



EcoSummary

New River, Pasco County, Hillsborough
River Watershed
September 14, 1998 - August 24, 1998



Stream Condition Index (SCI): The standardized biological assessment tool used by FDEP biologists to indicate ecosystem health and identify impairment as compared to reference (natural) conditions of streams within the various ecoregions of Florida.

Purpose

Macroinvertebrate samples were collected for an Stream Condition Index (SCI) bioassessment of New River in order to gain further information on the biological health of the watershed for use in the administration of Florida's Ecosystem Management Water Quality Assessment (EMWQAS) and Total Maximum Daily Loads programs. The SCI is based on seven measurements that assess the ecological integrity of the invertebrate community. If the Index score falls between 27 and 33, it is considered 'excellent'; if it falls between 21 and 26: 'good'; between 14 and 20: 'poor'; and between 7 and 13: 'severely degraded'. All work conducted by EMWQAS was conducted according to established DEP standard operating procedures and quality assurances plans.

Background

New River, located in north-central Polk County, is a second order stream that flows to the Hillsborough River. It is a narrow, meandering, sandy-bottomed stream with steep banks. It is intermittent during periods of low rainfall, and subject to strong spates during the wet season. The drainage basin consists primarily of cattle range. Samples collected in 1993 indicated low dissolved oxygen levels, high turbidity and total suspended solids and moderately high nutrient levels.

Results

The bioassessment was performed upstream of the CR 579 bridge. There had been heavily rainfall and the water was at least 1 meter deep, reaching the top of the banks. Velocity was 0.2 m/s. The habitat score was 134 out of 160, in the low optimal range. In-stream substrates were plentiful, but not diverse, and the riparian zone had been reduced, providing only a narrow buffer from the adjacent cow pasture. Dissolved oxygen was above the State standard of 5.0 mg/l (5.5 mg/l). The total nitrogen (TN) concentration was moderate as compared to typical values of Florida streams, 1.31 mg/l. Nitrates and ammonia were quite low, 0.007 and 0.034 mg/l, respectively. The total phosphorus (TP) was fairly high at 0.41 mg/l. However, TP values can be higher in south-central Florida than in streams from other areas of the state because of the naturally occurring phosphatic deposits here, and this value may

not be considered excessively high. Turbidity and total suspended solid (TSS) levels were not elevated. Both total and fecal coliform levels were within single-day state standards (Rule 62 - 302 FAC), but were quite high (2120 and 550 colonies/100 ml, respectively). The SCI was 20, indicating a 'poor to fair' quality resident macroinvertebrate community. Biorecons performed in 1995/96, during a period of continual flow without the occurrence of spates, indicated a fairly diverse macroinvertebrate community. Thus it is possible recent spating could have displaced organisms that under more stable conditions would have been found there.

Significance

Water quality parameters, with the exception of total and fecal coliforms, were within ambient concentrations, following significant rainfall events. This suggests that stormwater runoff from the adjacent cattle pastures may result in significant coliform loading to the stream, but nutrient and sediment loading may not be a concern to the system. The macroinvertebrate assessment indicates a suboptimal ecological community, but this may be due to inadequate habitat availability and spates, rather than water chemistry.

Suggestions

The development of best management practices for cattle ranges in order to keep the cows out of the stream and to minimize stormwater runoff impacts is important in all tributaries to the Hillsborough River. Coliforms are a concern particularly because the lower Hillsborough River is a major water source for the Greater Tampa Bay area.

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