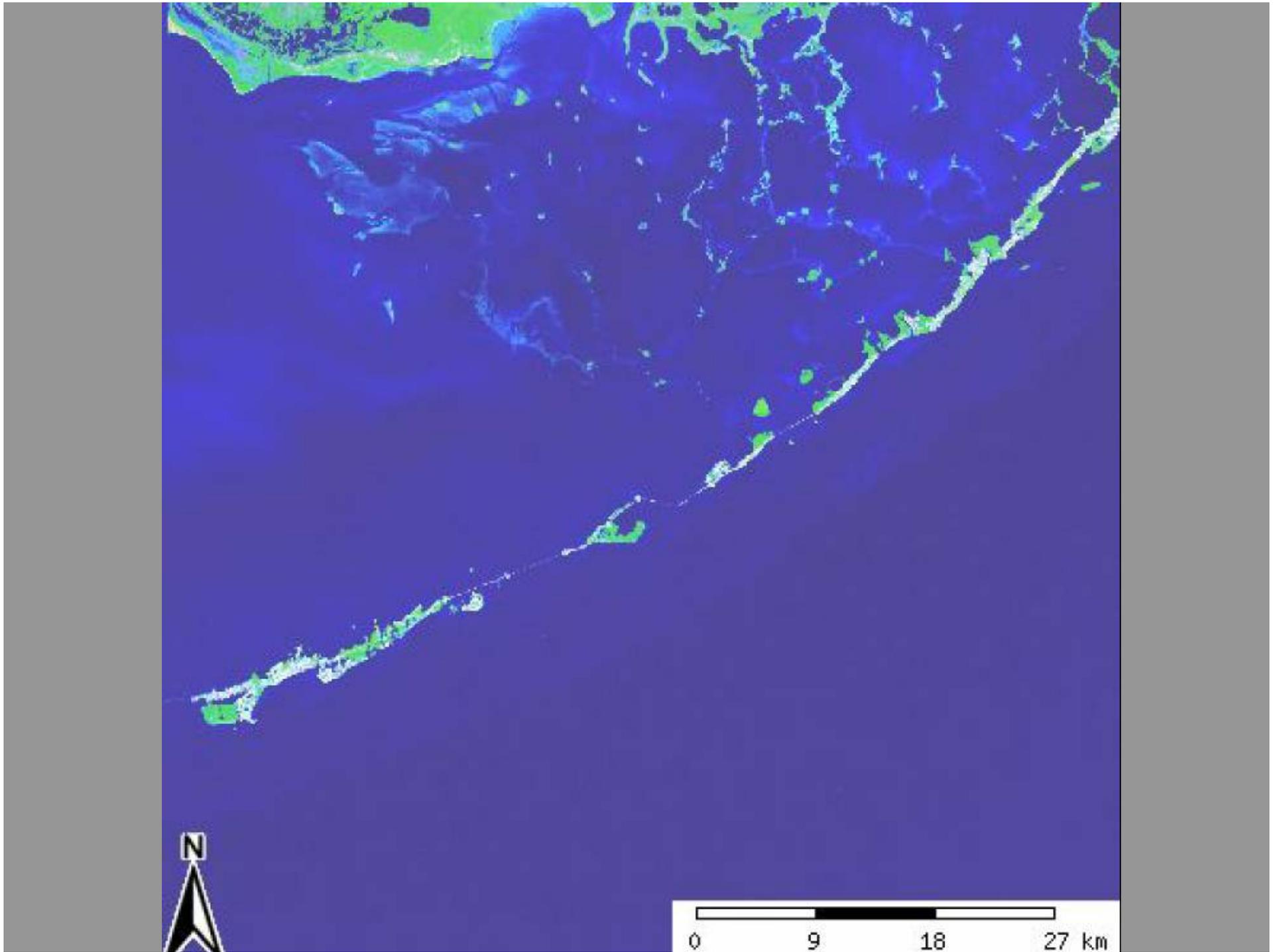




Examples of Ecological Indications for Restoration

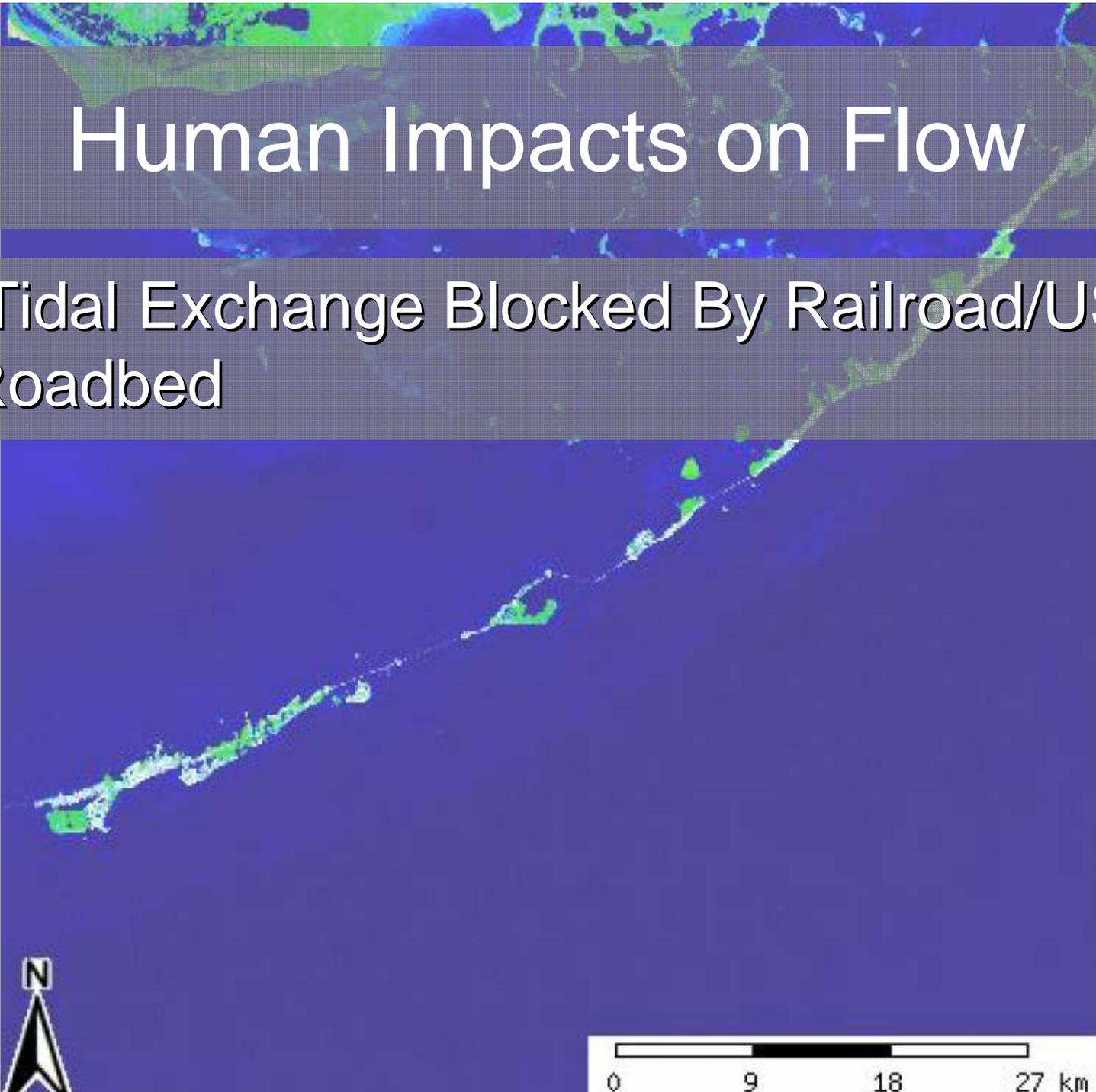
- Return of Wading Bird “Super Colonies”
- Return Of Oyster bars





Human Impacts on Flow

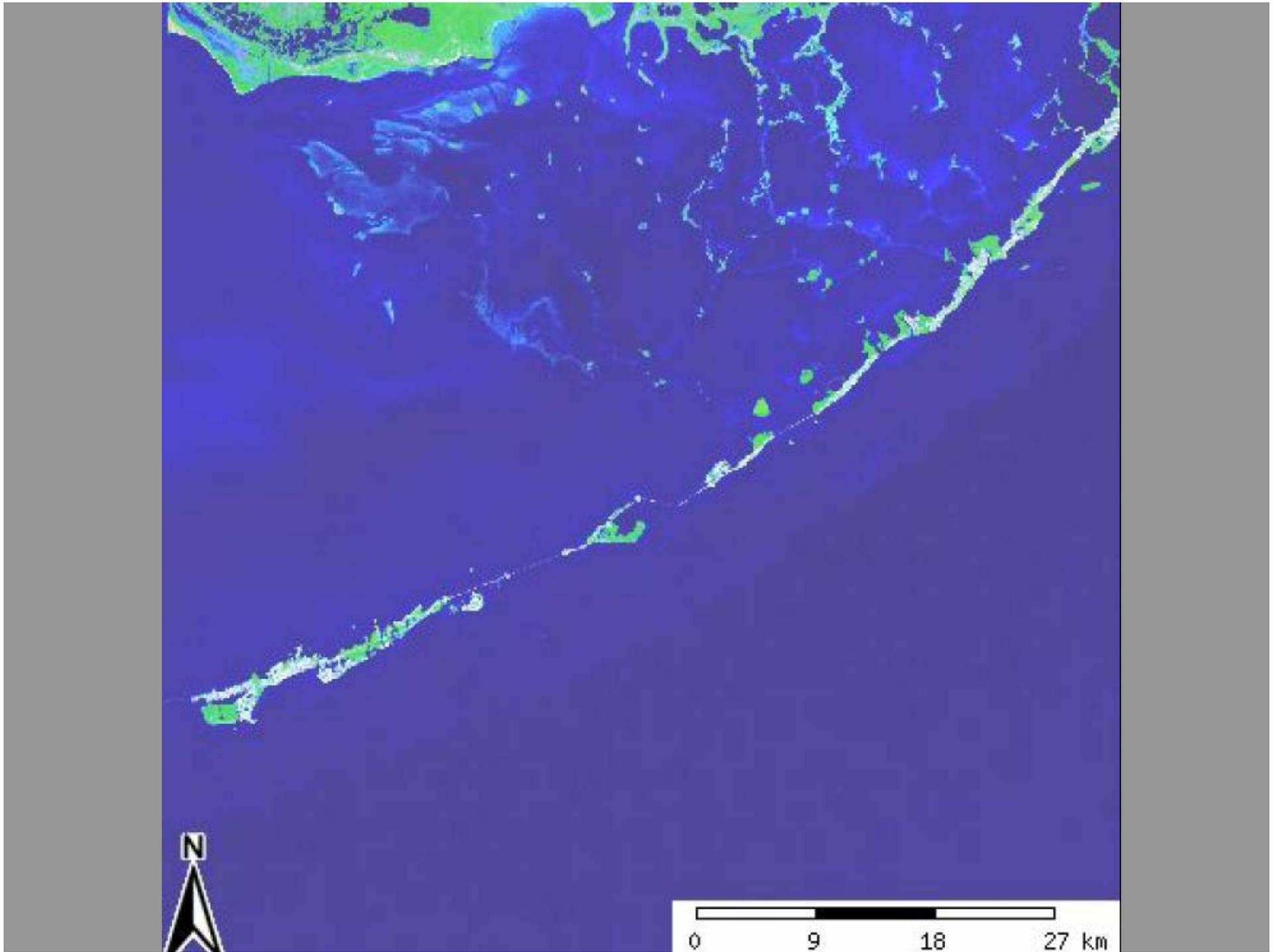
- Tidal Exchange Blocked By Railroad/US1 Roadbed



Resulting Ecological Effects

- Changes in Benthic Communities on Both Sides of the Keys
- Changes in species and Abundance of Corals





Restoration Projects

- Florida Keys Tidal Restoration Demonstration Project



Examples of Ecological Indications for Restoration

- Loss of Corals on Ocean Side
- Increase in Corals on Bay Side

