



EcoSummary

BioRecon Report

Sandy Creek above Hwy 22, E. of Panama City, Bay County February 27, 1996

BioReconnaissance (BioRecon): A rapid, cost effective screening mechanism for identification of biological impairment.

Purpose

BioRecons were performed at this ecoregion reference site to compare with FDEP's SCI monitoring method during the winter and summer monitoring periods.



Basin Characteristics

Sandy Creek drains to East (St. Andrews) Bay on the Inter-coastal Waterway. East Bay and Sandy Creek are designated Class II waters for shellfish propagation or harvesting. The non-tidal

portion of Sandy Creek is designated Class II (prohibited). These water bodies are located in the St. Andrews Bay Ecosystem Management Area. Sandy Creek drains 60 square miles according to the Gazetteer of Florida Streams (1966). Almost all the watershed land-use is pine silviculture. USGS topographic maps indicate elevations of ~80 feet in the headwaters and 20 feet above sea level at the sample site. The watershed soils are from geological formations of the Quaternary period's Recent and Pleistocene epoch. These soils are characterized by undifferentiated quartz sands that are fine to coarse grained with varying percentages of silt and clay. Sandy Creek is located in the Gulf Coast Flatwoods subecoregion (75A) of the Gulf Coastal Lowlands geomorphic zone. Rainfall runoff patterns (historically 10-20 inches annually) of the basin have been altered by silvicultural activities. Vast tracts of land have been graded to remove contours and ditches dug to drain the extensive wetlands found in the watershed's headwaters.

Results

The winter 1996 and summer 1995 BioRecon and SCI monitoring samples yielded similar results:

		Taxa	FI	EPT
2/27/96	BioRecon	29	23	10
2/27/96	SCI	34	25	10
7/18/95	BioRecon	23	26	12
7/18/95	SCI	34	26	8
BioRecon thresholds:		24	22	11

The BioRecon passed 2 of the 3 thresholds (failing Taxa, EPT) on both dates. Taxa numbers were higher in the SCI because of the chironomids which are not counted in the BioRecon. The SCI scores were listed as very good. They were above the lower

quartile (25th percentile) of the metrics from the reference sites (Sandy Creek 22 included) used to detect impairment. A site was rated impaired if the habitat structure was less than 65% of the maximum score (Development of the Stream Condition Index for Florida 1996). Sandy Creek's habitats were rated impaired as its scores were only 53 and 57% of the maximum. The major surface water impacts in the Sandy Creek watershed are physical habitat changes. These include the historical conversion of wetlands to pine silviculture along with resulting sedimentation from clear cuts and logging road construction and maintenance. Ditches dug to drop the water table and drain wetlands have created flash flooding by rapidly conveying stormwater to the creek. Before the watershed was ditched and graded, excess rainfall was stored in wetlands and riparian zones. The natural storage allowed rainwater to more slowly percolate to the creek through springs and meandering tributaries. The low stream habitat scores for bottom substrate and available cover, deposition, riparian buffer zone width, and vegetation quality reflect the large scale replacement of native forest with pine row crop. Sandy Creek exhibited a low productivity of fish and wildlife due to a lack of habitat.

Significance

Sandy Creek's water quality was excellent except for a high fecal coliform (3600 /100ml) found in 1992. Fecal Coliform has been within standards for the past 4 years. It is theorized that land application of septic tank and or domestic/industrial wastewater sludge, common in the area during that time could have been a source of contamination. The SCI score for the benthic invertebrates was good. However, lack of available substrates and habitat smothering limited productivity of the stream's population of fish and wildlife. Sportfish productivity is especially affected by the habitat smothering which has filled the stream channel. Much of the stream's water depth is measured in inches rather than feet.

Suggestions

Restoration of the wetlands and removal of the straight box-cut drainage ditches would assist in restoring the natural hydrography of the Sandy Creek watershed. Habitat restoration, along with forestry BMP's would enhance the productivity of this watershed that feeds East Bay's Class II shellfish waters.

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