EcoSummary

Long Branch at Long Branch Apts

November 26, 2002

TMDL STUDIES

POOR

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

For samples collected before June 8, 2004
All field and laboratory methods followed FDEP Standard Operating Procedures and met FDEP quality assurance/quality control standards.
For samples collected on or after June 8, 2004
All field and laboratory methods followed FDEP Standard Operating Procedures (SOPs) and met DEP quality assurance/quality control standards.

Purpose



Biological assessments were performed on Long Branch (water body id 1627) in order to gain further information on the biological health of the watershed for use in Florida's Watershed Management and Biocriteria programs. Because this watershed is on the State of Florida's Impaired Water Rule's Verified List for Total Maximum Daily Loading (TMDL) development, the results may also be used in determination of TMDL needs and priorities. The verified parameters of impairment are dissolved oxygen, and total and fecal coliforms. Biological methods are particularly useful in order to ascertain if low DO levels are indicative of natural conditions. If the aquatic community is not impaired, it may be concluded that low DO levels do not adversely effect the health of the system. Additionally, a water body is considered biologically impaired if two subsequent bioassessments fail.

A biorecon was performed on March 7, 2002, and a Stream Condition Index (SCI) was conducted on November 26, 2002. These bioassessments were in conjunction with an intensive survey of water chemistry in the basin. 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 total number of Ephemeroptera (mayflies), Plecoptera (stoneflies) and Trichoptera (caddisflies) species present. A stream scoring above the threshold value for all three of these measurements is considered healthy. If two of the threshold values are reached, the stream's health is considered ecologically suspect. If only one or none of the

thresholds are reached, an impaired condition is concluded. 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¿. 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 total number of Ephemeroptera (mayflies), Plecoptera (stoneflies) and Trichoptera (caddisflies) species present. A stream scoring above the threshold value for all three of these measurements is considered healthy. If two of the threshold values are reached, the stream's health is considered ecologically suspect. If only one or none of the thresholds are reached, an impaired condition is concluded.

Watershed Characteristics

Long Branch is a small tributary in central Pinellas County that flows eastwardly into Old Tampa Bay about one mile west of the St. Petersburg/Clearwater International Airport. The predominant landuses in the basin include commercial and urban development. The upper reaches have been ditched and function as stormwater conduits for residential drainage. It is also dammed in the headwaters to create a small lake named Swan Lake, which experiences frequent algal blooms.

Results

The sampling location was located in the Long Branch Apartment Complex, north of East Bay Road. The creek had been channelized here, and frequent flooding has further incised the banks. Water velocity was 0.2 m/s. Instream habitat was plentiful and included vegetation, woody snags and shell rubble.

Biorecon, 3/07/02. The habitat assessment score was 70 out of 160, which places it in the marginal category for habitat characterization. The marginal score was due largely to the fact that there was severe habitat smothering, channelization, moderately unstable banks and reduced riparian zone width and quality. Dissolved oxygen was 5.7 mg/l, conductivity was 740 umho/cm, pH was 7.04 SU and temperature was 17.0 deg. C. The results of the biorecon indicated that Long Branch is impaired. Only one parameter exceeded its threshold value. Total taxa (19) exceeded the threshold of 18 but there were no EPT taxa (threshold is 4) and the Florida Index taxa was only 4 (threshold is 10). Grass shrimp, *Palaeomonetes paludosus*, were common, and every one was observed to be carrying a parasitic isopod beneath its thorax. The shrimp typically are parasitized when in stressful environments, it is rare in unimpaired water bodies.

SCI, 11/26/02. The habitat assessment was unchanged. Dissolved oxygen was 2.7 mg/l, conductivity was 845 umho/cm, pH was 7.0 SU and temperature was 17.5 deg. C. The SCI was 15, which places the biological community in the poor category. The fauna consisted of environmentally tolerant organisms.

Significance

The FDEP's Impaired Waters Rule has identified dissolved oxygen as a parameter of concern for Long Branch. The DO reading on the day of the biorecon was above the State Standard of 5.0 mg/l, but it was well below 5.0 mg/l on 11/26/02. It appears the dissolved oxygen content is highly unstable, and most likely varies on a diel cycle. The biological sampling at this site indicates that the invertebrate community is impaired. Hence, Long Branch does not maintain a healthty, well-balanced biological population in its headwaters.

Suggestions

Long Branch functions as a stormwater drainage system for residential and urban development, as do many streams in Pinellas County. Stormwater runoff is directly piped or ditched to the creek in order to prevent flooding by carrying excess rainwater away from streets, homes, and businesses. Because much of the system contains no filters or other types of pre-treatment, it also serves the unintended function of carrying urban pollution straight into our streams and Tampa Bay. Rain, industrial and household water mixed with urban pollutants creates storm water pollution. The pollutants include: oil, and other automobile fluids, paint and construction debris, yard and pet wastes, pesticides and litter. Urban runoff contaminates streams, rivers and bays, harms aquatic life and increases the risk of flooding by clogging storm drains and catch basins. Stormwater runoff Best Management Practices (BMPs) need to be expanded by the private sector as well as public agencies. Pinellas County and local municipalities have BMPs in place in some areas, but others, such as the Long Branch watershed, need to be introduced and/or improved. These improvements include engineering retrofits, created wetlands and vegetative swales, . Home owners can also reduce stormwater runoff pollution by limiting lawn fertilization and removing yard waste so that it does not enter the stream with stormwater runoff.

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