South Florida Water Management District North Shore Lake Okeechobee Navigation Lock Operation Criteria

The South Florida Water Management District (SFWMD) operates navigation locks on the north shore of Lake Okeechobee to provide the greatest lake access possible for the boating public. Change from the historical operations of the North Shore Lake Okeechobee Navigation Locks has become necessary during periods of declining water levels within Lake Okeechobee. Historically, locks could be placed in an "open position" for a portion of the year. Due to a lowering of the Lake Okeechobee regulation schedule that increases the instances of low lake stages and the installation of manatee protection sensors, locks can no longer be operated without a locktender present.

As the level of Lake Okeechobee approaches 12.0 ft. NGVD and lower, the SFWMD will close navigation locks along the lake's north shore to boat traffic:

- To prevent damage to manatee protection devices inside the lock chamber
- To maintain water levels in adjacent canals
- To protect groundwater availability
- Because water levels within the lake may prevent boat access to the lock chamber at levels lower than 12.0 ft. NGVD

The navigation locks affected by these operational criteria are:

- S-135 at J&S Fish Camp, Martin County
- G-36 at Henry Creek, Okeechobee County
- S-193 at Taylor Creek , Okeechobee County
- S-127 at Buckhead Ridge, Glades County
- S-131 at Lakeport, Glades County

Table 1: North Shore Lake Okeechobee Navigation Lock Operation Criteria

Structures	Lake Level in Feet NGVD (1929)			
	Normal Operation (Locktender present)	**Weekend Only Operation** (Locktender present – Saturday and Sunday, 5:30 a.m. until 10:30 p.m.)	**Closed** (No Locktender)	**Re-open (rising levels)**
S-135	>12.00	-	12.00	12.5
G-36	>12.00	-	12.00	12.5
S-193	>12.00	12.00-11.00	11.00	11 (and rising)
S-127	>12.00	-	12.00	12.5
S-131	>12.00	-	12.00	12.5

The navigation locks are part of the Central and Southern Florida Project that provides flood control for the region. They were designed at the request of the SFWMD to provide Lake Okeechobee access through the Herbert Hoover Dike. The design of the locks was based on the premise that Lake

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Okeechobee water levels would be much higher than current conditions permit. The U.S. Army Corps of Engineers Master Water Control Manual, Vol. 3 indicates the navigation locks operated and managed by the SFWMD are secured in the open position ("open pass") with no locktender on duty when water levels in Lake Okeechobee reach specific levels ranging from 14 ft. NGVD to 13.5 ft. NGVD. However, the practice of "open pass" is no longer feasible for the following reasons listed here and explained in greater detail in the remainder of this document:

- The U.S. Army Corps of Engineers' Lake Okeechobee Regulation Schedule (LORS) 2008 was developed to address Hebert Hoover Dike (HHD) safety while balancing other project purposes, such as water supply and navigation. As a result, operations strive to obtain at least a low water level of 12.5 ft. NGVD by May each year.
    - To achieve the lower level and reduce the likelihood of high lake water levels, the lake is more likely to move quicker through the range of 12-14 ft. NGVD than it did historically. If there is below average rainfall, the lake will continue to decline.
    - Historically, the lake may have remained within a range of 13-14 ft. NGVD for longer periods of time without a steep recession because HHD safety was not driving lake management as it is under LORS 2008.
- Manatee sensors are now a requirement for navigation locks, while they historically were not.
- Rim canal water levels fluctuate due to wind, waves and boat wakes. This water level fluctuation can cause damage to aging seawalls and erosion of canal banks.

SFWMD addresses these changes by having a locktender present until levels recede to the levels indicated in Table 1.

The primary purpose of LORS 2008 was to lower the lake to reduce the risk of high stages that would adversely impact the stability of the Herbert Hoover Dike. An analysis of the LORS modeling shows that both the frequency and duration of low water events in Lake Okeechobee will increase substantially. It is likely that in future years, unlike the past when the lake was managed higher, there will be a period during most years when lock closures will be required. The winter and spring of 2010 is an example of a year when above normal rainfall resulted in the lake staying above 13.5 ft. NGVD, and lock closures did not occur. The winter and spring of 2011 is an example of a year, due to lower than normal rainfall, when lake levels remained below 12.0 ft. NGVD from March until October and lock closures were required.

West Indian manatees in the United States are protected under federal law by the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973. As a result, the SFWMD is required to provide protective measures for the manatee. This protection is achieved through the installation of sensitive manatee protection devices in the chamber floors of navigation locks with vertical lift gates, changing the invert elevation from 8 ft. NGVD to 8.5 ft. NGVD. When the level of Lake Okeechobee is lower than that of adjacent canals, wind can push water through open navigation locks to the south rapidly, creating extremely low water situations in canals, particularly when the level of Lake Okeechobee is lower than adjacent canals during the dry season. This rapid fluctuation of water levels can lower the water level and expose the manatee sensors when boats are passing through the locks, resulting in costly damage to the sensors and locks being removed from operation during repair or replacement of the devices.

In addition, low water levels pose problems for groundwater recharge and for boat owners in the canal systems who cannot get boats out of muddy canals or lower boats from boat houses. Low water levels also create rapid growth of vegetation on exposed canal banks that is costly to dispose of and the potential for failure of seawalls.

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Boating access to the lake will continue to remain available along the north shore at public boat ramps located inside the Herbert Hoover Dike when water levels decline below 12.0 ft. NGVD.

When water levels in Lake Okeechobee are increasing and have stabilized at or above 12.5 ft. NGVD, navigation locks will resume operation. The exception is S-193, which will resume operations once the lake increases to 11.0 ft. NGVD and is rising.

In general, the S-310 navigation lock at Clewiston is not impacted by low water conditions in Lake Okeechobee.

Navigation locks on the Okeechobee Waterway are operated by the U.S. Army Corps of Engineers. On the Caloosahatchee River, there are established criteria for low water conditions that are based on salinity levels at S-79. Navigation locks on the St. Lucie Canal portion of the Okeechobee Waterway are not affected by low water conditions, although low levels in Lake Okeechobee may prevent most boat traffic through the lake along the Okeechobee Waterway.

Hours of operations are listed in Table 2.

Table 2: North Shore Navigation Lock Schedule of Operation

LOCK	HOURS OF OPERATION
S-135	Oct 1 - Apr 30: 5:30 AM - 8:30 PM May 1 - Sep 30: 5:30 AM - 9:00 PM
S-193	Dec 1 - Apr 30: 5:30 AM - 10:30 PM May 1 - Nov 30: 5:30 AM - 9:00 PM July 4: 5:30 AM - 11:00 PM
G-36	Oct 1 - Apr 30: 5:30 AM - 8:00 PM May 1 – Sep 30: 5:30 AM - 9:00 PM
S-127	Oct 1 - Apr 30: 5:30 AM - 8:00 PM May 1 - Sept. 30: 5:30 AM - 9:00 PM
S-131	Oct 1 - Apr 30: 5:30 AM - 8:00 PM May 1 - Sep 30: 5:30 AM - 9:00 PM

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