



# United States Department of the Interior

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## **Low Water Levels Present Challenges and Opportunities for Santee National Wildlife Refuge**

Summerton, S. C.....Is Lake Marion half empty or half full? Like so many things, it all depends on your perspective. Sustained drought conditions throughout the Southeast are affecting residents from Georgia to North Carolina and have also resulted in water levels well below normal in most of the State's waterways. Normal lake level in Lake Marion for this time of year is 74.9 feet and the current level is below 68.5 feet, more than six feet below normal. The high water mark or "full pool level" for Lake Marion is 76.8 feet above sea level. As bad as we might think it is now, it has been worse. Although most folks use the extended drought that ended in the latter part of 2002 as a prominent benchmark for drought, the lowest recorded Fall water levels in Lake Marion occurred in 1956 when the lake was down to 64.65, more than twelve feet below full pool.

A severe drought declaration was made on September 5, 2007 for all counties except Beaufort and Jasper by the South Carolina State Climatology Office. The ongoing drought affects lake levels in two major ways. Dry conditions upstate reduce natural flows into Lake Marion and utility producers upstream do not have water to release into Lakes Marion and Moultrie because they are under the same drought conditions. Significantly reduced inflows into Lake Marion from the Congaree and Wateree rivers, and from the 15,000-square mile watershed that extends into North Carolina, have resulted in levels on both Lakes Marion and Moultrie not seen since the early 1950s. Although localized rain is important, significant rainfall in the upper portion of this drainage that extends into the Blue Ridge Mountains of North Carolina is even more critical to ending the drought. These areas are also under extreme and exceptional drought conditions.

Drought conditions present both challenges and opportunities for natural resource management on Santee National Wildlife Refuge. On the one hand, current water levels are too low to allow refuge staff to pump water from the lake into refuge impoundments managed as feeding and resting sanctuaries for wintering migratory waterfowl. Reasonable rainfall accumulations in the next several weeks will allow us to maintain shallow marshes and impoundments with clay bottoms. It's not so easy to keep water in other impoundments because their sandy bottoms allow the water to seep out.

On the other hand, the refuge is trying to make lemonade out of lemons by taking advantage of low water levels to get in areas not normally accessible to mow in several ponds and floodable sites and clear ditches of invasive and overgrown vegetation that block the flow of water. Other projects more easily accomplished during low water include clearing and maintenance of dikes and water control structures and chemical treatment to control invasive and exotic plants. For example, the refuge in partnership with Santee Cooper, was recently able to chemically treat invasive plants (i.e. water hyacinth, alligator weed, cattail, water primrose, white marsh, etc.) in several wetland sites on the Pine Island, Cuddo and Bluff units. We are taking advantage of all opportunities as they become available, including prescribed burning areas that are usually wet this time of year.

Other positive impacts of lowered water levels and exposed mud flats are increased use by shorebirds like yellowlegs and sandpipers. The low water and shallow pools also provide a mecca for great blue herons, egrets and other wading birds. During the summer, as many as 130 endangered

wood storks were often spotted on the refuge. An abundance of freshwater mussels along exposed shorelines have also provided a veritable feast for raccoons, opossums, alligators, and other wildlife.

A recurring history of drought periods is part of the natural hydrology cycle. Wetlands depend on fluctuations to enable them to periodically dry out. It is not healthy for most areas to artificially remain wet all the time and they need seasonal fluctuations. Although prolonged dry periods have severe immediate impacts, these droughts do serve a function in the overall ecology of the landscape. When the hydrology of Lake Marion cycles to dry, sediments in the bottom of the lake and nearby wetlands are allowed to rejuvenate. When the bottoms dry out, the soft organic muck materials break down and the firmer surface is better suited for rooting of new plants. Seeds that have been inundated with water are now able to germinate, grow and complete their life cycle. Nutrients once confined to organic muck are now available to plants growing on newly formed land. The prolific sprouting of vegetation in these dry bottoms is a good thing for the lake and the migratory birds that will later use these areas when the water returns. Seed banks in these exposed areas sprout even more new vegetation when flooded. These food sources will be extremely valuable to migratory ducks and geese wintering on the refuge. The cycle is one of rejuvenation, something that plants and animals are adapted to.

However, the reality is that ducks and geese will soon arrive in this area looking for food and sanctuary to get them through the winter before they begin their journeys back to nesting grounds in the North and the number of acres of flooded foraging habitat available on Santee National Wildlife Refuge will be significantly reduced. Another factor that influences waterfowl migration is the weather conditions in northern states. Mild winters don't push ducks south into the state and we may expect fewer ducks if mild conditions linger into the winter. But, some ducks and geese will invariably migrate and winter in South Carolina.

Where will they go? Most likely, waterfowl will be attracted to nearby existing water areas (i.e., farm ponds and shallow areas of the lake). We may witness a phenomenon seen in many other states but not in South Carolina where ducks, geese, and swans use dry agricultural areas for feeding sites. On the refuge, a number of wetlands still holding a few inches of water will be available to a variety of puddle ducks (Northern pintails, American widgeon, mallard, green-winged teal, wood duck, etc.). There are also the designated waterfowl sanctuary areas in Cantey Bay, Pine Island and the Cuddo Unit, where preferred shallow water conditions persist. We are already seeing ducks use these areas.

Diving ducks such as ring-necked ducks, scaups, canvasbacks, and redheads could possibly have fewer options on the refuge and may be attracted to deeper water areas within the refuge and on the lake. Refuge staff expect that duck and geese numbers in areas normally flooded will be reduced from previous years. If sheet water conditions in refuge areas like Cantey Bay and Savannah Branch can be maintained, it is entirely feasible that large numbers of waterfowl can find sanctuary in these areas.

The refuge still plans to continue our post season migratory bird banding operations in February if the number of waterfowl using the area is stable and water levels are sufficient.

Call Santee National Wildlife Refuge at 803-478-2217 to obtain additional information or to learn about wildlife observation and public use opportunities on the refuge. National Wildlife Refuges protect some of our nation's most unique, spectacular and truly wild places. Learn more about your National Wildlife Refuge System by following the links from <http://refuges.fws.gov> to find information on your favorite refuge destination.

The U.S. Fish and Wildlife Service is the principal Federal agency responsible for conserving, protecting and enhancing fish, wildlife and plants and their habitats for the continuing benefit of the American people. The Service manages the 96-million-acre National Wildlife Refuge System, which encompasses 547 national wildlife refuges, thousands of small wetlands and other special

management areas. It also operates 69 national fish hatcheries, 63 Fish and Wildlife Management offices and 81 ecological services field stations. The agency enforces federal wildlife laws, administers the Endangered Species Act, manages migratory bird populations, restores nationally significant fisheries, conserves and restores wildlife habitat such as wetlands, and helps foreign governments with their conservation efforts. It also oversees the Federal Assistance program, which distributes hundreds of millions of dollars in excise taxes on fishing and hunting equipment to state fish and wildlife agencies.

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