

# **Leon County Lakes Ecology**

## **Bradford Brooks Chain of Lakes**

Lake Hiawatha, 2003

McGlynn Labs Inc.



### 5.3.1: Bradford Brooks Chain of Lakes

Location: Munson Sandhills

Drainage Basin: Bradford-Brooks, 3000 acres

Lake Bradford: 193 acres

Lake Hiawatha: ~40 acres

Lake Cascade: 109 acres

Number of Stations: 3

Duration of monitoring: 07/01-06/06

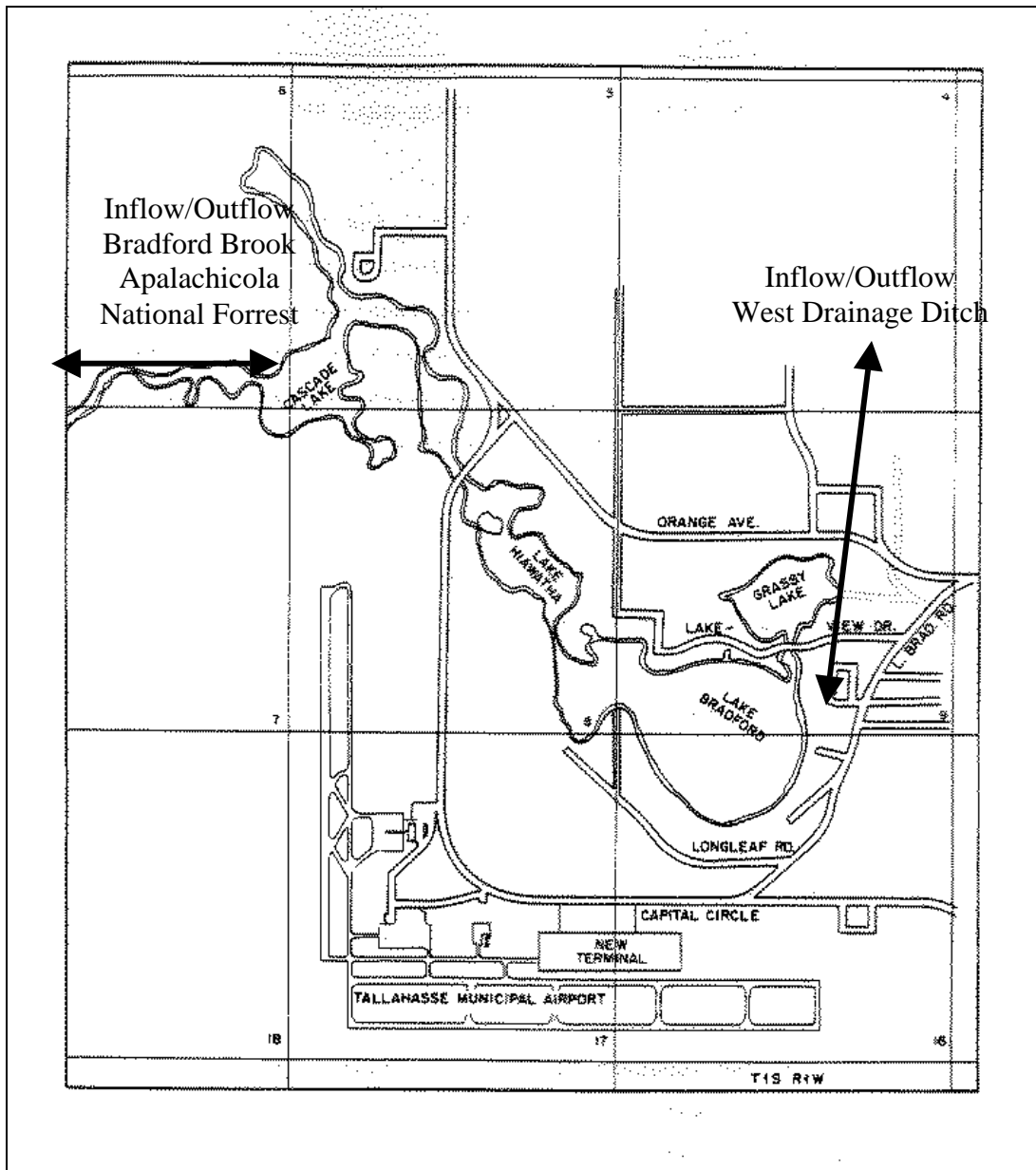


Figure 5.3.1.1: Inflow/Outflow areas in the chain of lakes, characterized by flow reversal

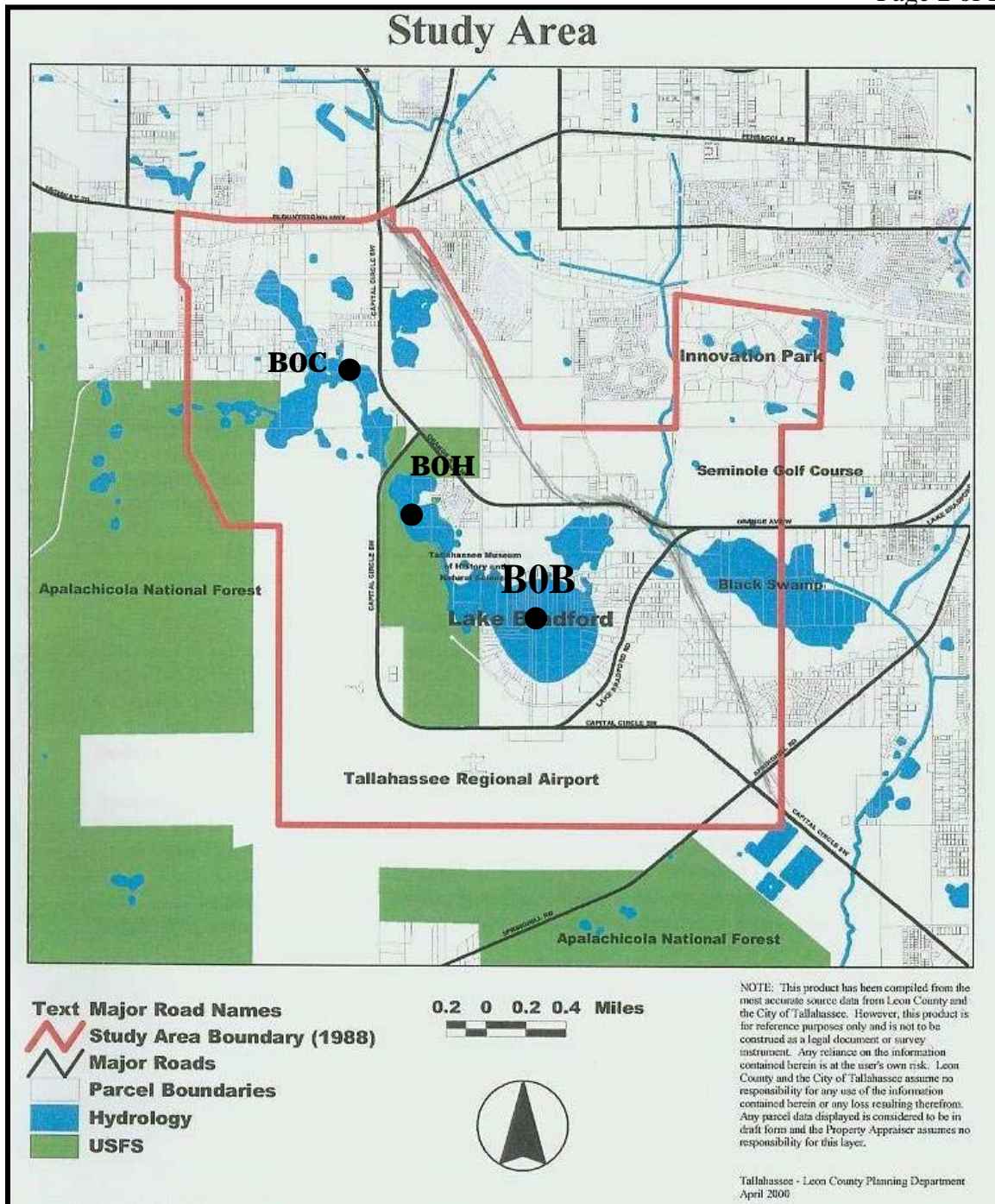


Figure 5.3.1.2: Sampling stations in the Bradford Brooks chain of lakes

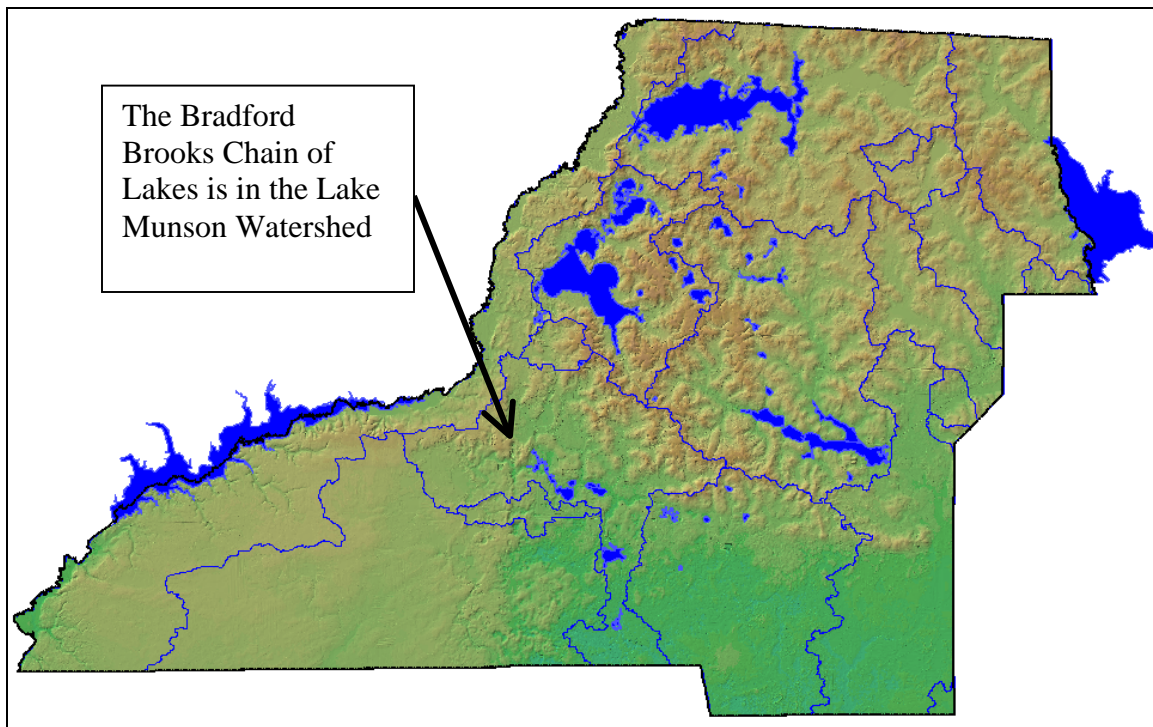


Figure 5.3.1.3: Map by Greg Mauldin, Tallahassee-Leon County GIS

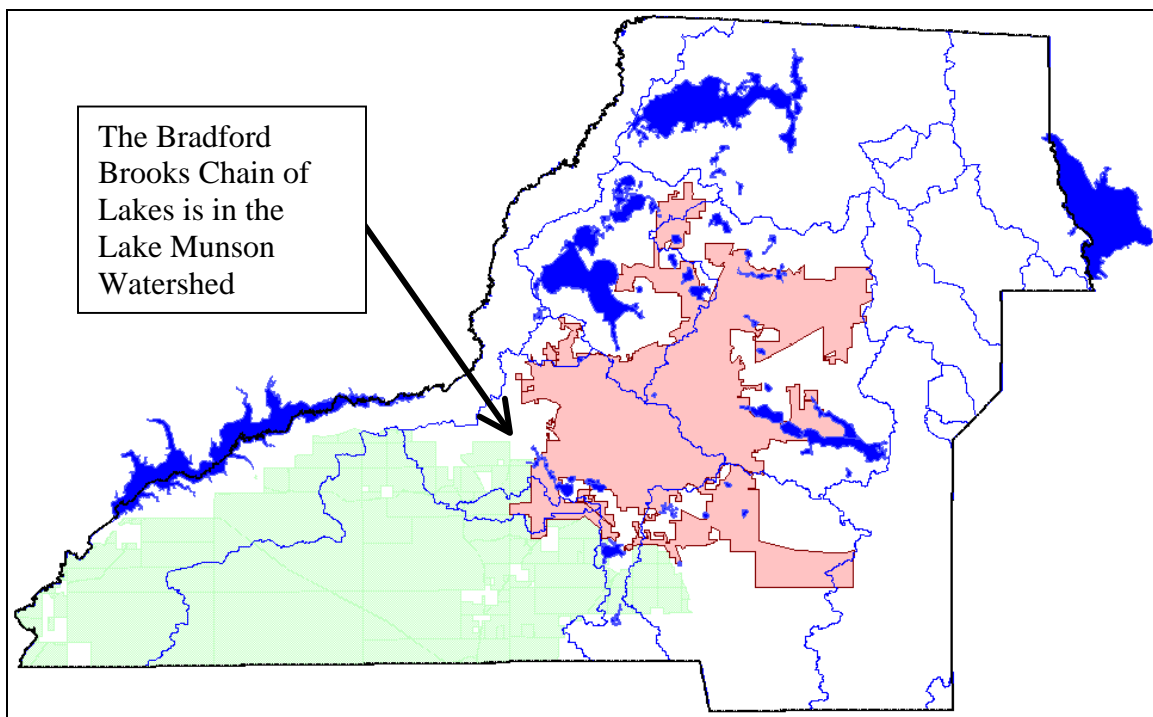


Figure 5.3.1.4: Map by Greg Mauldin, Tallahassee-Leon County GIS





**Figure 5.3.1..5:** Lake Cascade looks much the same today as it did in 1900.



**Figure 5.3.1..6:** A postcard from the 1930s depicting Lake Bradford. It has not changed much.



**Figure 5.3.1..7:** Two sinkholes in Lake Cascade (1932).

The Bradford Brooks chain of lakes is a dynamic chain of lakes surrounded by magnificent cypress trees. This chain of lakes is connected to the aquifer by sinkholes. Lakes Bradford, Cascade, and Hiawatha are the largest lakes in the Bradford Brooks chain of lakes, and are important recreational areas. All of these lakes are great for canoeing and kayaking. The Seminole Reservation, a recreational area for FSU students, is located on Lake Bradford and features boating and swimming as well as being the home of the FSU Water Skiing Team. The Tallahassee Museum of Natural History is located on the finger connecting Lake Bradford to Lake Hiawatha, where it features native Florida wildlife as well as an authentic frontier Florida farm, the home of Princess Murat, and other notable exhibits.

In 2002 Capital Circle, the main access road to the Tallahassee Regional Airport, that is located south and west of the chain of lakes, was moved to lessen impacts to these lakes. At this time water quality monitoring was initiated at the request of Leon County Commissioner Jane Sauls.

The waters of these lakes are very dark, or tannic. The cypress trees lining the shore cause the dark color of the water. When their needles fall into the water, the water leaches out the tannins contained in the leaf causing the water's dark color. The pH of the water is usually less than five.

Lake Cascade has an active group of sinkholes, and has drained many times. In recent years Lake Cascade has emptied and refilled in 1990, 1992, 1999, 2000 and 2001. The twin sinks in Lake Cascade look much the same today as they did at the turn of the century. Lakes Bradford and Hiawatha have had active sinks in the past, but they were inactive during the drought of 1999. The Lake Bradford sink was active in 1956 when it drained the lake, and the fish population became stranded in the sinkhole. Local officials killed the fish with rotenone, (a toxin harmless to humans) so that they could be collected for food.



**Figure 5.3.1..8:** Sinkhole in dry Lake Bradford photographed in 1955 by Red Kerce.

Water normally flows in and out of Bradford Brook from the national forest. This is a well-preserved natural area and these lakes are usually very clean, having the lowest TSI's in Leon County. However, Lake Bradford periodically receives stormwater from the West Drainage Ditch from Tallahassee. This water comes from Grassy Lake, which receives water from the West Drainage Ditch. Water enters Lake Bradford through a ditch that connects the two lakes. There is a valve on this ditch that is supposed to prevent water from flowing into Lake Bradford, but does not always function properly. Lake Cascade also gets runoff from Capitol Circle. Lake Hiawatha is the most secluded and isolated of these lakes.

In early 2001 the chain of lakes was four feet below normal water level. Tropical Storm Allison filled the lakes in June 2001. This water was quite dirty and flowed from the West Drainage Ditch through Grassy Lake, and filled Lake Bradford with urban stormwater. The normally tannic water cleared and the acidic waters turned alkaline. A lake-wide nuisance algal bloom persisted for several weeks. Swimming activities at the Seminole Reservation were curtailed due to the water conditions. Gradually tannic waters from the Apalachicola National Forest predominated, and the lake recovered.



In July 2006 The Bradford Brooks Chain of Lakes went dry again. It had been full for several years, unlike Lake Jackson did not refill completely since 1999. The sinkhole which drains the lakes is in Lake Cascade which is also the source of clean water to the lakes from the Bradford Brook. The only connection from Lake Cascade to the rest of the chain is through a small box culvert. This slough system needs to be protected.

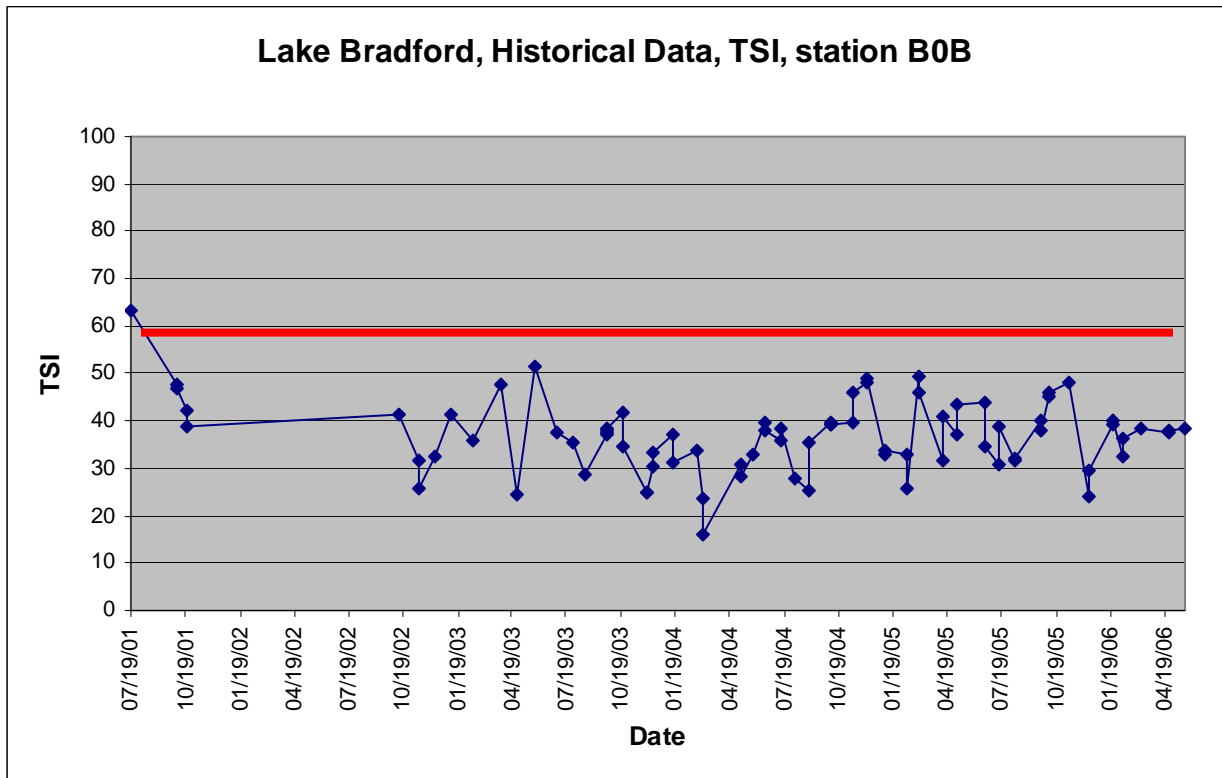


**Figure 5.3.1.9:** The two sinkholes in Lake Cascade (July, 2006).



**Figure 5.3.1.10:** Cypress Trees in dry in Lake Cascade (July, 2006).





**Figure 5.3.11:** Bradford Brooks Chain of Lakes, Lake Bradford, Station B0B

**Bradford Brooks Chain of Lakes,  
Lake Bradford,  
Station B0B,**

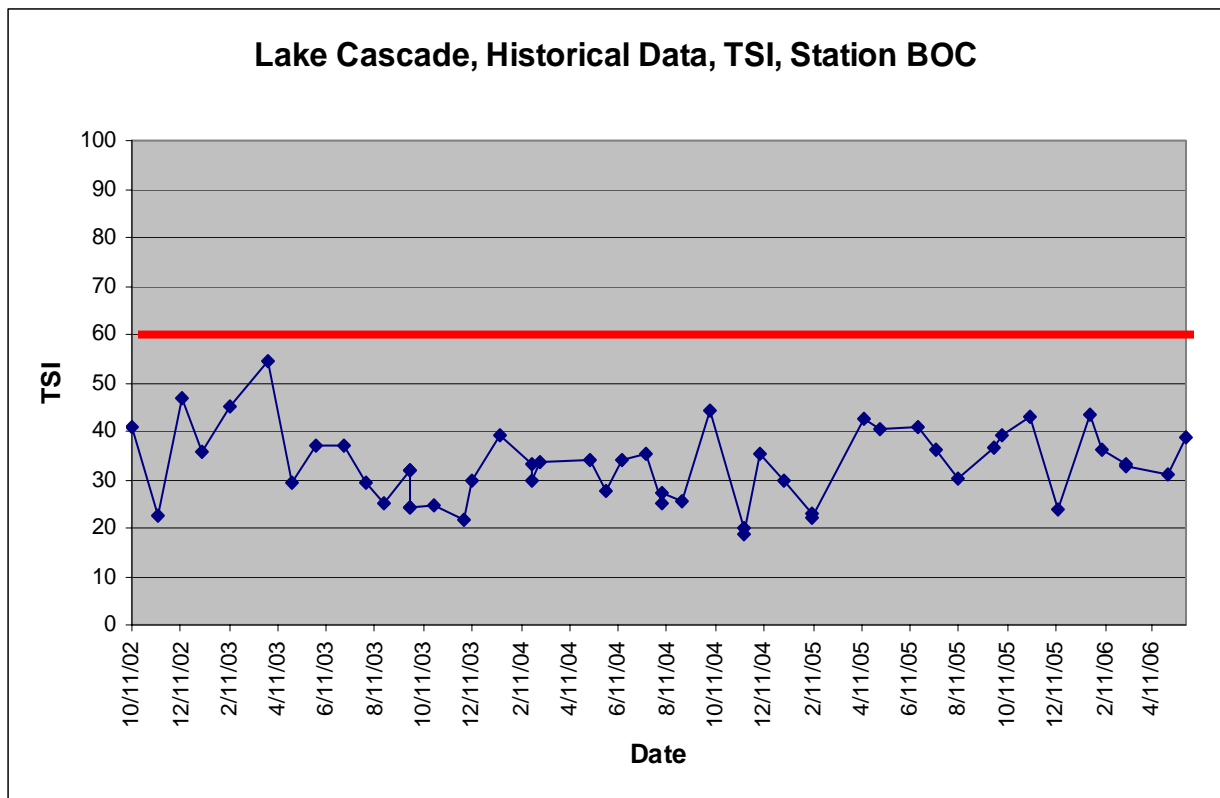
Tannic lake,

According to FDEP criteria this lake would be impaired at TSIs greater than 60 units,

Data source LCL Data (McGlynn Laboratories Inc).

Data duration 07/01-06/06

**\*Result: not impaired and holding steady.**



**Figure 5.3.1.12: Bradford Brooks Chain of Lakes,  
Lake Cascade,  
Station B0C,**

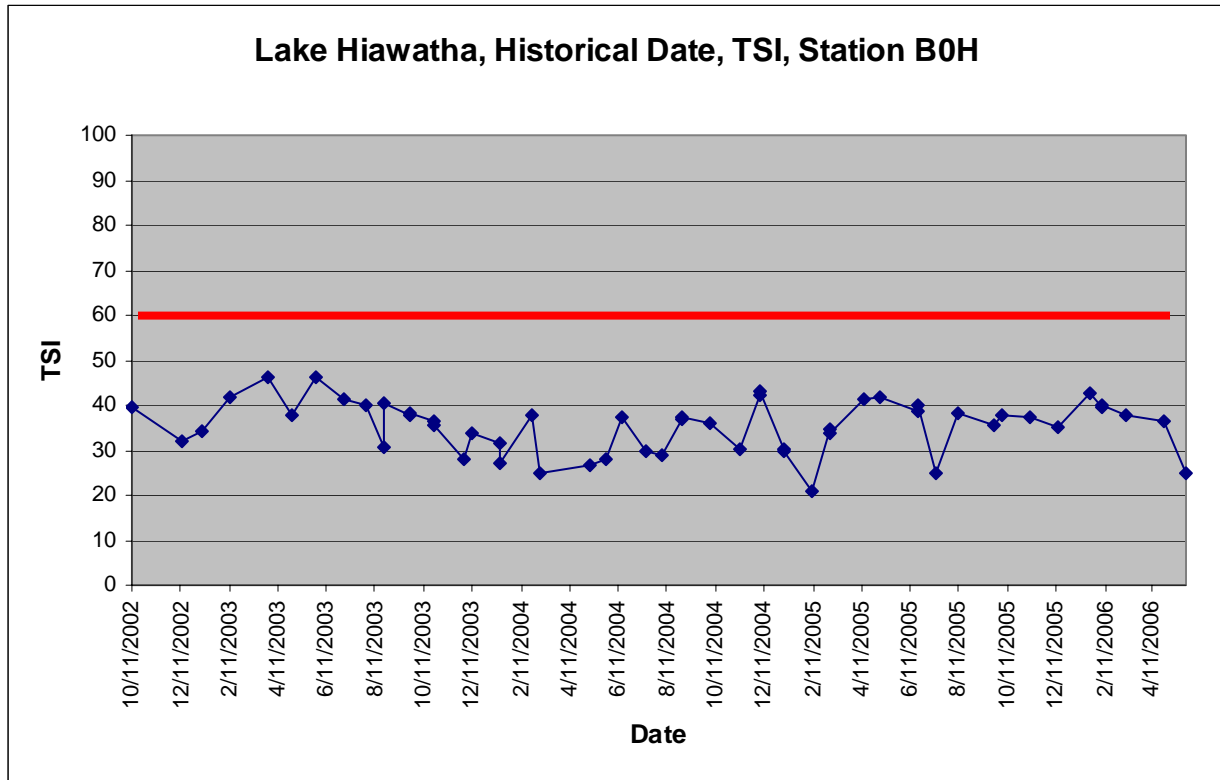
Tannic lake,

According to FDEP criteria this lake would be impaired at TSIs greater than 60 units,  
Data source LCL Data (McGlynn Laboratories Inc).

Data duration: 10/02-06/06

**\*Result: not impaired and holding steady.**





**Figure 5.3.1.13: Bradford Brooks Chain of Lakes,  
Lake Hiawatha,  
Station B0H,**

Tannic lake,

According to FDEP criteria this lake would be impaired at TSIs greater than 60 units,  
Data source LCL Data (McGlynn Laboratories Inc).

Data duration: 10/02-06/06

**\* Result: not impaired and holding steady possibly improving.**