

The Ocklawaha Chain of Lakes

Improvements seen in area waterways

FAST FACTS

The Ocklawaha Chain of Lakes is located in central Florida near Orlando.

The chain includes Lake Apopka (the headwater lake), Lake Beauclair, Lake Carlton, Lake Dora, Lake Eustis, Lake Griffin (which forms the headwater of the Ocklawaha River), Lake Harris, Little Lake Harris and Lake Yale.

Introduction

Among the bodies of water of the Ocklawaha Chain of Lakes, also known as the Harris Chain of Lakes, is Lake Apopka. This lake — along with, until recently, Lake Griffin — has been considered one of the state's most polluted. Both lakes were historically plagued by phosphorus-laden discharges from farms as well as from sewage and industrial outfalls.

Through the 1940s, Lake Apopka was one of central Florida's main attractions, bringing anglers from throughout the United States to fish for trophy-sized bass. Twenty-one fish camps lined the lake's western shoreline until the lake began its decline in the late 1940s. Lake Apopka's deterioration affected its downstream lakes.

In recent years, efforts by the St. Johns River Water Management District and its partners have resulted in a turnaround in the condition of these lakes. Tangible, possibly long-term results are already being seen.

Background

Decades ago, Lake Apopka and Lake Griffin began to see the effects of nonpoint source pollution (agricultural stormwater runoff) containing high levels of plant nutrients. This overfertilization caused algal blooms, which made the water pea-green and turbid (cloudy).

Shoreline marshes were diked and drained for vegetable farms on the rich muck soils. Excess storm water was pumped into the lakes, carrying high levels of the nutrient

phosphorus. This over-fertilized the lakes, causing algal blooms and producing fine, easily re-suspended sediment.

Dying algal blooms can reduce the water's dissolved oxygen content, causing other organisms to die.

Turbid water shades out healthy aquatic plants, and the soft sediments make healthy plant re-establishment more difficult. These conditions favor increases in rough fish and a decrease in game fish. Rough fish keep phosphorus recycled and re-suspended in the water through their feeding activities and the

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nutrients that they excrete. This process increases as long as nutrient pollution enters the lake.

Accomplishments

The District was directed by the 1985 Lake Apopka Restoration Act and the 1987 Surface Water Improvement and Management (SWIM) Act to find “environmentally sound and economically feasible” means to restore the chain of lakes in cooperation with other state and local governments and resource management agencies.

The improvement plan for these lakes reverses the degradation and starts restoration. Improvements include:

- Removing phosphorus runoff from farms, thus decreasing algal blooms and allowing more light to reach the lake bottom
- Planting beneficial vegetation in appropriate areas
- Fluctuating lake levels to encourage natural establishment of desirable vegetation, which helps to stabilize sediments and improve water clarity
- Constructing marsh flow-ways to filter suspended sediment and phosphorus from circulated lake water
- Harvesting rough fish, thus reducing phosphorus recycling and re-suspension in the water from their feeding activities

The District, working with the state and the federal government, obtained funds to purchase the farms on Lake Apopka and Lake Griffin in the early and mid-1990s.

Lake Apopka began to show modest improvements in water quality starting in 1995. By 2003, the lake demonstrated an approximate 30 percent reduction in total phosphorus, a

26 percent improvement in water clarity, and continuous improvements in total nitrogen, chlorophyll *a* (a measure of algae) and water transparency.

Lake Griffin showed improvements in water quality in the spring of 2000 and then significant and sustained improvements in water quality starting in spring, 2002.

To date, the improvements in Lake Griffin and Lake Apopka represent significantly better water quality than long-term averages. It is not yet known how robust the long-term effects of these improvements will be, as the recent three-year drought is a confounding factor in interpreting the recent data. Improvements have, however, persisted longer and represent better conditions than previously anticipated.

Lakes Beauclair, Dora and Eustis have also shown stable or slightly improving trends.



Emeralda Marsh, adjacent to Lake Griffin, is a popular haven for wildlife.

