*BASIN STUDIES*

# EcoSummary

## Deer Prairie Creek, on land acquired by Sarasota County

**March 24, 2004**

*HEALTHY*

BioRecon: A rapid, cost-effective screening mechanism for identification of biological impairment

**For samples collected before June 8, 2004**
All field and laboratory methods followed FDEP Standard Operating Procedures and met FDEP quality assurance/quality control standards.
**For samples collected on or after June 8, 2004**
All field and laboratory methods followed FDEP Standard Operating Procedures (SOPs) and met DEP quality assurance/quality control standards.

## Purpose



A background bioassessment was performed on Deer Prairie Creek as requested by Sarasota County. The county acquired a parcel of land previously used for cattle grazing. BioRecons are based on three measurements of the aquatic invertebrates present in the stream: the total number of different species (Total Taxa), the number of good water quality indicator species (Florida Index) and the total number of Ephemeroptera (mayflies), Plecoptera (stoneflies) and Trichoptera (caddisflies) species present (EPT). A stream scoring above the threshold value for all three of these measurements is considered healthy. If two of the values are reached, the stream's health may be considered ecologically suspect. If one or none of the thresholds are reached, an impaired condition is concluded.

## Watershed Characteristics

Deer Prairie Creek is predominantly a fresh water Class 3 system (Chapter 62-302 State Water Quality Standards) with designated uses for recreation and the propagation and maintenance of a healthy, well-balanced population of fish and wildlife. It is a second order stream that flows through freshwater marshes and saw palmetto wetlands into the Myakka River just west of Northport. It is a slow flowing sand-bottom stream with tannic water and tall banks.

Landuse in the watershed primarily consists of marshland, along with flatwood forests with a looming development of residences in the nearby city of North Port.
Deer Prairie Creek was put on the 1998 303(d) list for the following parameters: Nutrients, Biological Oxygen Demand (BOD) and Dissolved Oxygen (DO). The 2004 Draft Verified Impaired list included no impaired parameters for the water body and proposed delisting it for Nutrients.
The BioRecon was performed in Deer Prairie Creek on the Forbes Tract, less than one mile south of Interstate 75, and approximately 2 miles north of US Hwy 41 in Sarasota County (Latitude 27 degrees 5 minutes 15.48 seconds N, Longitude 82 degrees 16 minutes 42.22 seconds W).

## Results

Each of the three biometrics, which include Taxa Richness, Florida Index and EPT, passed thresholds established for a healthy aquatic benthic community at the Deer Prairie Creek site. Mayflies and caddisflies, both indicators of good water quality were abundant in this 100-meter sample reach, along with an adequately rich and diverse benthic community.
Primary habitat components that would affect the macroinvertebrates directly were represented in the suboptimal category. Three productive habitats were present, however not plentiful. Only 17% was productive habitat and 83% unproductive habitat, which was sandy bottom. Woody debris (snags), leaf litter and undercut banks covered with fine roots were the principal in-stream habitats.
There was evidence of a natural siltation that partially covered some snags and roots, although not limiting substrate availability. A less than favorable observed water velocity of 0.1 meters per second could account for the siltation in the non-rainy season.
Stream banks were considered moderately stable, scoring in the suboptimal category. There were existing woody roots armoring the banks, but there is potential for erosion due to the angle of bank slope being greater than 60 degrees. The angle of bank slope at some points in the stream was 90 degrees.
This 100-meter segment of Deer Prairie Creek is sinuous with an extensive riparian buffer zone, consisting of a plant community that would be expected in an undisturbed setting.
The habitat assessment score of 126 out of 160 rates the site in the lower range in the optimal category. The stream supported a healthy macroinvertebrate community and met its designated use at the time of sampling.
Low Dissolved oxygen has historically been a problem for this system, however on the day of sampling, the DO was 7.88 milligrams per liter, which exceeds the State Standard of 5.0 mg/L.

## Significance & Suggestions

The watershed does not include any industrial, commercial or residential impacts allowing for a healthy sand-bottom stream with a decent amount of productive habitat. Recent land purchases by governmental entities of the watershed have preserved a portion of Deer Prairie Creek in its natural marsh, palmetto wetland productive habitat state.
Upstream landowners operating cattle ranches should continue exercising best management practices to reduce coliform bacteria and nutrient loading into the watershed. Preservation of an extensive natural riparian zone will be an important factor in the health of this stream and

watershed.
If this stream and surrounding natural area is developed, the result will be a definite reduction in biological indicators, hence the indication of human impact on a healthy hydrological system.

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