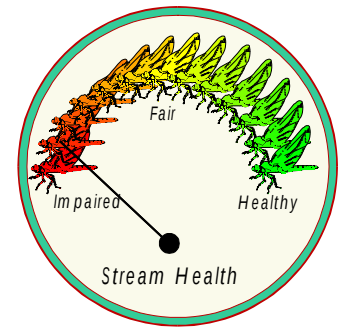


EcoSummary

BioRecon Report



Holly Hill Canal at 11th St. and US 1, Volusia Co. September 10, 1996

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

Purpose

This site was chosen for test assessment because Holly Hill Canal drains an extensively urbanized area of Daytona Beach, as well as the eastern half of the Daytona Beach International Airport and the area northeast of Daytona International Speedway. Thus, it is a potential conduit of pollution to the Halifax River, most notably in the form of stormwater runoff entering the system throughout the intensely urbanized drainage basin of the canal.



Basin Characteristics

Holly Hill Canal drains approximately 12.8 square miles of land in the Daytona Beach

metropolitan area of eastern Volusia County. The area of its freshwater drainage into the Halifax River is exceeded only by that of the Tomoka River. Land use is primarily urban (74%), with a fair amount of forested land near the airport.

Results

Holly Hill Canal scored poorly on the BioRecon assessment. Only 16 macroinvertebrate species were collected — two below the threshold value. Out of a target score of 10, only three points were scored for good water quality ("Florida Index") species. The threshold value for the number of mayfly, stonefly, and caddisfly larvae species ("EPT") was also not met, with only two mayfly species present.

The aquatic community was dominated by invertebrates whose preponderance is linked with poor water quality, such as leeches, various chironomid (midge) larvae, and the amphipod *Hyaella azteca*. The few good water quality animals collected (water mites,

the damselfly *Argia*, and the shrimp *Palaemonetes*) are more dependent on the presence of aquatic vegetation (which is common here) than on good water quality.

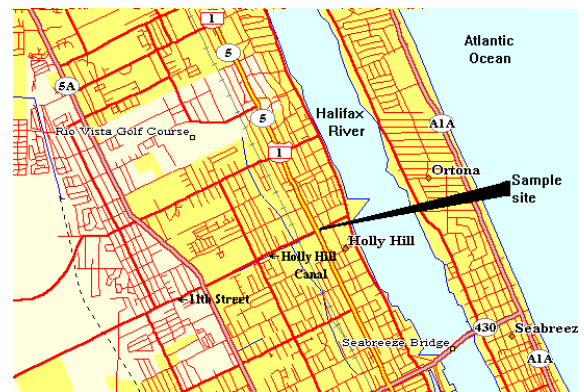
Considerable sediment deposition, channel-ization, low flow, and minimal riparian buffer zone yielded a barely marginal habitat score. Dissolved oxygen was 1.9 mg/L, well below standards. Levels of ammonia, nitrates/nitrites, total phosphorus, alkalinity, and fecal coliforms were all elevated.

Significance

Several problems are implied by the poor biological community at Holly Hill Canal, including contaminated stormwater runoff, poor riparian vegetation, and sediment smothering of habitat. Low flow and elevated nutrients contribute to depressed oxygen levels. Because of its large contribution to the Halifax, poor water quality in the canal is passed to the river, potentially depressing its ecological integrity, and reducing its re-creational, commercial, and aesthetic value.

Suggestions

Use of stormwater Best Management Practices by area land users could alleviate part of the problem caused by



nonpoint source runoff. Improvement of bank vegetation quality and quantity and naturalization of the stream channel would reduce erosion, serve as a filter for contaminants, and provide habitat for the maintenance of a healthier aquatic ecosystem.

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