

Aquifer Mapping Project

Use information from the “Aquifers of Florida” text and the provided maps to identify the various locations of Florida’s aquifer systems.

The color key will be used to build a layered map, showing the correct location of the following aquifers of Florida: Floridan, Biscayne, and sand and gravel aquifers.

Color key

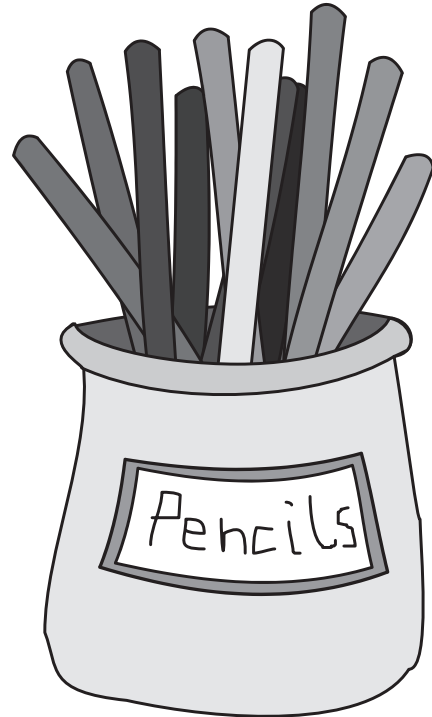
- Floridan = yellow
- Biscayne = green
- Sand and gravel = red

Additional materials

- Colored pencils

Directions

1. Pencil in the outline of the Floridan aquifer on the map of Florida and its surrounding states. Use colored pencils to color it in, according to the key above.
2. Next, pencil in the outline of the Biscayne aquifer. Color it in, according to the key.
3. Then, pencil in the outline of the sand and gravel aquifer, and color it according to the key.
4. Label each of the aquifers.



Aquifers of Florida

Aquifers are underground reservoirs where water is stored. They fill up from rainwater that filters down through sand and soil. After the sand cleans the water, it reaches a confining layer of clay or limestone. Spaces in the rock hold the water until a well is drilled to bring the water to the surface, or until it bubbles up through holes in the surface and becomes a spring. Because most of the water we use in Florida (90 percent) comes from under the ground, it is important to understand the importance of conserving and protecting this valuable resource.

The Floridan aquifer system is located under all of Florida, southern Alabama, southeast Georgia, and southern South Carolina. It provides water for many large Florida cities, such as Jacksonville, Orlando, Tallahassee, and St. Petersburg. In addition, many smaller communities and rural areas get their freshwater from this aquifer.

Along some areas of Florida's coast and in some interior regions, salt water is found in the Floridan aquifer. Some of the salt water is withdrawn and converted to freshwater by desalinization plants that remove the salt from the water. Due to this salt water, most people in southeastern Florida use either the Biscayne aquifer or surface water as their source of drinking water. Pipes carry freshwater for use in the Florida Keys.

Limestone and dolomite make up the Floridan aquifer. Some areas of rock are thicker than others and form various layers in the aquifer. In most places, the Floridan aquifer system is made up of three parts: the Upper Floridan aquifer, the middle confining unit, and the Lower Floridan aquifer. The middle part helps control the movement of groundwater between the Upper and Lower Floridan aquifers. Sand, clay, limestone, and dolomite can be found in the middle confining layer.

These materials allow different amounts of water to pass through. Thickness of the Upper Floridan aquifer varies from a few feet in some parts of west-central and north-central Florida to hundreds of feet in southeastern Georgia, northeastern Florida, southeastern Florida, and the westernmost part of the Panhandle.



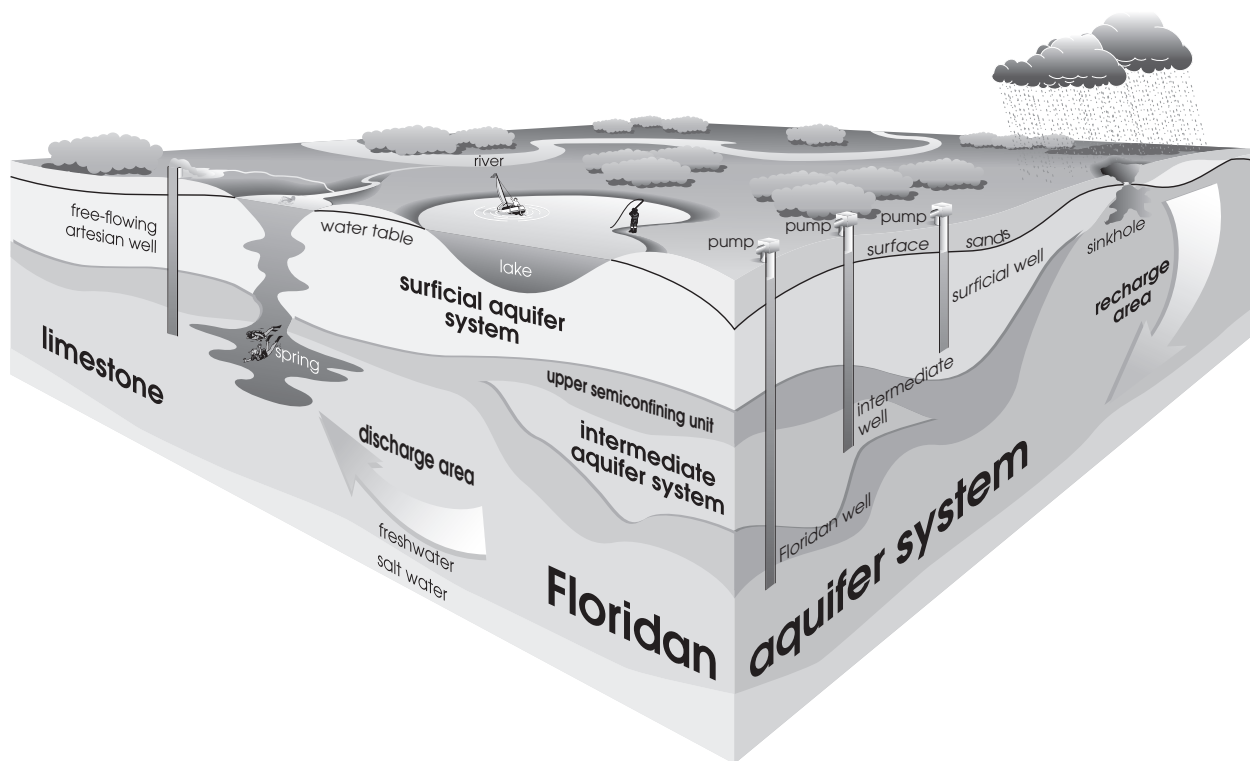
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Recharge (water seeping into the ground and refilling the aquifer) primarily occurs in well-drained natural areas that have deep sandy soils where the confining layer is thin, absent, or breached.

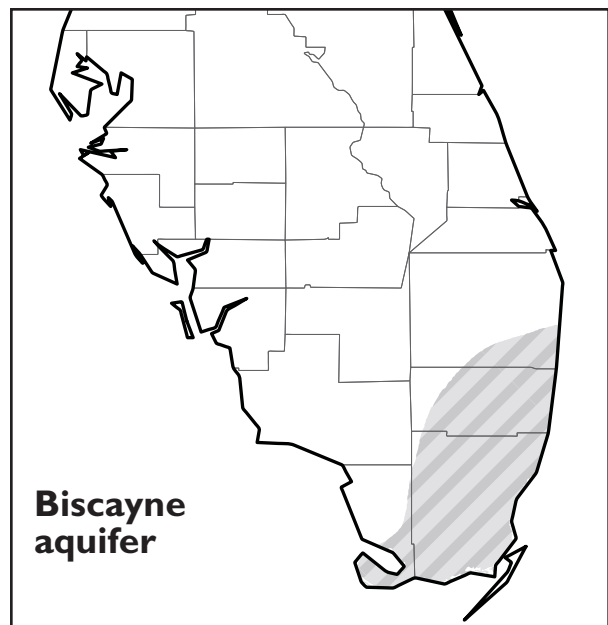
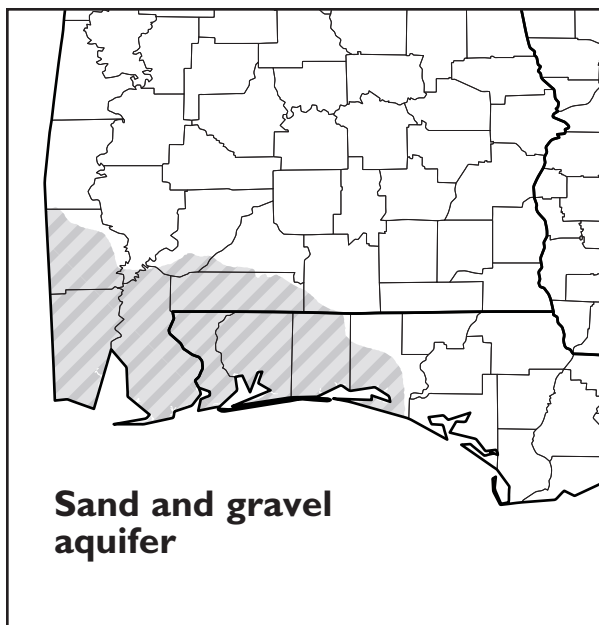
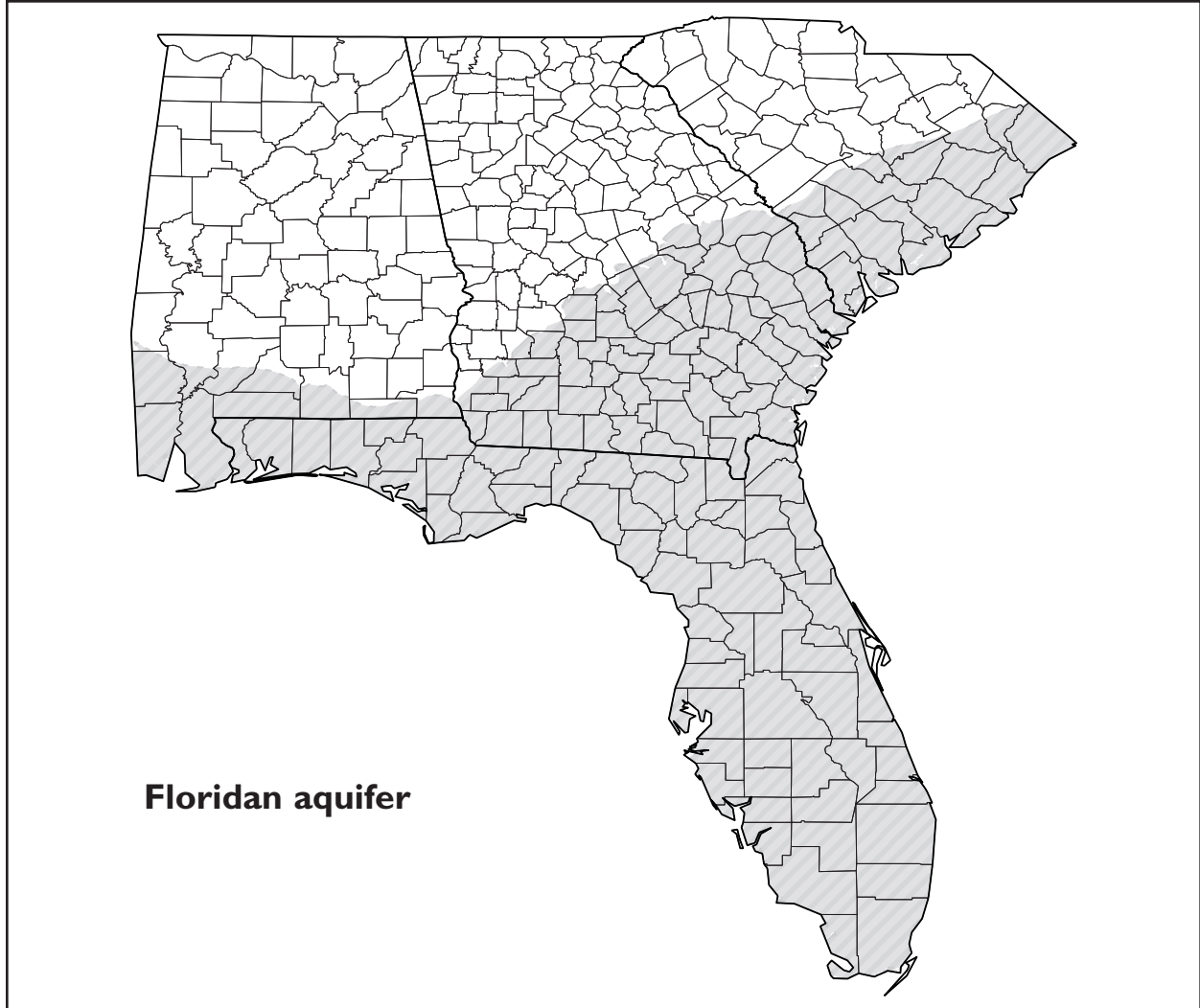
In the western Florida Panhandle, the sand and gravel aquifer is found in the top layer that acts as a confining unit for the Floridan aquifer. This aquifer usually has very good water quality. It is the major source of groundwater for people in the western Florida Panhandle.

Clay and limestone make up what is known as the intermediate aquifer system. It is less permeable (allows less water to pass through) than the Upper Floridan aquifer. It helps confine the water found in the Upper Floridan aquifer. The intermediate aquifer is the major source of water supply for southwestern Florida.

The Biscayne aquifer provides the only source of drinking water for southern Florida. It is made of limestone and sandstone. Because these rocks are very permeable, surface water easily percolates down into the aquifer. However, problems have occurred. Heavy development has reduced the amount of recharge area, and large withdrawals of groundwater have resulted in saltwater intrusion (salt water getting into the underground freshwater supply). The regional water management district has built canals, levees, pumping stations, and water conservation areas in southern Florida to help control flooding, to conserve freshwater, and to lessen the saltwater intrusion.



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Name _____

County Map

