



EcoSummary

Shingle Creek at Central Florida Parkway
March 12, 1997



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

Introduction

Shingle Creek originates in wetlands located in Orange County just northwest of the intersection of the Florida Turnpike and the Beeline Expressway. The creek flows south for most of its course, being joined at several points by canals of various sizes. A large portion of Shingle Creek itself (especially upstream areas) is canalized, with box-cut banks and little or no native riparian vegetation. Near



US Hwy 17/92 in Osceola County southeast of Kissimmee, Shingle Creek turns to the east to flow into the northern part of Lake Tohopekaliga. The Shingle Creek watershed is roughly 110 square miles in area. Forty percent of the land in the watershed is comprised of urban development. An equal amount is undeveloped natural upland forests and wetlands. The remaining 20% is made up of agriculture (11%), public utilities (8%), and small amounts of barren and range lands. Shingle Creek was placed on the 303(d) list due to dissolved oxygen, coliform bacteria, and turbidity violations, plus elevated nutrient and biological oxygen demand (BOD) levels. Waterbodies on the 303(d) list are required to undergo a Total Maximum Daily Load (TMDL) study. The purpose of the TMDL is to determine the amount of pollution reduction needed to restore the system to a condition suitable for its designated use. In this case, the designated use is for recreation and maintenance of a healthy, well-balance aquatic community. DEP's Central District Surface Water Monitoring staff was requested to assess the status of selected waterbodies on the TMDL list that were placed on the list with "limited data". "Limited data" waterbodies were those with less than 10 observations in the STORET database, with the most recent observations occurring prior to 1990, or those with qualitative, non-point source survey data only.

Results and Discussion

On March 24, 1999, Shingle Creek was sampled for dissolved oxygen, turbidity, BOD, and fecal and

total coliforms. Nutrients were sampled on May 17, 1999. Biological sampling of Shingle Creek was previously carried out at Central Florida Parkway (N28° 24.603', W81° 26.030'), on March 12, 1997. No water quality violations were found at Shingle Creek. Nutrient levels were low to somewhat elevated, the highest being the total ammonia measurement (0.06 mg/L), which is in roughly the 60th percentile compared to other Florida streams. The dissolved oxygen level measured 8.5 mg/L on 3/24/99, and 5.82 mg/L on 3/12/97. Both readings are above the state standard of 5.0 mg/L. Turbidity measured 1.1 NTUs, which is quite low. The value reported for BOD was also very low: 1.0 mg/L, which is the minimum detection limit for the method of analysis used. Despite obvious habitat modification (channelization), the biological assessment (biorecon) carried out in March 1997 indicated a healthy aquatic community for Shingle Creek at this site. There were 24 macroinvertebrate taxa collected in the sample. Eight of these were members of the sensitive EPT group (larval mayflies, stoneflies, and caddisflies). Eleven Florida Index points were scored. The Florida Index is based on the number of good water quality indicator species present.

Conclusions

Although altered in many areas and certainly potentially affected by surrounding residential development, the measurements made indicate fairly good water quality and a healthy aquatic invertebrate community. Based on these results, we suggest that Shingle Creek might be a candidate for removal from the 303(d) list.

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