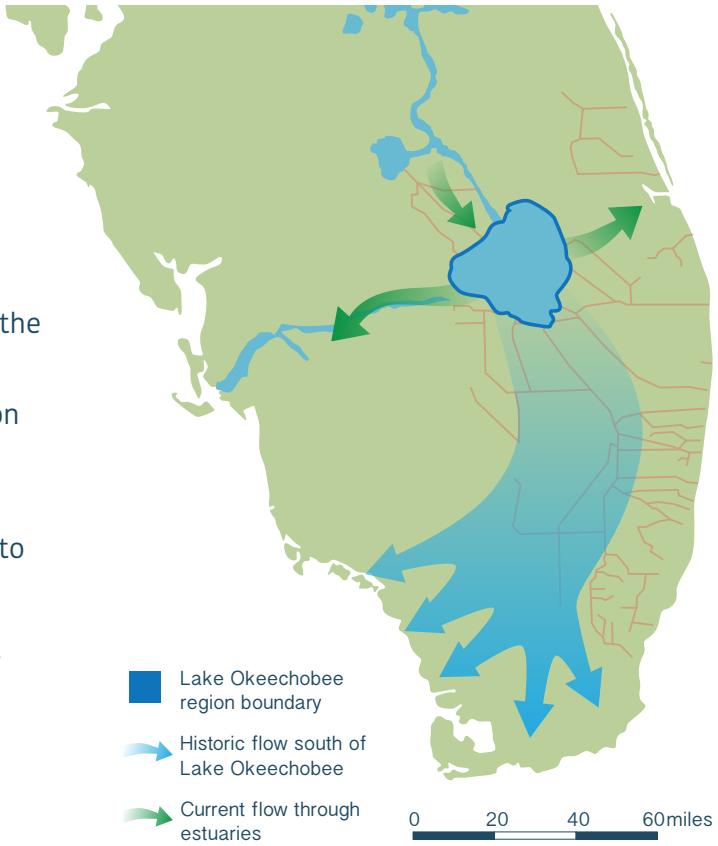
Lake Okeechobee ecosystem health workshop

Developing a report card for the Everglades

Meeting Newsletter
SFWMD West Palm Beach Field Operations Center
West Palm Beach, Florida, August 2017

The Comprehensive Everglades Restoration Plan (CERP) focuses on restoring pre-drainage characteristics to the hydrology of south Florida's remaining undeveloped wetlands and coastal waters. In short, the strategy is "get the water right" and the ecology will follow. Lake Okeechobee is a large, shallow lake and is sometimes called the hydrologic heart of the Everglades. Getting the water right means increasing water storage so that water levels can be better maintained to benefit ecological conditions within the lake and so that water discharges to the Northern Estuaries can be reduced.

Some progress has been made with the start of construction on a series of reservoirs and stormwater treatment areas. However, even more water storage will be needed to meet restoration targets. Projects like the Lake Okeechobee Watershed Restoration Project and Headwaters are poised to begin. Other projects, like the Kissimmee River Restoration project are almost complete. Additional projects are in the planning stage and awaiting appropriations from Congress.



Chuck Hanlon

Chuck Hanlon

Map: Lake Okeechobee is the watery heart of the Everglades hydrologic system.

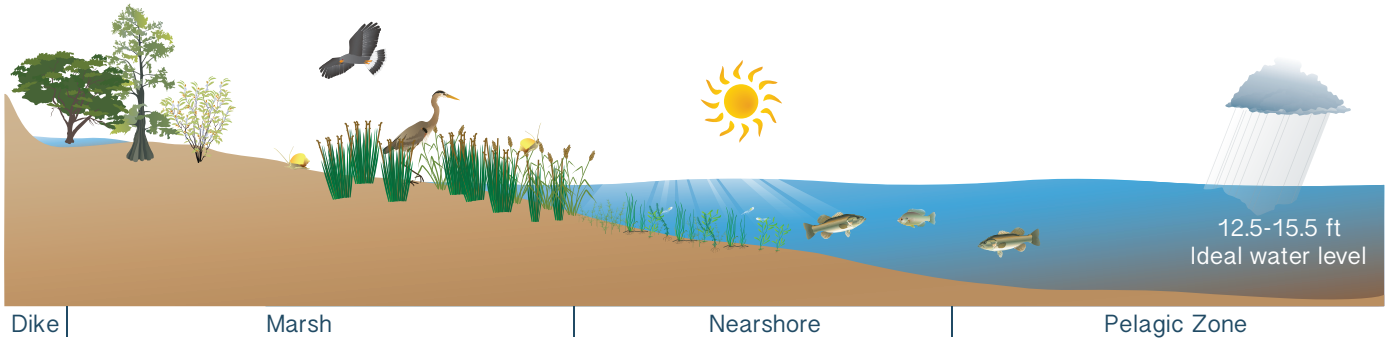
Left: Emergent vegetation in Lake Okeechobee.

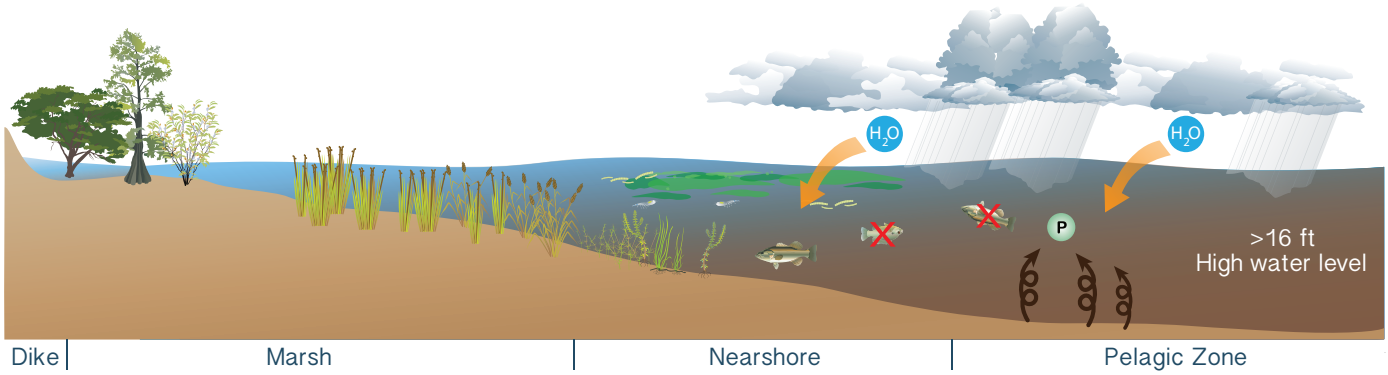
Right: Fishing is a popular recreational activity in the lake.

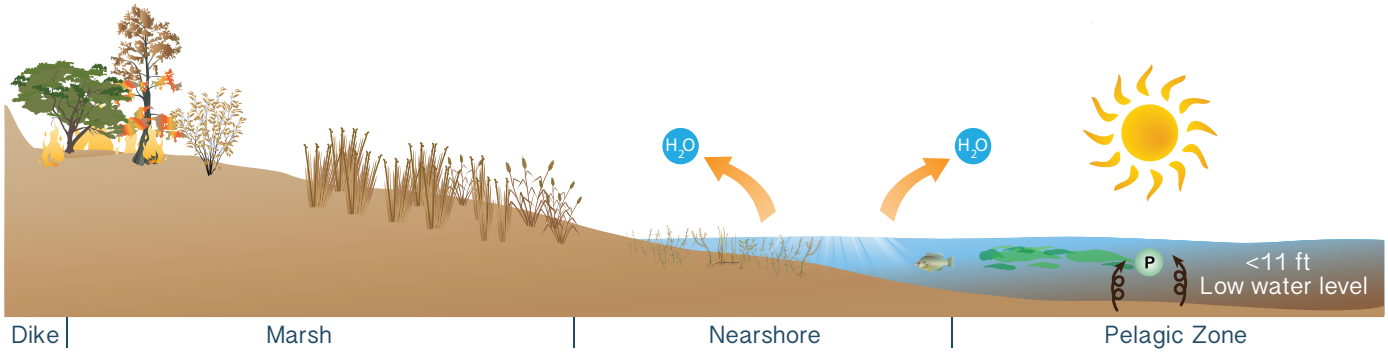
Top photo: Lake Okeechobee. SFWMD.

Water level affects the health of Lake Okeechobee

Workshop participants discussed key pressures on Lake Okeechobee and their ecological impacts. The main pressure is extreme fluctuations in lake levels caused by a loss of water storage due to development. Participants created illustrations to explain impacts on lake habitats, water quality, fish, and birds.







Fluctuating lake levels within an optimal range maintains SAV , emergent vegetation , and woody shoreline vegetation , which allows birds and fish to flourish. However, with reduced water storage, lake levels too often are above or below this range. Low levels caused by drought leads to release of nutrients from sediments P and loss of shoreline vegetation , often due to fire . Large storms can cause high water levels , stressing vegetation. Storms also increase nutrients, from both runoff and sediment resuspension . Resulting low light conditions stress SAV, and low oxygen from algal blooms results in fish kills .

Combining new and existing indicators of ecosystem health

During the workshop, Lake Okeechobee coordinators and scientists identified a list of potential indicators of ecosystem health. Some of the indicators have been used previously, while others were newly identified as being important to understanding the region. All potential indicators will be considered for use in the 2019 System Status Report (SSR) and Everglades Report Card.

Vegetation

Vascular SAV, nonvascular SAV, chara, invasive vegetation, emergent vegetation

Hydrology

Water level, recession rate, stage envelope

Water quality

Secchi depth, turbidity, total phosphorous, total nitrogen, dissolved inorganic nitrogen, SRP, chlorophyll-*a*, Mercury

Fish

Bluegill, sunfish, crappie, Creole (fishery-independent survey)

Benthics

Birds

Wading birds, snail kites, waterfowl

American alligator

Epiphytes

Algal blooms

Cyanobacteria

Apple snail

What does the status of Lake Okeechobee tell us about the Everglades?

Lake Okeechobee is sometimes called the heart of the Everglades. Currently, water managers cannot always regulate lake levels and water flow from the lake simultaneously to benefit the ecology of the lake and the other Everglades regions. Providing additional water storage around Lake Okeechobee and increasing hydrologic connectivity with regions south of the lake will allow better management of lake levels and flows, and this should improve the health of the entire Everglades ecosystem.

Tyler Beck

American lotus flowers in Lake Okeechobee,

Lake Okeechobee scientists identify SSR themes and topics

In mid-August 2017, the scientists and regional coordinators of the Lake Okeechobee region of the Everglades met with the IAN team in West Palm Beach, FL. The goal was to identify important topics for the 2019 SSR, key attributes of the ecosystem, and desired conditions for the ecology and hydrology of Lake Okeechobee. Participants used illustration techniques to create ecosystem illustrations of the region, identified potential indicators for their region, and developed a timeline for completing the first draft of the 2019 SSR. Participants discussed roles and responsibilities for creating the Lake Okeechobee chapter of the 2019 SSR. Discussions focused on valued components of the Lake Okeechobee ecosystem, such as wading birds, fish, vegetation, and water quality. These are at risk from the impacts of extreme high and low water levels caused by large storms and regional drought.

IAN will work with the Lake Okeechobee team to develop and score a set of report card indicators based on data collected on the valued ecosystem components and goals and targets set for hydrologic and ecological restoration in the region. This information will be used to help RECOVER inform government officials, regional managers, and the general public about progress toward restoring the Everglades.

This word cloud captures topics that Lake Okeechobee team members identified as important to include in the 2019 SSR.

Synthesis and production

In upcoming months the Lake Okeechobee and other regional RECOVER teams will be planning and organizing work to compile the first draft of the 2019 System Status Report.

2017 September

Early September
UMCES drafts workshop newsletters

Late September
UMCES meets with regional coordinators

October

Mid October
Regional teams meet internally to review newsletters, SSR outline, and indicators

Late October
UMCES meets with regional teams

November

Early November
Newsletters are completed

Mid November
SSR outline revisions

December

Early December
Indicators for Report Card are determined

2018 January

Mid January
UMCES meets with regional coordinators for progress check

Participants of the August 2017 Lake Okeechobee and Northern Estuaries workshop, West Palm Beach, FL.

Acknowledgments

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