



Communication of Science for the Comprehensive
Everglades Restoration Program
2019 System Status Report and Report Card



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***RE*storation *CO*ordination *VER*ification**

System-wide Monitoring and Assessment Plan (MAP)

- Documents status and trends of key indicators
- Addresses key uncertainties related to achieving ecosystem restoration goals
- Adaptive management to track and guide activities to achieve restoration success

System Status Report (SSR) informs the Report to Congress (RTC)

- Inform Project Planning
- Establish pre-CERP conditions
- Track progress as CERP is implemented
- Evaluate CERP performance and system responses
- Determine if CERP is meeting its goals and objectives
- Initiate Adaptive Management Measures

RECOVER SYSTEM-WIDE MONITORING



-  Oysters
-  Submerged Aquatic Vegetation
-  Benthic Infauna
-  Wading Birds
-  Vegetation/Landscape
-  Fish/Aquatic Fauna
-  Hydrology/Salinity/Depth

- REGIONS**
-  LAKE OKEECHOBEE
 -  NORTHERN ESTUARIES
 -  GREATER EVERGLADES
 -  SOUTHERN COASTAL SYSTEM



Focus of Past SSR's

- **2006 Pilot SSR**
 - **Assessed current sampling designs**, data quality, variability, power analyses, and relevant spatial-temporal patterns
 - **To determine if sufficient to establish base line** for ecosystem indicators and detect change.

- **2007 SSR**
 - **First comprehensive assessment** of monitoring data
 - Provided **estimates of pre-CERP conditions**
 - Demonstrated sustained multi-year monitoring needed to establish sound estimates of pre-CERP conditions and trend

2009 and 2012 System Status Reports

- **2009**
 - **Comprehensive accounting** of key system indicators
 - Assessed baseline information and **set the stage for future Adaptive Management activities**
 - **First web published report**
- **2012**
 - **interim update** focused on ecological indicators revealing new information on restoration status and technical tool developments

2014 System Status Report

- Highlighted **status and trend**
- Demonstrated **results of restoration project operations**
- Highlighted **new knowledge** to support restoration planning and implementation
- **Key Findings section** to convey status of Everglades ecosystem to water managers, budget directors, decision-makers, and the public.



RECOVER Team Goals for the 2019 SSR and Report Card

- Improve outreach to **multiple audiences**
- Communicate Management **Implications of key findings**
- **Integration** of indicator analyses across regions and the entire Everglades eco-system
- Report on progress toward meeting **Interim Goals and Targets**
- Consideration of **major system drivers** such as climate change and exotic species
- Focus on **key uncertainties** identified in the 2015 Programmatic Adaptive Management Plan

Committee on Independent Scientific Review of Everglades Restoration Progress SSR Recommendations

- Report on progress toward **Interim Goals and Targets**
- Considering **how ecosystem will change in the future** is as important as looking back to document progress
- Strategies to communicate progress made to **address the highest priority AM uncertainties**
- **Clear graphics** that quickly convey progress, trends and summarize overall conclusions

The 2019 SSR

Monitoring data includes 2012-2017

- Assist decision-makers with the timing of planning and implementation of CERP projects
- Inform adaptive management actions, and identify uncertainties that need further study to assure restoration success
- Details the evaluation of system-wide ecological indicators and uses performance measures and their targets to measure restoration progress
- Provides the scientific foundation for the 2020 Report to Congress, to inform the highest levels of the U.S. government on the progress made toward restoration

2019 System Status Report



- **Interactive web based** designed to be user-friendly and easy to update as new information becomes available, allows the reader to navigate to areas of interest such as a specific region or indicator
- Divided into **five geographic regions**: the Overall System, Lake Okeechobee, Northern Estuaries, Greater Everglades, and the Southern Coastal Systems. This organization helps facilitate the monitoring and analysis **but is not meant to imply that the Everglades ecosystem is a series of discrete, unconnected habitats**
- The final chapter in the System Status Report looks ahead to **the future of restoration**, with discussion on projects in the planning and implementation phases, and new science being developed over the next five years

System Status Report (SSR) Outline

TABLE OF CONTENTS

Chapter 1: Introduction

- 1.1 Everglades restoration
- 1.2 The RECOVER team reports progress
- 1.3 About the System Status Report
- 1.4 2019 Everglades report card

Chapter 2: System-wide science

- 2.1 Introduction
- 2.2 Key findings
- 2.3 Hydrologic conditions
- 2.4 Climate conditions
- 2.5 Events of ecological significance
- 2.6 Adaptive management projects are underway

Regional Chapters

Chapter 3: Northern Estuaries

- 3.1 Introduction
 - 3.2 Key findings
 - 3.3 Indicators of ecosystem health
 - 3.4 Discussion
 - 3.5 Looking ahead and restoration activities
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- Chapter 4: Lake Okeechobee
 - Chapter 5: Greater Everglades
 - Chapter 6: Southern Coastal System

Chapter 7

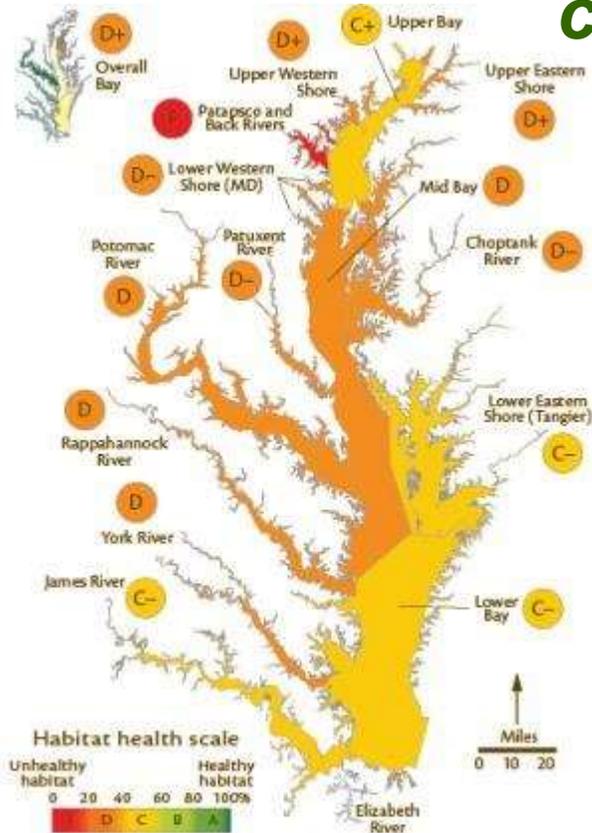
Looking Ahead

- 7.1 Recover is working to restore the Everglades
- 7.2 Project planning and implementation
- 7.3 Advancing Everglades science for adaptive management

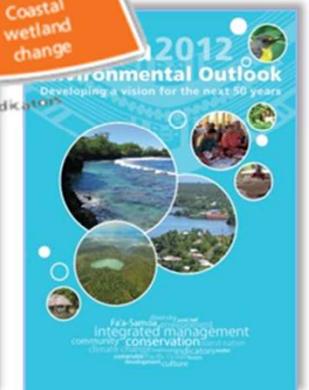
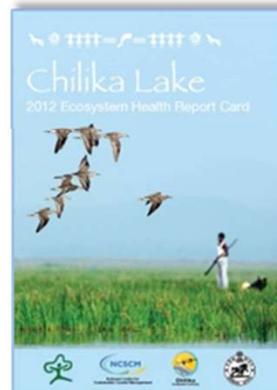
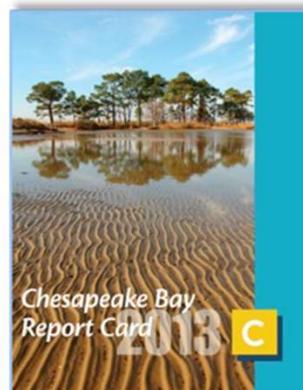
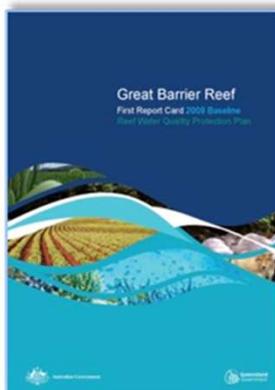
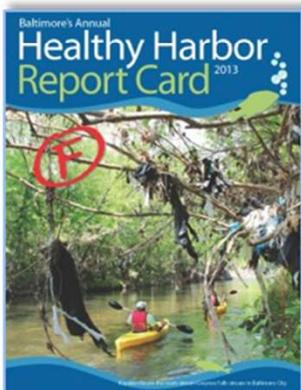
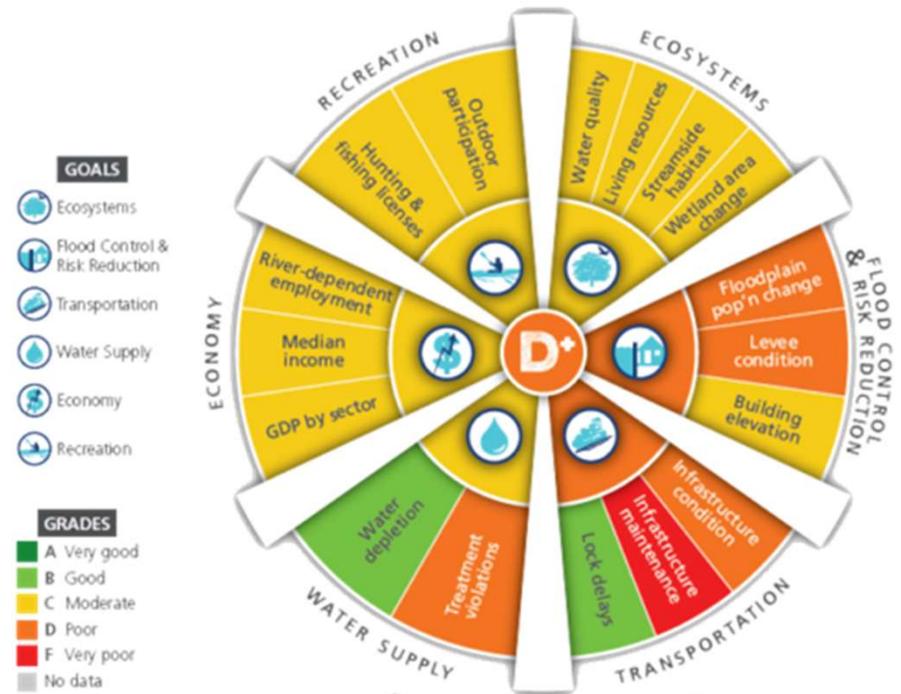
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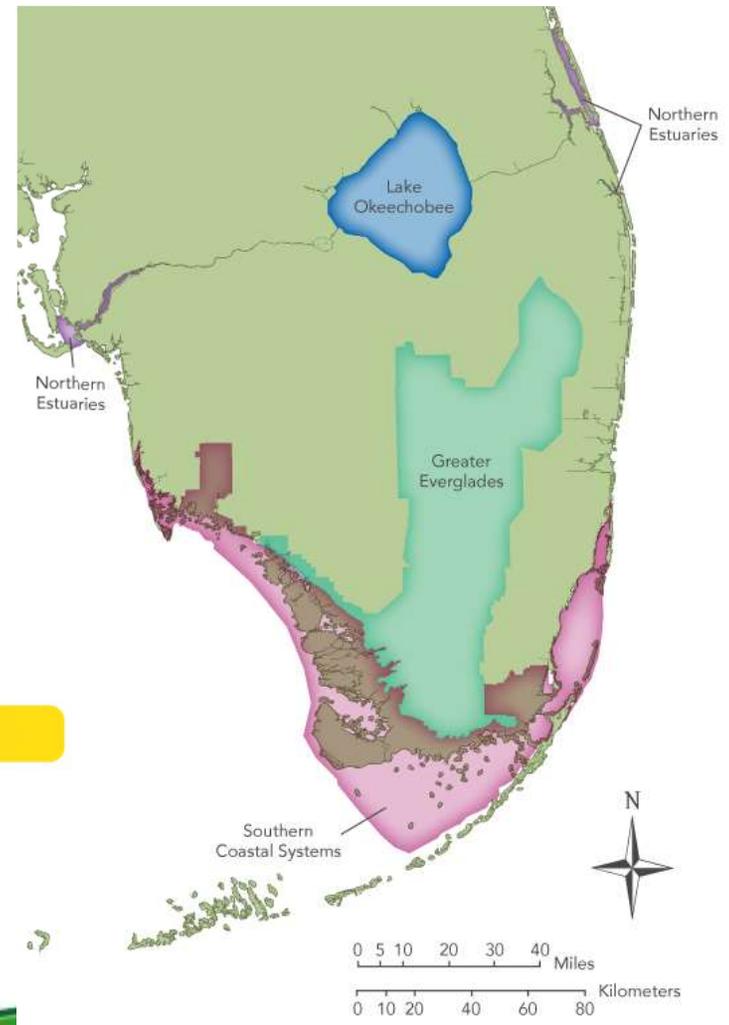
Report Cards can be used to improve communication



Mississippi Watershed Results



Overall Everglades Report Card Results



What do the scores mean?

0–20% Very poor

Very few or no indicators meet desired goals. Indicators in these locations tend to be severely degraded, leading to unacceptable habitats for plants and animals. These areas are extremely vulnerable and no longer provide ecosystem services.

20–40% Poor

Some or few indicators meet desired goals. Indicators in these locations tend to be degraded, often leading to poor habitats for plants and animals. These areas are vulnerable and are struggling to maintain ecosystem function.

40–60% Fair

Some indicators meet desired goals while others do not. Indicators in these locations tend to be fair, leading to marginal and somewhat degraded habitat conditions for plants and animals. There is reason for concern as these areas have increased vulnerability.

60–80% Good

Most indicators meet desired goals. Indicators in these locations tend to be good, often leading to acceptable habitat conditions for plants and animals. While these areas currently support ecosystem function, it is necessary to maintain and protect existing conditions.

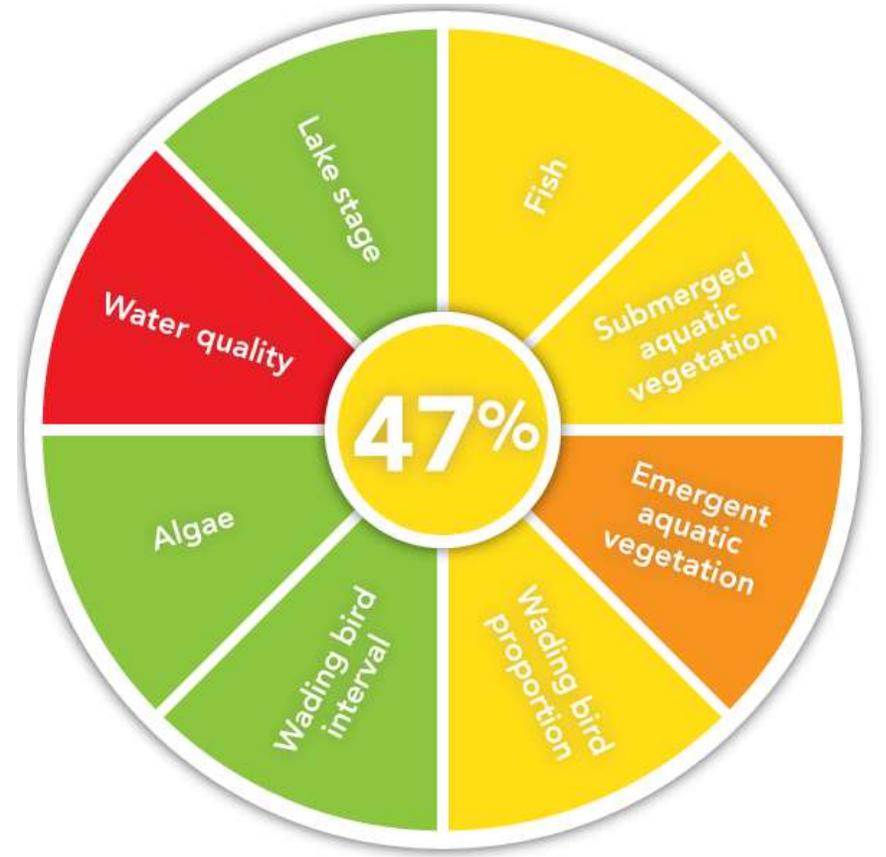
80–100% Very good

All indicators meet desired goals. Indicators in these locations tend to be very good, most often leading to very good habitat conditions for plants and animals. While these areas currently support outstanding ecosystem function, it is necessary to maintain existing conditions.

Everglades Report Card Results

Lake Okeechobee

- Algal bloom scores based on frequency and composition – not intensity
- Nutrient levels far exceeded targets
- Marsh vegetation and nearshore submerged plants were poor, affecting fish and wading birds
- Lake stages did well except during growing season, explains poor results for flora and fauna



Everglades Report Card Results

Northern Estuaries

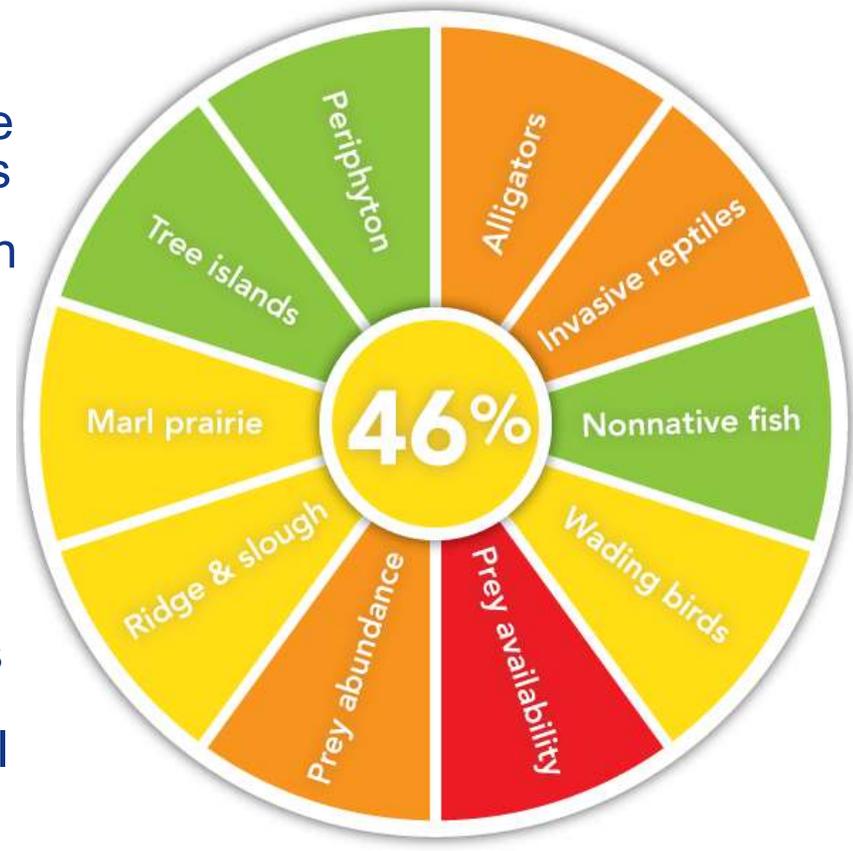
- Salinity – freshwater inflow altered by El Nino and hurricanes severe but short lived
- SAV – declines, low density in all regions
- Oysters – damage from reduced salinity
- Benthic infauna – altered community composition in SLE
- Chl-a - mixed results



Everglades Report Card Results

Greater Everglades

- Variable through period, scores range good to very poor
- Periphyton and tree islands were good, despite adverse pressures
- Marl prairie and ridge and slough habits are degraded, but management is improving condition in marl prairie
- Wading bird targets not met due to impact of wet conditions on prey availability
- Non-native and invasive species continue to increase in number and range but still had an overall good score



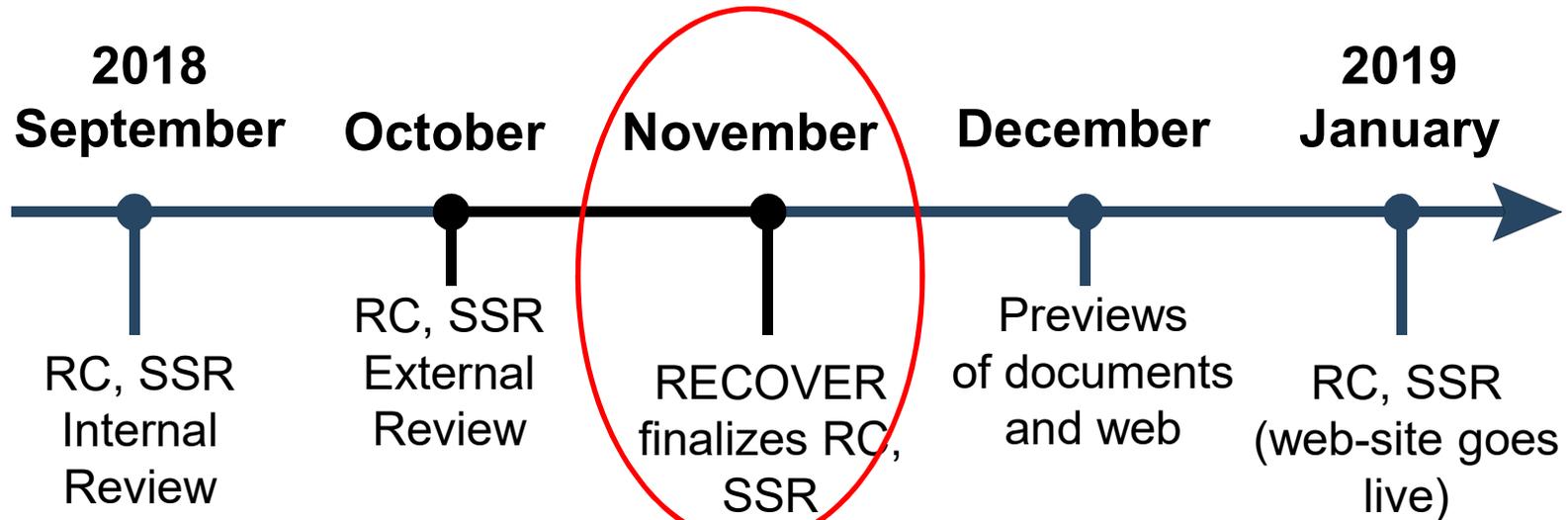
Everglades Report Card Results

Southern Coastal Systems

- Salinity increased due to reduced freshwater inflow 2012 through 2017
- Crocodiles, gulf pipefish and SAV impacted by drought in 2014 and 2015
- Nesting of roseate spoonbill improved; drought aids foraging and shift to saltwater prey
- Improvement in overall ecological health requires sustained restoration of freshwater inflow



2019 SSR Timeline



- 2017 4th Q – compile SSR chapter outlines, assign tasks to PIs, recruit outside input
- 2018 1st Q – PIs compile reports, analyze data, compute indicator scores
- 2018 2nd Q – compile results, first look at report card scores
- 2018 3rd Q – compile draft SSR, begin review and revisions
- **2018 4th Q – Review, revise SSR & RC, public rollout**

Next steps to get to the finish line!

- External review – 10/25/18 - 11/28/18
- Respond to external comments – 11/29/18 - 12/15/18
- Final editing –12/15/18 -1/19
- Final documents completed - 1/19
- Final website goes live – 1/19
- Report Cards printed – 1/19

Questions?



Judy

