

# The Lake Okeechobee Ecosystem: A Delicate Balance of Water



## Introduction

Lake Okeechobee is a paradise of biodiversity. Wetland plant communities fill almost one-third of the Lake, providing prime habitat for a multitude of species. A wide variety of ducks, wading birds, and other wildlife rely on the Lake's vast marsh for food. It is also vital habitat for the survival of the endangered Everglade Snail Kite. The State of Florida recognizes Lake Okeechobee as a critical water resource for its many economic, natural habitat, and biodiversity functions that benefit the public interest. *Fl. Statutes 373.4595(1)(a)*.

**The Lake's thrilling biological diversity and abundance of life cannot thrive if water levels are too high or too low.**

In its natural state, a drop of water would meander from the top of the winding Kissimmee River for six months or more before reaching Lake Okeechobee. Due to significant human alterations that drained lands throughout the Northern Everglades last century, that drop of water now arrives in around one month. As a result, the Lake experiences rapid fluctuations in depth. During large storm events, the Lake rises at an unnatural pace. This water is flushed down the estuaries for flood protection. Such releases have extensive and long-lasting negative impacts on the ecosystems and communities of the St. Lucie and Caloosahatchee Estuaries. Under natural conditions, some of this water would have been held in the system to replenish habitats during the dry season.

The ideal range for water levels in Lake Okeechobee fluctuates through the year between 12.5-15.5 feet, (known as the "Lake Stage Envelope"). See *Figure A-1*. Levels should be within 6 inches of 12.5 feet at the end of the dry season and within 6 inches of 15.5 feet at the end of the wet season. The only limited exceptions to this are when there are extreme weather events. The duration of these exceptions should be minimized as much as possible.

**When Lake Okeechobee water levels rise to 16 feet, damage to the marsh occurs.** At 16 feet, the 50,000-acre submerged marsh community is in deep enough water that plants begin dying from wave action and from the loss of light in the deep, turbid, water. Prolonged deep water eliminates the wildlife-rich wet prairie communities from the Lake, areas needed to support wading bird foraging. Once plant communities are lost, habitat for fish spawning and feeding is lost, which creates a domino effect on the Lake's food chain. Rapidly rising water can drown alligator and bird nests (including Everglade Snail Kites) across the marsh.

**At 11 feet, the marsh is almost completely dry.** The Lake's wetlands benefit from periodic dry-outs in the springtime, but there can be significant harm if the Lake is too low for too long. At 11 ft. or below, the 150,000-acre marsh is almost completely parched, which is linked to massive and long-term crashes in the populations of frogs, amphibians, turtles, snakes, mammals, and other wildlife. Below 11 feet, ancient organic soils on the southern end of the Lake dry, oxidize, and subside, causing permanent harm.

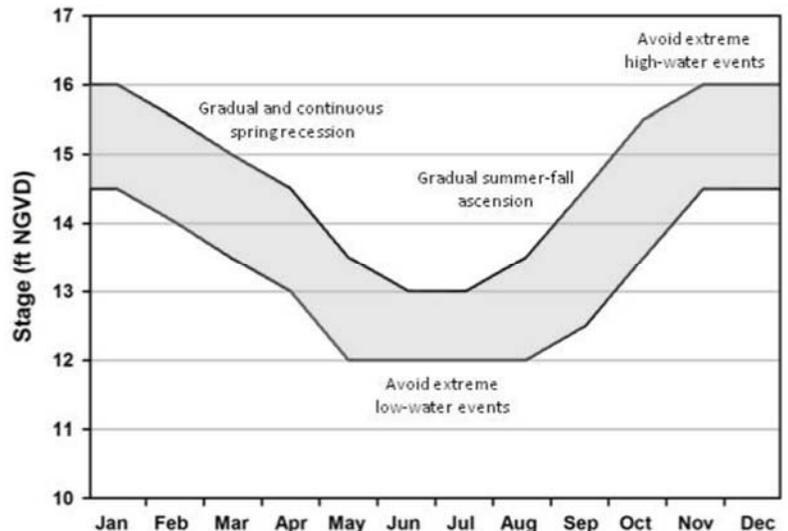


Figure A-1. Lake Okeechobee stage envelope



## Solutions to Improve the Balance of Water Levels for Lake Okeechobee

*When the Lake's levels are off kilter, it is bad for birds, bad for the estuaries, and bad for citizens.* The solution to improving the balance is to store water north of Lake Okeechobee to have more flexibility in water level management. In 2007, the South Florida Water Management District (SFWMD) calculated that restoring the balance in Lake Okeechobee's water levels would require storage capacity in the watershed north of the Lake between 900,000 - 1.3 million acre-feet of water, totaling around 2-3 feet of lake depth.



### Audubon Florida's Five Recommendations:

- ⇒ **Complete Kissimmee River Restoration:** Once complete, this showcase restoration project will add about 100,000 acre-feet of storage potential to the watershed, much of it by raising the levels of Lakes Kissimmee, Cypress and Hatchinehaw another 1.5 feet. The SFWMD should work with the Corps to revise the Kissimmee Chain of Lakes Regulation Schedule to store more water in the restored floodplain.
- ⇒ **Grow Dispersed Water Management and Water Farming in an efficient way:** These SFWMD programs contract with agricultural landowners to store water on private lands. Audubon recommends an engineering reconnaissance study and cost-benefit analysis by the SFWMD to identify need, locations and projected financing for Dispersed Water Management and Water Farming projects.
- ⇒ **Maximize Benefits from the USDA Natural Resources Conservation Service/Wetland Reserve Program:** This program will restore wetlands on lands used for agriculture and increase wildlife and water resource values. Since 2009, USDA has acquired 95,000 acres in conservation easements in Florida. The Fisheating Creek WRP alone has the potential to restore over 23,000 acres of wetlands, which will help normalize the hydroperiod of the marsh and store additional water across this vast area.
- ⇒ **Expand USFWS Everglades Headwaters National Wildlife Refuge:** This refuge will create a network of 100,000 acres of easements and 50,000 acres of fee property acquisition in the Kissimmee Chain of Lakes and Kissimmee Prairie area. Explore opportunities for storage benefits.
- ⇒ **Prioritize Everglades restoration projects that store water and flow water south:** Projects like the C-43 Reservoir provide ecological benefits by storing 170,000 acre-feet of water from the Lake Okeechobee and Caloosahatchee watersheds to reduce reliance on Lake water during the dry season. The C-44 St. Lucie River Reservoir and STA will limit discharges and pollution by storing and treating 50,600 acre-feet of water from the St. Lucie and Lake Okeechobee watersheds. The Central Everglades Planning Project will provide an outlet for 217,000 acre-feet of water to flow south from Lake Okeechobee to replenish the Central Everglades and Florida Bay. Expand other opportunities for storage in the Kissimmee floodplain while protecting habitat for key species, like the Florida Grasshopper Sparrow, Bald Eagle, Wood Stork, Sandhill Crane and Audubon's Crested Caracara.