# System-wide Ecological Indicators for Everglades Restoration

The South Florida
Ecosystem Restoration Task
Force
Strategy and Biennial Report
July 2010—June 2012

Working Group/Science Coordination Group Meeting September 20, 2012

# System-wide Ecological Indicators

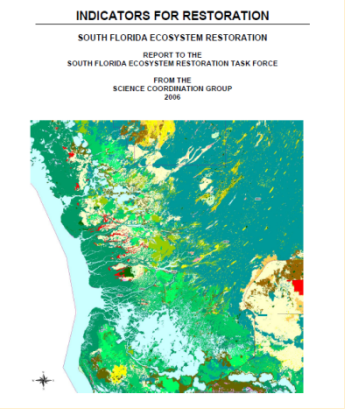
- Invasive Exotic Plants
- Lake Okeechobee Nearshore Zone Submersed Aquatic Vegetation
- Eastern Oysters
- Crocodilians (American Alligators & Crocodiles)
- Fish and Macroinvertebrates
- Periphyton & Epiphyton
- Wading Birds (White Ibis and Wood Stork)
- Southern Estuaries Algal Blooms
- Florida Bay Submersed Aquatic Vegetation
- Juvenile Pink Shrimp
- Wading Birds (Roseate Spoonbill)

**Drawn largely from longer list of measures from RECOVER**

# System-wide Ecological Indicators

- 2005 Task Force directed SCG to develop a "suite" of system-wide indicators for restoration

- 2006 Indicators and communication tool (stoplights) developed and peer reviewed


INDICATORS FOR RESTORATION

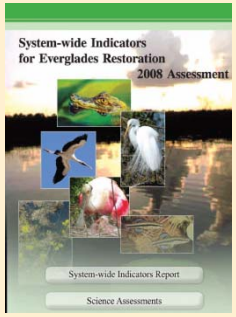
SOUTH FLORIDA ECOSYSTEM RESTORATION

REPORT TO THE
SOUTH FLORIDA ECOSYSTEM RESTORATION TASK FORCE

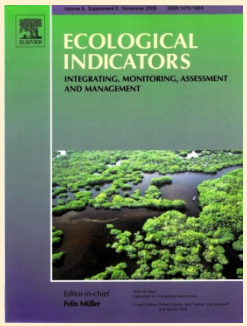
FROM THE
SCIENCE COORDINATION GROUP
2006

# System-wide Ecological Indicators

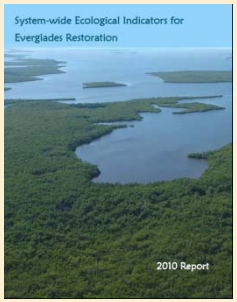
- 2008 System-wide Indicators for Everglades Restoration 2008 Assessment




- 2009 Special issue of the journal Ecological Indicators




- 2010 System-wide Ecological Indicators for Everglades Restoration



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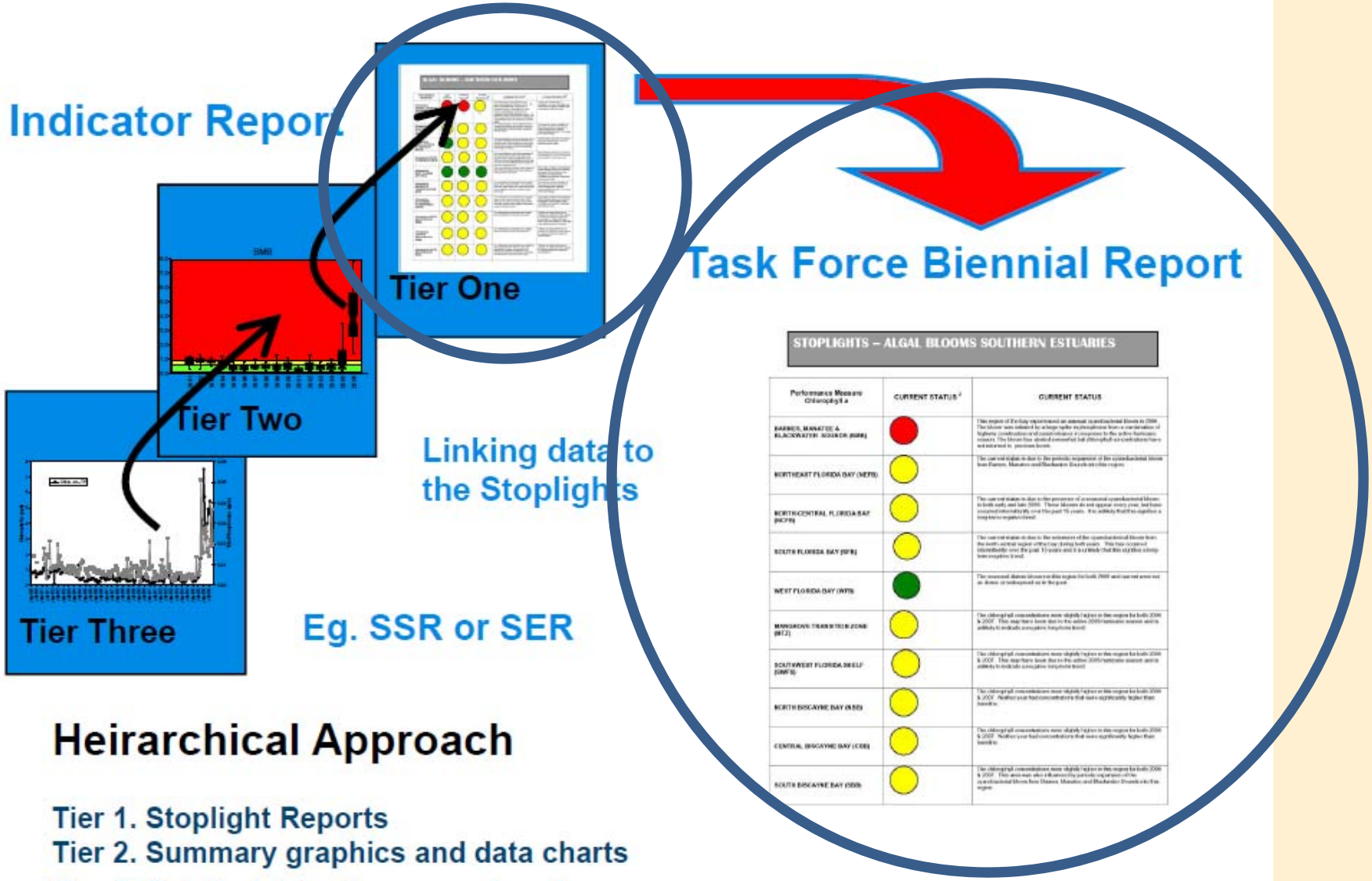



## Heirarchical Approach

Tier 1. Stoplight Reports
Tier 2. Summary graphics and data charts
Tier 3. Detailed data, theory, and analyses

**Red**-Substantial deviations from restoration targets creating severe negative condition that merits action.

**Yellow**-Current situation does not meet restoration targets and may require additional restoration action.

**Green**-Situation is within the range expected for a healthy ecosystem within the natural variability of rainfall. Continuation of management and monitoring effort is essential to maintain and be able to assess “green” status.

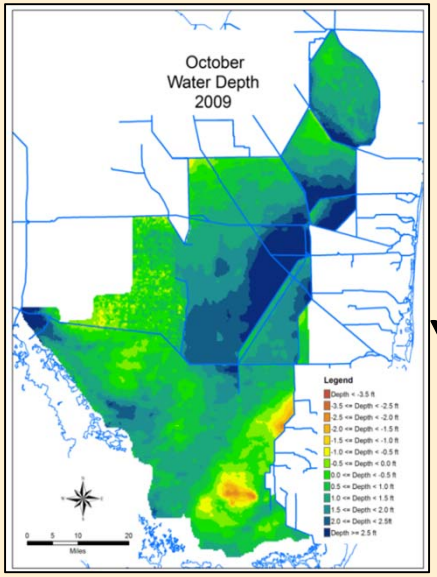
**Clear**-Data have been collected but not processed yet.

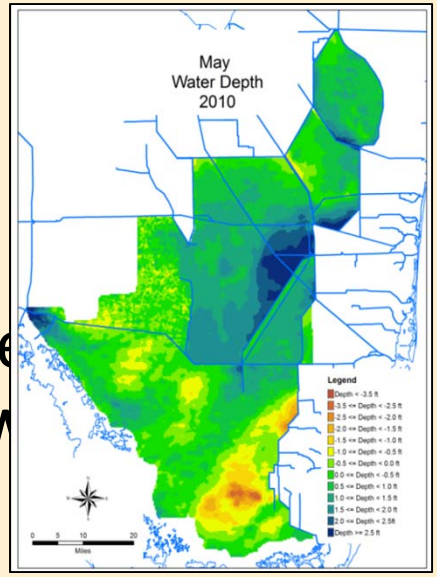
**Black**-No data or inadequate amount of data were collected due to funding cuts.

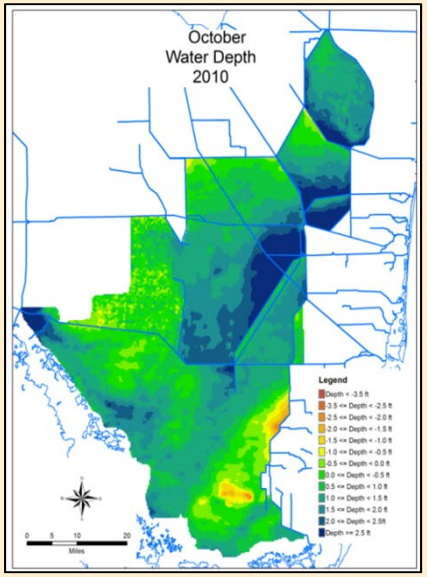
**Trend arrows**-Horizontal arrows, indicator is stable; up arrow, indicator is improving; down arrow, indicator is declining.

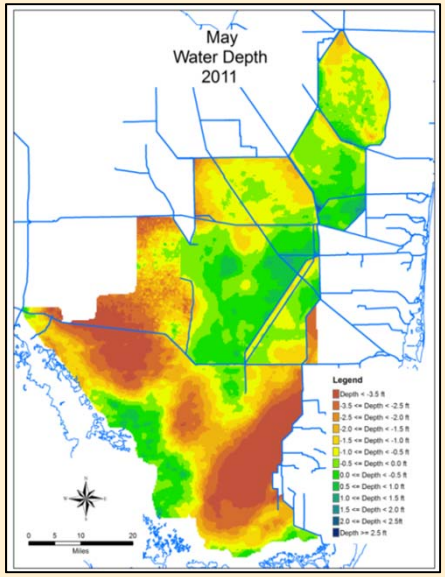
# Modifications From 2010 Report

- Added Hydrologic Context




Water Year 2010
End of Wet Season

Water Year 2010
End of Dry Season

Water Year 2011
End of Wet Season

Water Year 2011
End of Dry Season

Greens and blues are wetter, yellows and oranges drier

# Modifications From 2010 Report

- Added Indicators at a glance

| | Water Year 2008 | Water Year 2009 | Water Year 2010 | Water Year 2011 | Water Year 2012 |
|---|---|---|---|---|---|
| **Lake Okeechobee** | | | | | |
| Invasive Exotic Plants | | | | | |
| Lake Okeechobee Nearshore Zone Submersed Aquatic Vegetation | | | | | |
| | | | | | |
| **Northern Estuaries** | | | | | |
| Invasive Exotic Plant Species | | | | | |
| Eastern Oysters | | | | | |
| | | | | | |
| **Greater Everglades** | | | | | |
| Crocodilians | | | | | |
| Fish and Macroinvertebrates (WCA 3 and ENP only) | | | | | |
| Invasive Exotic Plants | | | | | |
| Periphyton and Epiphyton | | | | | No species composition data |
| Wading Birds (White Ibis and Wood Stork) | | | | | |
| | | | | | |
| **Southern Coastal System** | | | | | |
| Crocodilians | | | | | |
| Southern Estuaries Algal Blooms** | | | | | |
| Florida Bay Submersed Aquatic Vegetation | | | | | |
| Invasive Exotic Plants | | | | | |
| Juvenile Pink Shrimp* | Data used as base | Data used as base | Data used as base | | |
| Wading Birds (Roseate Spoonbill) | | | | | Prey community data not yet processed |
| Wading Birds (White Ibis and Wood Stork) | | | | | |

# Modifications From 2010 Report

- More consistency on reporting across indicators
  - All on Water Year (May 1-April 30)
  - Standardization of location names
  - Use WY09 as last status, WY12 as current status
  - Added Trend arrows

| Location/ Performance Measure | WY 2009 Last Status | WY 2012 Current Status | Trend | CURRENT STATUS |
|---|---|---|---|---|
| **NEARSHORE REGION**<br><br>**Submerged Aquatic Vegetation Areal Coverage** | | | | Submerged aquatic vegetation (SAV) coverage has varied between approximately 28,000 and 46,000 acres since WY 2008. During this period, the Lake achieved its targets of 40,000 acres of SAV with 50% or more consisting of vascular species only once, in WY2011. In WY 2008, 2009, and 2012 neither of the two performance targets were met, while in WY 2010, the total acres target was met but the % vascular target was missed. If Lake Stages continue to remain near the lower end of the desired stage envelope or lower, the enlarged marsh habitat likely will continue to occupy formerly open-water SAV habitat while SAV colonizes areas offshore which were previously too deep and light limited to support substantial underwater plant growth. |

# Next Steps

- Finalize full 2012 System-wide Ecological Indicators for Everglades Restoration Report
- Integrate where possible with 2012 System Status Report
- Plan for 2014 report
  - Continue to improve integration of indicators
  - Continue to improve report as communication tool
  - Address challenges associated with funding cuts