

System-wide Ecological Indicators for Everglades Restoration 2018

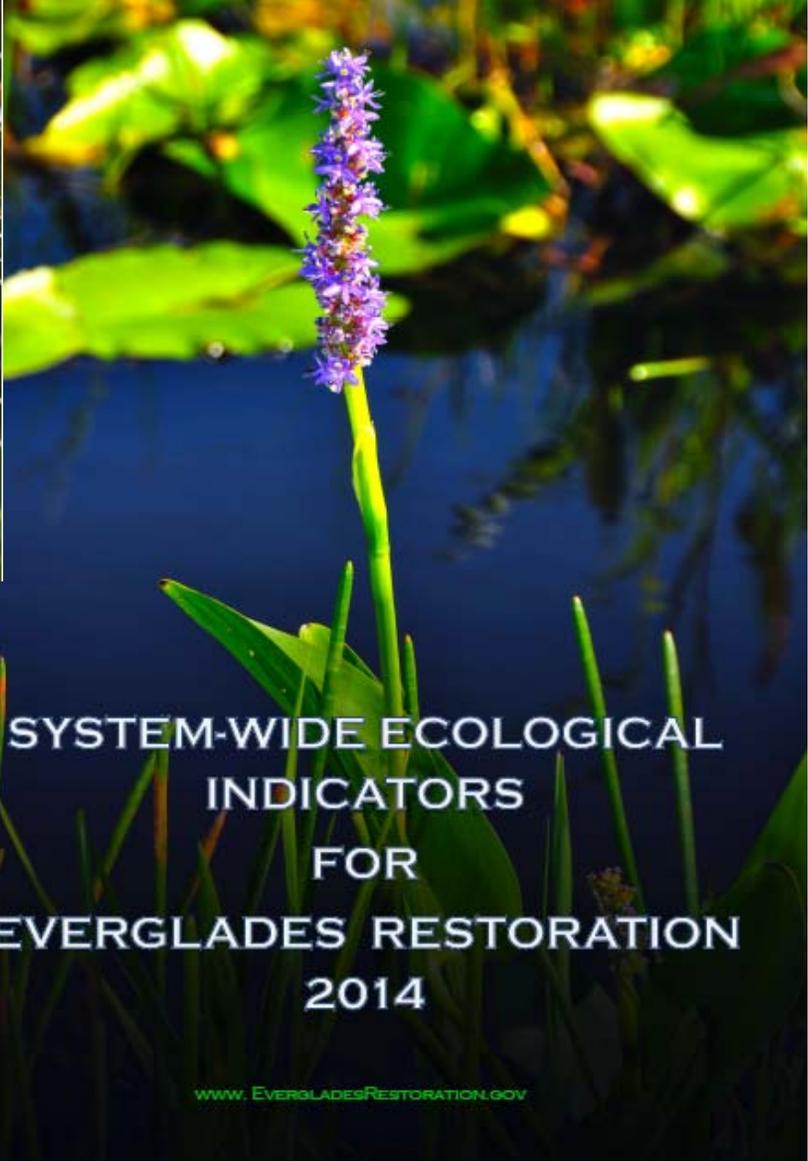
*The South Florida
Ecosystem Restoration Task
Force
Strategy and Biennial Report
July 2016—June 2018*

*Working Group/Science
Coordination Group Meeting 5 June
2018*

Presented by Laura Brandt



← *Biennial Report to Congress*



Full Report →

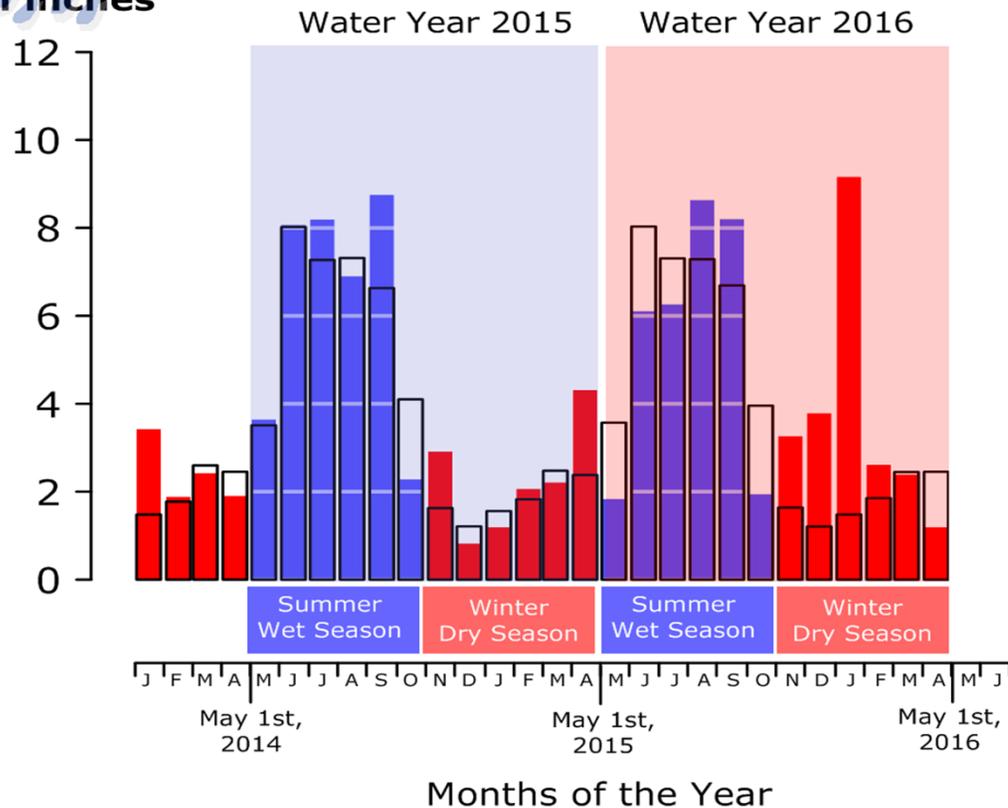
Biennial Report to Congress System-wide Ecological Indicators

- *Background*
- *Hydrologic Context for Water Years 2017 and 2018*
- *Indicators at a Glance*
- *One page for each indicator*

Links to more information in the full System-wide Ecological Indicators for Everglades Restoration 2018 Report , Systems Status Report, and South Florida Environmental Report

Hydrologic Context

South Florida **Monthly** Rainfall Summary for Water Years 2015 and 2016



WY15- Average rainfall

Early dry season

WY16- Average rainfall ...BUT

Very dry dry season, extremely wet wet season

11 System-wide Ecological Indicators

Indicators at a Glance 2018

	<i>Previous Status WY2016</i>	<i>Current Status WY2018</i>
<i>Invasive Exotic Plants</i>	Yellow	White
<i>Lake Okeechobee Nearshore Zone Submerged Aquatic Vegetation</i>	Yellow	White
<i>Eastern Oysters- Modified (Northern Estuaries only)</i>	Yellow	White
<i>Crocodylians (American Alligators & Crocodiles)- Modified (DOI Lands Only)</i>	Red	Red
<i>Fish & Macroinvertebrates (WCA3 and ENP only)</i>	Red	White
<i>Periphyton- Modified (no species composition)</i>	Yellow	White
<i>Wading Birds (White Ibis & Wood Stork)</i>	Red	Red
<i>Southern Coastal Systems Phytoplankton Blooms- Modified (no southwest shelf)</i>	Red	White
<i>Florida Bay Submersed Aquatic Vegetation</i>	Yellow	White
<i>Juvenile Pink Shrimp- Modified (no sampling)</i>	Black	Black
<i>Wading Birds (Roseate Spoonbill)</i>	Red	Red

Drawn largely from longer list of measures from RECOVER

Format for Each Indicator

- *Indicator*
- *Status*
- *Tie to restoration actions*
- *What have we learned*
- *Links to full report and other supporting information such as RECOVER SSR, South Florida Environmental Report*

CROCODILIANS (AMERICAN ALLIGATORS & CROCODILES) INDICATOR

STATUS	PREVIOUS (WATER YEAR 2014)	CURRENT (WATER YEAR 2016)
SYSTEM-WIDE (Modified USDOI lands only)	R	R

A full system-wide status assessment for crocodilians for WY 2014 – WY 2016 cannot be provided because some survey routes have not been sampled since funding was suspended in WY 2012. However, surveys have continued on USDOI lands (LNWR, Big Cypress National Preserve, Crocodile Lake National Wildlife Refuge, BNP, and ENP).

The status of the crocodilian indicator in the areas listed above has remained well below the restoration target (red stoplight) since WY 2014 and remains well below the restoration target at the end of WY 2016. This is the first time since 2008 that the overall score for USDOI lands has remained well below the restoration target for three years in a row. There are fluctuations from year to year, but overall this result reflects low relative densities of alligators, variable alligator body condition, and low crocodile growth and survival.

Data collected for both alligators and crocodiles were used to update RECOVER performance measure documentation sheets. Performance measures are planning tools used by RECOVER to determine the degree to which proposed alternative plans are likely to meet CERP restoration objectives, or implemented plans have met restoration objectives. Documentation sheets provide technical information about the indicator and describe desired future condition and how the indicator can be used for evaluation and assessment. The alligator documentation sheet was approved in June 2014 and the crocodile documentation sheet in October 2015.

Data are being used to develop a better understanding of the relationship between hydrology, salinity, and alligator relative density and body condition and salinity and crocodile growth, survival, and survey encounter rate. Alligators show population responses to water conditions with decreasing trends in abundance immediately after a dry year and increasing trends following subsequent wet years. Alligator relative density showed declining trends in Shark River estuary and animals moved up and down the estuary in response to salinity, with fewer alligators in areas of higher salinity. Alligator body condition was related to fluctuations in water levels that are important for wetland health. Alligator body condition has declined in the Everglades since the early 2000s and is about 12% lower than in other areas of Florida. Juvenile crocodile growth and survival is higher when salinities are lower. Refined statistical techniques are allowing us to get better estimates of crocodile survival. We have also been able to examine long-term trends in crocodile survey encounter rates and identify effects of extreme events, such as the 2010 cold snap. See the 2016 System-wide Ecological Indicators for Everglades Restoration for more details and a list of publications.

The crocodilian indicator remains well below the restoration target.

Full System-wide Ecological Indicators Report

- *Introduction*
- *Hydrologic context*
- *Stoplight format*
- *Indicators overview*
- *Individual indicators*
 - *Summary/key findings*
 - *Stoplight table (5 years)*
 - *Updates on calculation of the indicator*
 - *How have the data been used*
 - *New insights relevant to future restoration decisions*
 - *Publications/report*
 - *Map showing indicator status WY18*

Contributors to 2018 report

<i>Lead Scientists for Indicator Report</i>			
<i>First Name</i>	<i>Last Name</i>	<i>Agency</i>	<i>Indicator</i>
<i>Joan</i>	<i>Browder</i>	<i>NOAA</i>	<i>Pink Shrimp</i>
<i>Peter</i>	<i>Frederick</i>	<i>UF</i>	<i>White Ibis and Wood Stork</i>
<i>Evelyn</i>	<i>Gaiser</i>	<i>FIU</i>	<i>Periphyton</i>
<i>Chris</i>	<i>Kelble</i>	<i>NOAA</i>	<i>Southern Coastal Systems Phytoplankton Blooms</i>
<i>Jerry</i>	<i>Lorenz</i>	<i>Audubon of Florida</i>	<i>Roseate Spoonbill</i>
<i>Chris</i>	<i>Madden</i>	<i>SFWMD</i>	<i>Florida Bay Submersed Aquatic Vegetation</i>
<i>Frank</i>	<i>Mazzotti</i>	<i>UF</i>	<i>Crocodylians</i>
<i>Melanie</i>	<i>Parker</i>	<i>FWC</i>	<i>Oysters</i>
<i>LeRoy</i>	<i>Rodgers</i>	<i>SFWMD</i>	<i>Invasive Exotic Species</i>
<i>Andy</i>	<i>Rodusky</i>	<i>SFWMD</i>	<i>Lake Okeechobee Nearshore</i>
<i>Joel</i>	<i>Trexler</i>	<i>FIU</i>	<i>Fish and Macroinvertebrates</i>
<i>Others Involved</i>			
<i>Marsha</i>	<i>Banshee</i>	<i>OERI</i>	<i>Document Compilation</i>
<i>Laura</i>	<i>Brandt</i>	<i>FWS</i>	<i>Crocodylians, Document Coordination</i>
<i>Ventia</i>	<i>Briggs-Gonzalez</i>	<i>UF</i>	<i>Crocodylians</i>
<i>Michael</i>	<i>Cherkiss</i>	<i>USGS</i>	<i>Crocodylians</i>
<i>Jose</i>	<i>Cabaleiro</i>	<i>OERI</i>	<i>Web Document</i>
<i>Seth</i>	<i>Farris</i>	<i>UF</i>	<i>Crocodylians</i>
<i>Dale</i>	<i>Gawlik</i>	<i>FAU</i>	<i>White Ibis and Wood Stork</i>
<i>Angie</i>	<i>Huebner</i>	<i>USACE</i>	<i>Invasive Exotic Species</i>
<i>Caitlin</i>	<i>Hackett</i>	<i>UF</i>	<i>Crocodylians</i>
<i>Kevin</i>	<i>Kotun</i>	<i>NPS</i>	<i>Hydrology</i>
<i>Jeff</i>	<i>Kline</i>	<i>NPS</i>	<i>Fish & Macroinvertebrates</i>
<i>Dave</i>	<i>Rudnick</i>	<i>NPS</i>	<i>Southern Coastal Systems Phytoplankton Blooms</i>
<i>Bob</i>	<i>Sobczak</i>	<i>NPS</i>	<i>Hydrology</i>
<i>Jessica</i>	<i>Spencer</i>	<i>USACE</i>	<i>Invasive Exotic Species</i>

Questions?