Lake Okeechobee and the Herbert Hoover Dike

Facts & Information

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Lake Okeechobee, the nation's second largest freshwater lake and the largest lake in Florida is the heart of the Kissimmee-Okeechobee-Everglades system. The original lake was likely filled with salt water, which was eventually replaced by freshwater from rainfall. Water flowed from the Kissimmee basin into Lake Okeechobee. Today, the lake provides drinking water for communities around the lake and to the more than 6 million people living along the lower east coast. It serves as a source of irrigation for a $1.5 billion-a-year agricultural industry that produces sugar cane, winter vegetables, citrus and rice.

Historical Background

In the early 1900s, local governments and residents built up the lake's natural embankments with sand, shell, muck and marl. By 1927, six large drainage canals and numerous smaller canals totaling 440 miles had been constructed. Despite these actions, hurricane winds in 1926 and 1928 caused the lake's waters to quickly overwhelm its shallow edge. This flow resulted in massive flooding and the loss of many lives. To help prevent a repeat of this type of disaster, the U.S. Army Corps of Engineers (Corps) was asked by Congress to build a taller dike. It would protect the areas from Port Mayaca to Moore Haven and from the Kissimmee River to Nubbin Slough.

In 1947 and 1948, two more hurricanes passed directly over Lake Okeechobee, causing massive flooding. Although the levees had done their job in that no lives were lost, the need for better flood protection was evident. To increase protection of peoples' lives, their property and the prosperous agricultural industry located south of the lake, the Corps enhanced the existing dike. Completely encircling the lake and raising the existing levees, one of the levee's primary purposes was to provide full protection during severe hurricanes. In 1960, Congress named the levee Herbert Hoover Dike (HHD).

Pump Station on Lake Okeechobee – September 2005

The Dike

The dike was built with gravel, rock, limestone, sand and shell—a design that was state-of-the-art in the 1930s. These natural materials allow water to trickle through at times. This is a normal process called seepage. When the water level in the lake is too high, the water pressure causes extra seepage and erosion, or piping. When the water level is too low, the soil dries out and that changes the structure. Neither extreme is good, so the lake levels are monitored closely.

Making it Better and Stronger

Managing and Monitoring Lake Okeechobee and Herbert Hoover Dike

Together, the Corps and the South Florida Water Management District manage the lake according to a regulation schedule. The schedule allows the lake to be managed at a low level at the beginning of the wet hurricane season to a higher level by the end of the wet season. A low lake level provides storage capacity for wet season rainfall. Higher lake levels provide water supplies to the environment and the people. The schedule has been developed over time to meet the many demands for the lake's water. It also provides water managers with the authority to determine when and in what amounts water is to be released from the lake. For the optimum health of the lake and use of its water, water managers try to maintain the levels between 12.5 and 15.5 feet, not too high and not too low. Recent hurricane seasons, however, created higher than desirable water levels, raising residents' concerns about the stability of the HHD in extreme weather conditions.

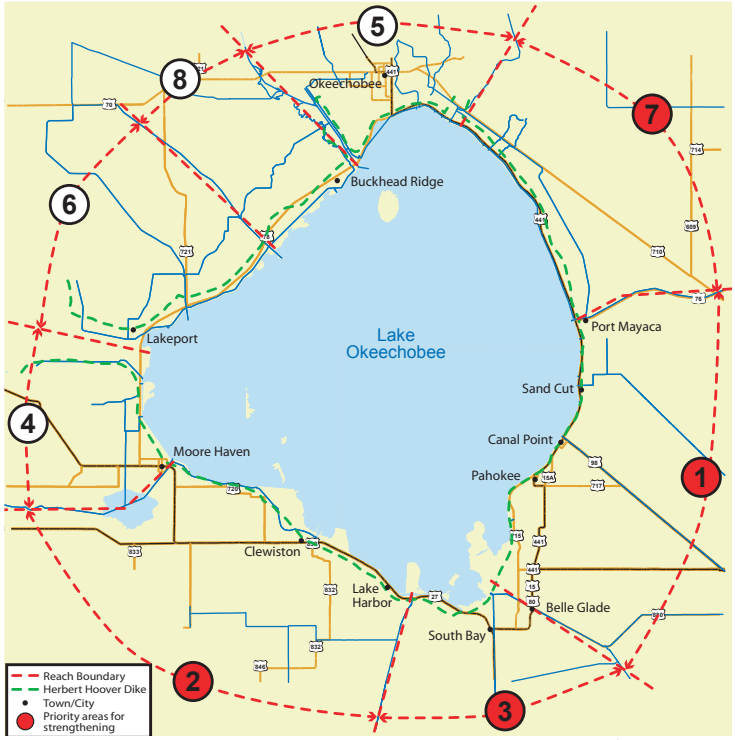
Water levels and the condition of the dike are monitored on a regular basis. Prior to a tropical storm, the dike is inspected and outlets are closed until after the storm. Once weather conditions permit, typically within 48 hours after a storm, the dike is inspected again.

Assembled gabions and rock piles for repairs.

Stored in different areas around the lake are sandbags, stone, rock and other materials that can be used to make repairs or strengthen areas that may have become eroded by the force of hurricane-driven waves.

Emergency Action

If a weakened condition is observed, the Corps' Emergency Action Plan would be activated. This plan includes a formal notification process that proceeds in rapid order from the federal government, to the state, to the county Emergency Operations Centers. The counties surrounding the lake would notify residents of any actions, such as evacuations that should be taken.



HHD rehabilitation reach boundaries identifying reaches 1, 2, 3 and 7 as the priority areas for strengthening.

Rigorous analysis has shown that a major rehabilitation of HHD is required to prevent harmful seepage which could undermine the dike structure. The dike is divided into eight areas, or reaches, for purposes of the rehabilitation. The first part of this project, currently underway, focuses on Reach 1, spanning 22.4 miles from Port Mayaca to the Hillsboro Canal in Belle Glade.

The U.S. Army Corps of Engineers and the South Florida Water Management District are committed to maintaining Florida's fragile balance between the needs of people and the conservation of the state's unique wildlife and water environments. Herbert Hoover Dike plays an important role in helping us to keep that commitment.

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