

Leon County

Lakes Ecology

The last LCL Ecology Report from McGlynn Laboratories Inc.

2005 Annual Report (including the First 8 months of 2006)

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Section 1: Executive Summary

The lakes of Leon County are the northern most natural lakes in the southeastern United State (there are no natural lakes in Georgia). These lakes are probably Leon Counties most valuable natural attraction. Our Lakes beautiful offer premier recreational opportunities and increase property values. Leon County has one of the highest densities of lakes in the Southeastern United States. We need to be especially vigilant and continue to protect them as our community grows.

Leon County is composed of a series of closed surface water drainage basins. Beneath these drainage basins the Floridan Aquifer flows within the limestone bedrock south to the Gulf of Mexico. Most of our lakes are located in the Red Hills area of northern Leon County. The Red Hills' soils are composed of clay sediments that hold water in the closed basins and form lakes. The clay layer is not very thick and is punctured by sinkholes. Because of this, most of our large natural lakes contain sinkholes or drains.

The sinkholes in our lakes drain off the stagnant bottom water, keeping our lakes freshe and cleaner than similar lakes lacking such amenities. The sinks also allow pollutants from our lakes quick entry into the aquifer. In addition, variations in water levels; especially periodic draining promotes the oxidation of sediments.

Karst lakes (lakes with continual input of surface water to the aquifer), sinking streams (streams that disappear underground) and underground rivers (subterranean flows within the lime rock) do not occur in many places. They are found together only in two other parts of the world, Croatia and China. We have the best examples of karst in the North America. Leon County is experiencing growing pains. Many of our lakes now contain toxic algae and invasive exotic organisms (just like Wakulla Springs). As our population grows, at a very rapid rate, we are generating more and more urban stormwater runoff. The runoff is impacting our lakes, and they need protection.

The Leon County Lakes Ecology Program is necessary to identify the sources of nutrient enrichment to our lakes and establish baseline data on our aquatic resources so that they can be managed effectively. Leon County has been monitoring its lakes for over a decade and has one of the best lake protection programs in the state. The data collected by McGlynn Laboratories Inc has protected our lakes by documenting conditions and analyzing problems. Numerous agencies and individuals have used the data generated by McGlynn Laboratories Inc. Every TMDL proposed or finalized in our area has utilized data generated for the Leon Couth Lakes Ecology program by McGlynn Laboratories Inc. We feel privileged that we were able to serve the community for so long and hope the Lakes do just fine without us.

Section 2: Recommendations

1. Lakes Jackson, Bradford, Lafayette, Talquin and Weeks are in the greatest danger. Stormwater inputs need to be controlled or these lakes will become no more than regional stormwater retention areas. The multiplicity of stormwater ponds change our natural hydrology as well as serve as breeding grounds for undesirable organisms such as toxic strains of algae.
2. Lakes Hall, Bradford, Hiawatha, Cascade and Miccosukee are currently in good shape. Let's keep them that way.
3. The spread of Scirpus, Hydrilla and Channeled Apple Snails (Invasive Exotics) are changing our lakes. At the very least we could employ signage at boat ramps and parks to educate people so that these invasive exotics are not transported all over the Leon County. Harmful algal blooms are occurring and have become persistent in some area lakes. Levels of algal toxins should be monitored. Signage should be utilized to warn residents of the danger.
4. The paramount danger facing our lakes is nutrient enrichment, particularly from phosphorus. Nutrients cause the proliferation of aquatic plants. Clean lakes protect the aquifer. The Joint Tallahassee/Leon County Watershed Protection Plan offers a great opportunity to coordinate efforts and protect our waters.
5. Over 70% of Lake Lafayette is publicly owned. This lake is an underused resource in the middle of Leon County. The new boat trail is a great amenity. The dams in the lake need to be evaluated and modified to improve recreational potential and safety.
6. Leon County does a good job at inspecting new construction to reduce the erosion of soils containing phosphorus into our lakes. Small signs should be posted with a phone number that citizens could call when erosion or runoff occurs (kind of like the how's my driving signage on trucks).
7. Nutrients need to be controlled. A major source of phosphorus is fertilizers. We should discourage the use of phosphorus in fertilizers by taxing it (kind of like the cleanup fee on Batteries and tires). Septic systems are also a source of nutrient enrichment. We should require regular septic tank maintenance by licensed providers in Leon County (kind of like a utility).
8. Leon County needs to emphasize and enhance our karst features. Karst is a unique habitat. Water level fluctuations enable unique and specially adapted organisms to proliferate. Our lakes have been called the most important karst lakes in North America in the *Treatise of Limnology*. We should encourage ecotourism. We are the "Capitol of Karst."