ECOSUMMARY

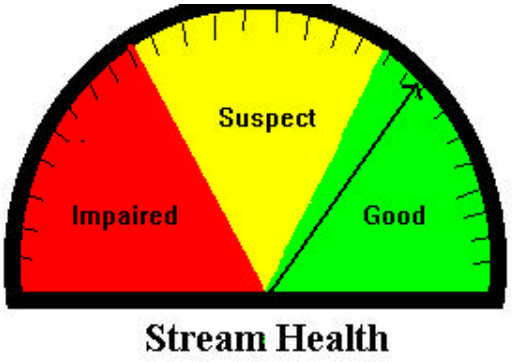
A Report by the Surface Water Assessment and Monitoring Program (SWAMP)

#96-004

Carlton Branch, Hillsborough County

A BioRecon Assessment

April 1997



Purpose ***BioRecon: A rapid, cost-effective screening method for identification of biological impairment.***

BioRecons were performed at two sites on Carlton Branch in order to gain further information on water quality in the Little Manatee watershed. 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 EPT, or total number of Ephemeroptera (mayflies), Plecoptera (stoneflies) and Trichoptera (caddisflies) species present. A stream scoring above the threshold value for two or more of these measurements is considered healthy. If only one of the threshold values is reached, and impaired condition is expected.

Basin Characteristics Carlton Branch is located in southeastern Hillsborough County, about three miles east of Wimauma. The stream is a tributary of the Little Manatee River which flows into Tampa Bay. The first site was located just upstream of the bridge at Sweet Loop Road and the second was located about 100 meters downstream of the bridge at SR 674 (Fig.1). Agriculture (row crops and citrus), is the dominant landuse within the basin (75-80%). Potential souces of impairment are elevated levels of nutrients and/or pesticides in storm water runoff and bank erosion.

Carlton Branch is a sandy-bottom stream. The sites have similar in-stream habitat, including snags, leaf packs and undercut banks/roots. The riparian zone has been reduced for agricultural purposes, more so at the upper site than at SR 674.

Results The stream was clear and its velocity was typically 0.5 m/s at both sites. Recent rainfall events most likely enhanced flow, particularly at the upper site. Dissolved oxygen was 7.1 mg/l at the Sweet Loop site and 7.0 mg/l at SR 674. The remaining physicochemical parameters were within ambient ranges, although conductivity was rather high for a first order stream. This may or may not be due to irrigation practices. The habitat assessment score for each site was borderline between suboptimal and optimal, despite the reduced riparian zone. This was largely due to the optimal water velocity.

Both sites on Carlton Branch passed all three measurements of the BioRecon (Fig. 2). This indicated

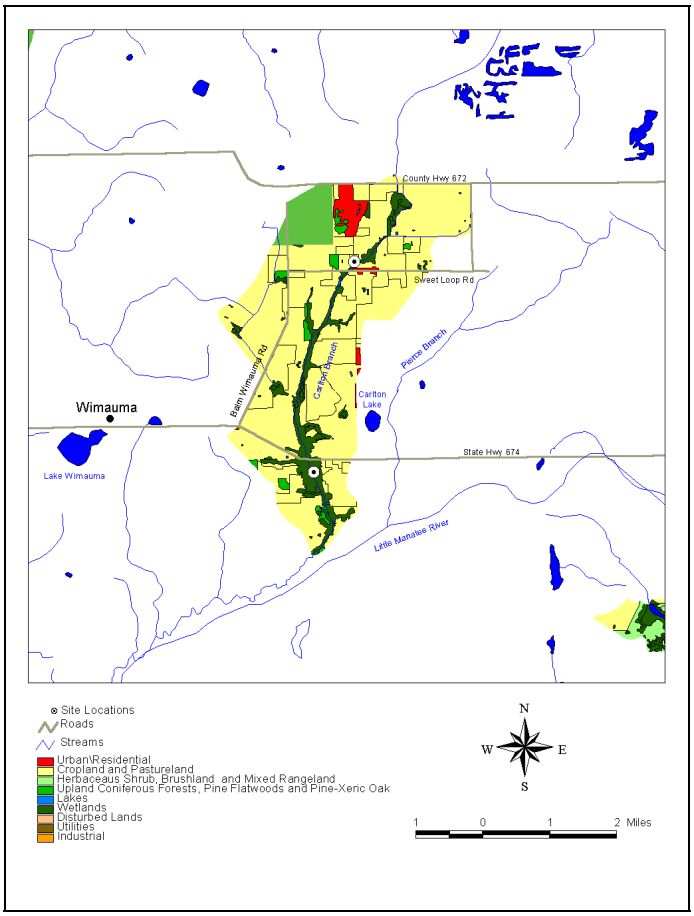


Fig. 1. Site location and landuse map.

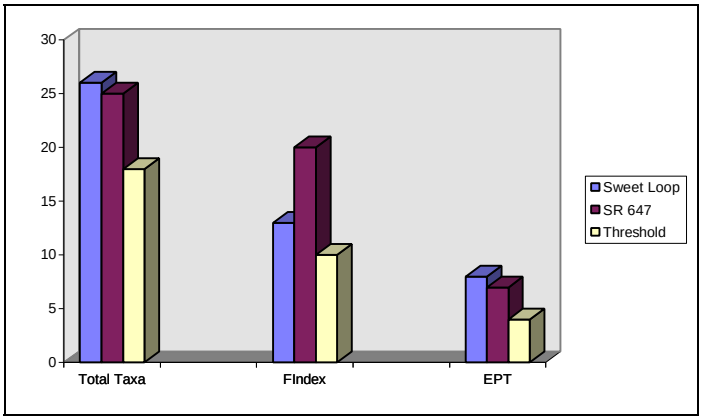


Fig. 2. BioRecon Scores

a healthy stream macroinvertebrate community at the time of sampling. The two sites had similar numbers of Total Taxa and EPT species. The SR 674 site had more Florida Index species, probably due to greater recruitment potential downstream. The upper site may not be continually flowing, restricting the colonization of longer living aquatic organisms.

A healthy macroinvertebrate community indicated that Carlton Branch was meeting Class III waters designated use at the time of sampling, and suggested that little impact was occurring in the stream. However, because of the poorly developed riparian buffer zone, which enhances potential for stormwater impacts during fertilizer and pesticide application, Carlton Branch was rated only slightly more than marginally healthy.

Significance It is important to continue monitoring these sites because of the high potential for impacts from agricultural runoff. Pollutants entering Carlton Branch can contribute to degradation in the Little Manatee River, an OFW, and in Tampa Bay, a National Estuary Project and Surface Water Improvement Management (SWIM) water body.

Suggestions Future monitoring should include water and sediment chemistry coordinated with rainfall events. Successful implementation of Best Management Practices (BMPs) and expansion of the riparian buffer zone are critical for protecting Carlton Branch and the lower Little Manatee watershed from landuse activities in the area.

Fig. 1. Site location and landuse map.

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