

Groundwater

The abundance of Florida's surface water is obvious, with ocean on three sides and a plethora of lakes. This is particularly notable to the visitor traveling to Florida by air. It is not surprising then to find that Florida also has more available underground or ground water than any other state. It provides the majority of water to Florida households. At New Smyrna Beach, just north of Canaveral National Seashore (CANA), 19 public wells (averaging 240 feet deep) produce over 7.7 million gallons of water per day.

Recent studies have shown that groundwater may be an important influence on water quality in Mosquito Lagoon. Ground-water seepage rates were measured at nine transects in the lagoon and found to be quite high. Near the eastern and western shores, seepage rates ranged from 1,000 to more than 2,000 milliliters per square meter per hour. In the central portion and near Haulover Canal, seepage rates were between 500 and 1,500 ml/m²/hr. Pollutants contained in the groundwater may be impacting overall water quality of the lagoon. Little is known about the quality of groundwater inputs. Further study is needed if the complex hydrology of Mosquito Lagoon, including potential threats to water quality, is to be understood.

Groundwater at CANA is contained in three aquifer systems, which from the shallowest to the deepest are the surficial, intermediate and Floridan. The Floridan is called Florida's rain barrel and provides much of Florida's well water. It is composed of a system of limestone and dolomite beds, which underlies the entire state of Florida and coastal areas of Alabama, Georgia, and South Carolina, an area of about 82,000 square miles. Its depth varies considerably; under northern Mosquito Lagoon it can be found 23 meters below sea level while in southern Brevard County, the top of the aquifer lies at a depth of 61 meters. At CANA it is recharged by rainwater seeping down through ridges north and west of the lagoon.

The surficial aquifer is less extensive than the Floridan. It consists of approximately 50 to 100 feet of sand, shell, and clay sediments, including coquina. Precipitation is the primary source of recharge. Upward leakage from the Florida Aquifer can be a factor as well. It is tapped for well water where the Floridan Aquifer is quite deep or non-potable, as is the case in some areas around Mosquito Lagoon.

The intermediate aquifer is also called the intermediate confining layer because of its limited permeability. It is made up of clay and limestone, with some interspersed layers of sand and shell. In many areas it serves as a barrier between the Floridan and surficial aquifers. However, beneath Mosquito Lagoon it is relatively thin, being only about 15 to 30 meters thick, which allows the Floridan Aquifer to discharge into the surficial. Hence, Mosquito Lagoon receives discharge from the Floridan and surficial aquifers, making both important influences on water quality in Mosquito Lagoon.