

Greater Everglades region ecosystem health workshop

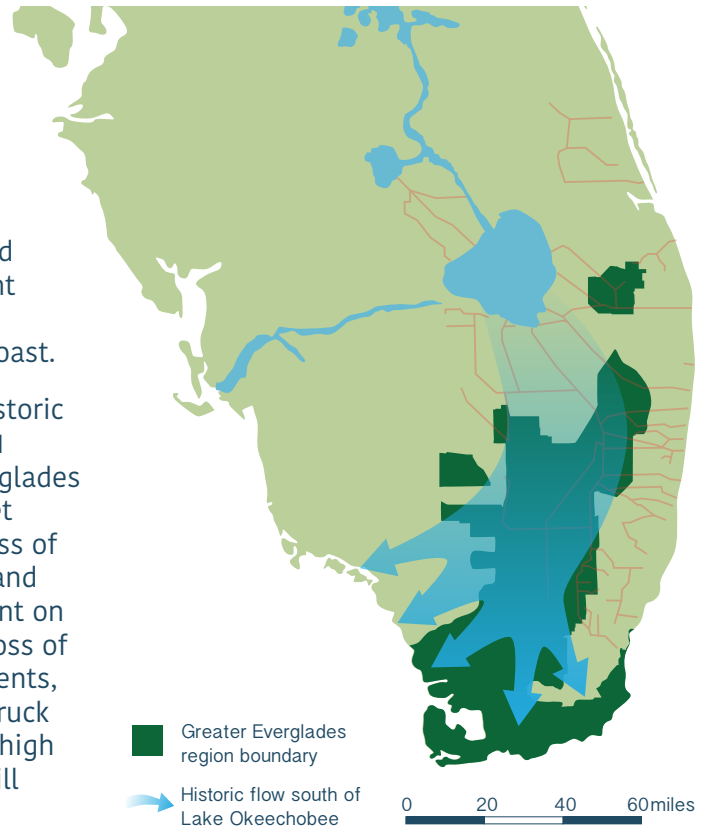
Developing a report card for the Everglades

Meeting Newsletter

University of Florida Ft. Lauderdale Research and Education Center
Davie, 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. The Greater Everglades encompasses a mosaic of inter-connected freshwater wetlands and estuaries located south of Lake Okeechobee. For the Everglades proper (hereinafter referred to as the Greater Everglades region), getting the water right means increasing flow of water south from the Everglades Agricultural Area and into Florida Bay and the southwest coast.

Some progress has already been made toward restoring historic flow patterns. The 1-mile Tamiami Trail Bridge and the C-111 Spreader Canal Western Project improve conditions in Everglades National Park by distributing water more naturally, as sheet flow in the Shark River and Taylor Sloughs. However, the loss of approximately half of the area of the Everglades to urban and agricultural development presents a challenge. Development on former wetlands reduces natural water storage capacity. Loss of water storage increases the impact of extreme weather events, including both flood and drought. Hurricane Irma, which struck the region on September 10, 2017, exacerbated the already high water conditions in the water conservation areas, which will affect tree islands and wildlife.



Map: Restoring historic freshwater flows south of Lake Okeechobee will greatly improve habitat conditions in Greater Everglades region.

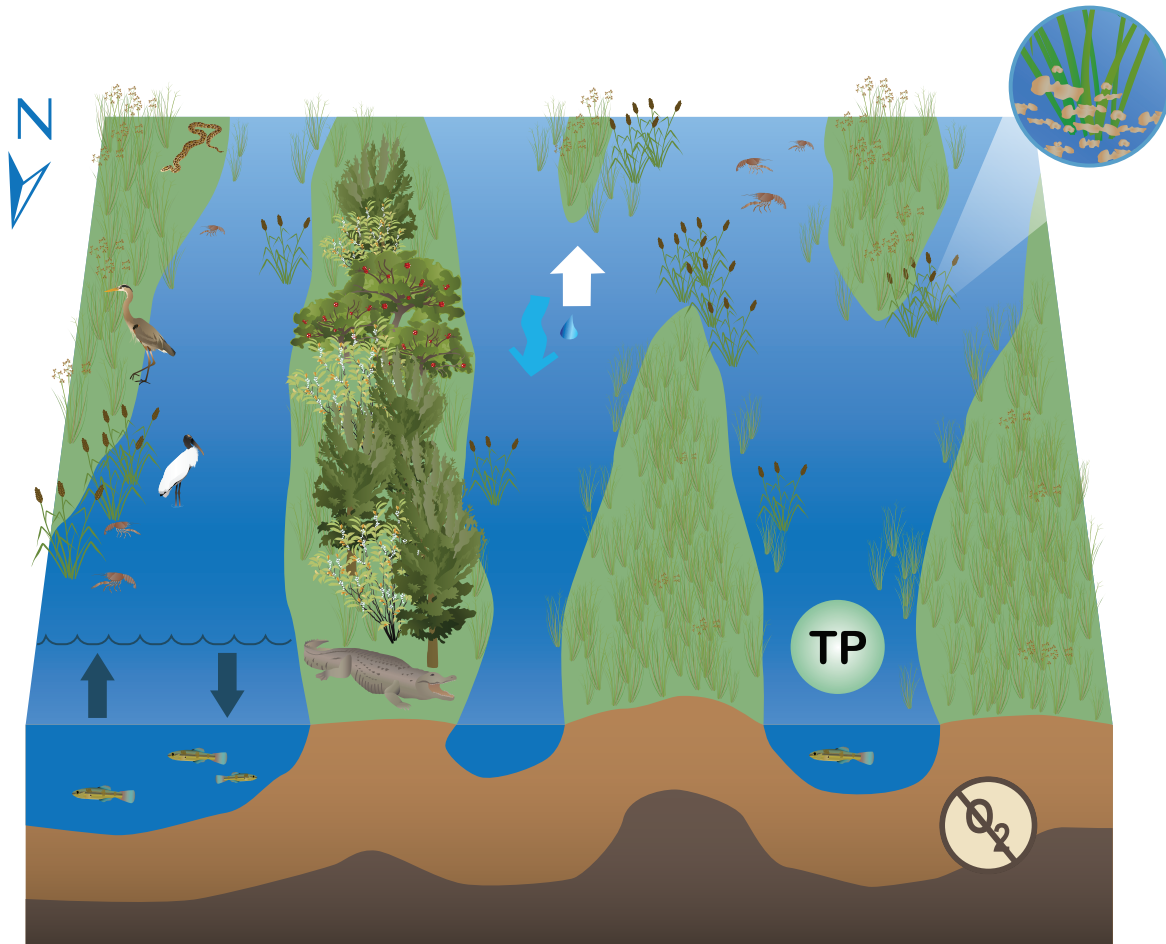
Left: Modified C-111 canal flows used to restore more natural flows to Taylor Slough and Florida Bay.











Right: Wading bird foraging habitat is a critical feature of a restored Everglades.

Top photo: Royal Palm visitor center, Emily Nastase.

Channelization and lack of sheet flow affects the health of the Greater Everglades region

Participants in the Greater Everglades regional workshop on August 14-15, 2017 discussed key environmental drivers and pressures and their impacts on the ecosystem. The main pressure affecting the Greater Everglades region is decreased freshwater sheet flow. By creating illustrations, groups described impacts on upper trophic-level interactions, landscape pattern changes, nutrients and oligotrophic conditions. A key idea that came out of this activity was that there is an important landscape dynamic between ridge, slough, marl prairie, and tree islands that must be maintained to restore the Greater Everglades region.



Restoring the Greater Everglades region depends on re-creating conditions supporting diffuse sheet flow , fluctuating water levels , and low nutrient levels  needed for healthy periphyton . Sustaining the Everglades requires maintaining saturated, anoxic conditions  in the sediment combined with a lack of nutrients, which favors accumulation of highly organic peat soil. Seasonal fluctuations in water levels and flow interact with the growth of native vegetation  to create a distinctive ridge and slough landscape. Fluctuating water levels also coordinate the production and aggregation of prey species  needed to sustain wading birds  and alligators . Invasive species such as Brazilian pepper  and Burmese pythons  negatively impact the landscape and the food web.

Combining new and existing indicators of ecosystem health

During the workshop, Greater Everglades regional coordinators and scientists identified 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 the potential indicators will be considered for use in the 2019 System Status Report (SSR) and Everglades Report Card.



Hydrology

Hydroperiod, water depth, connectivity, sea level rise, flood control, saltwater intrusion, freshwater flow (rainfall), water supply



Habitat types

Ridge and slough habitat
Tree island habitat
Marl prairie habitat



Periphyton



Wading birds



Aquatic fauna prey base



American alligators



Invasive species

Exotic vegetation cover,
Brazilian pepper



Total Phosphorous



Cattail

What does the status of Greater Everglades region tell us about the Everglades?

The Greater Everglades region is what most people envision as the Florida Everglades. The re-establishment of historic water levels, hydroperiod, and freshwater sheet flow will indicate if restoration goals have been attained. The ecological health of the Greater Everglades region, indicated by the return of dynamic ecological processes that shape the landscape of the region, will tell us if hydrological restoration is having the desired effect.



Tree island in Loxahatchee National Wildlife Refuge.

Greater Everglades region scientists identify SSR themes and topics

In mid-August 2017, the scientists and regional coordinators of the Greater Everglades region of the Everglades met with the IAN team in Davie, 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 Greater Everglades region. Participants of the workshop 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 Greater Everglades region chapter of the 2019 SSR. Discussion focused on valued components of the Greater Everglades region ecosystem, such as wading birds, alligators, aquatic fauna prey base, tree islands, and the ecosystem's distinctive ridge-and-slough landscape.

IAN will work with the Greater Everglades region 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 Greater Everglades region team members identified as important to include in the 2019 SSR.

Synthesis and production

In upcoming months the Greater Everglades region and other regional teams will be planning and organizing work to compile the first draft of the 2019 System Status Report.



Participants of the August 2017 Greater Everglades region workshop, Davie, FL.

Acknowledgments

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