



EcoSummary

BioRecon Report



Silver Sands Creek above Highway 98, Mary Ester, Okaloosa County February 01, 2001

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

Purpose

A bioassessment was performed at this Silver Sands Creek site in Oak Tree Nature Park to document the stream's biota and wildlife habitat. The BioRecon was in partnership with a University of Florida biological assessment for a City of Mary Ester project to develop and maintain the Oak Tree Nature Park using Preservation 2000 funds.

Background

Silver Sands Creek at the bioassessment site (Lat. 30° 24' 35.58 " Long. 86° 39' 55.68") is a second order stream fed by forested wetlands. Some of those wetlands areas had been filled for land development, which included a shopping mall, commerce park, and residential subdivision. Silver Sands Creek flows into Santa Rosa Sound and drains Gulf Coast Flatwoods subcoregion (75f).



Results

The BioRecon indicated an impaired biological community. All 3 biological indicators failed thresholds established for a healthy aquatic wildlife community.

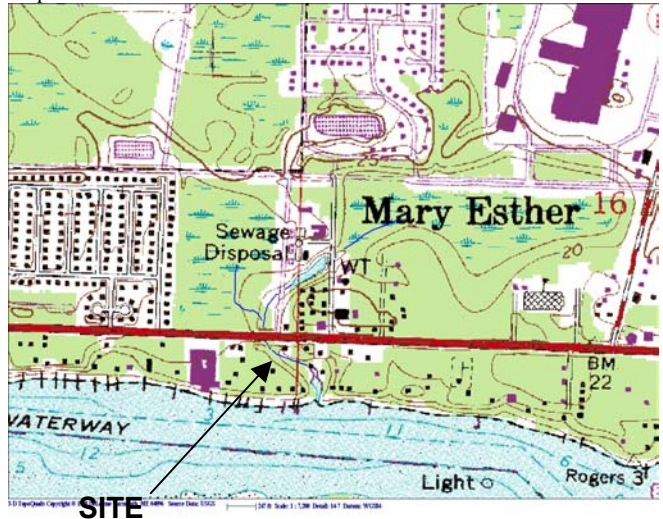
Biometrics	Values	Thresholds
Taxa Richness	21	≥24
Florida Index	4	≥22
EPT	3	≥17

This site's habitat rated a marginal score (57%). Habitat smothering from silt and sand affected 96% of the stream, limiting fish and wildlife productivity. Available substrate was poor at 9% coverage. Two beaver dams impounded the stream, which reduced water velocity to less 0.05 meter/sec in most of the sample reach, allowing fine organic sediment to settle. All the potentially productive habitats were covered with a thick layer of silt. The western tributary fed by stormwater runoff had large amounts of trash and litter. A culvert at Doolittle Boulevard impounded the eastern tributary. This created a duck pond at the wastewater treatment facility with the native riparian forest replaced by grass monoculture. Water samples at both tributaries during a period of no stormwater runoff indicated normal conditions except for an elevated biochemical oxygen demand (2.1mg/l), which could depress oxygen concentrations during

warmer months. Organic loading reduced the oxygen saturation to 58%.

Significance

This Silver Sands Creek site did not meet Class III State Water Quality Standards 62-302 for recreation and the propagation and maintenance of a healthy, well-balanced population of fish and wildlife. Untreated stormwater runoff, along with geomorphologic and hydrologic alterations to the watershed were the major reasons for this impairment. Other factors contributing to Silver Sands Creek's reduced stream biota include the beaverdam aiding the settling of fine particulate organic material from anthropogenic non-point source runoff. These human impacts reduced habitat and limited Silver Sands Creek's fish and wildlife nursery function. Coastal streams such as Silver Sands Creek also provide food and temporary habitat for estuarine fish and mammals such as mullet and dolphin.



Suggestions

Restore the natural hydrology in the eastern tributary to return to a free flowing stream system. Restore and maintain at least an 18-meter riparian buffer along its streambanks to assist in preserving the stream's natural morphological characteristics. The buffer zones provide the shade, food, habitat (woody debris/leaf fall) and filtration necessary for the continued propagation of Silver Sands Creek's biota. Remove exotic invasive vegetation such as air potato, Chinese tallow, Chinese privet, Japanese privet, and mimosa. Treat stormwater runoff with swales, and/or detention/retention ponds before flowing into the State Waters of Silver Sands Creek. Clean up dumped material and litter from stormwater runoff in the upper reaches of the western tributary. Restoring the stream's natural hydrology (i.e. velocity and sinuosity) with dam removal and protecting riparian forests buffer zones (eliminate sediment runoff, restrict forest clearing) would benefit the watershed's fish and wildlife. Proper addition of large woody debris to create 40% coverage in the flowing stream channel would enhance its fishery. After restoration, Silver Creek could be an educational learning tool for the local elementary students to observe the natural geomorphology and the biological function of a coastal panhandle stream. For more information, contact Donald Ray, FDEP Northwest District, 160 Governmental Center, Pensacola, FL 32501 (850) 595-8300 x1126 or SC 695-8300