A site map can be viewed by clicking on the report site name.

BASIN STUDIES

EcoSummary

Groover Branch at Airport Road, Ormond Beach

August 22, 2000

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



Groover Branch was sampled as a part of a mini-basin survey (Tomoka Survey) conducted by FDEP Central District biologists in March and August of 2000. The stream is a tributary of the Tomoka River, which has been designated as an Outstanding Florida Waterway (OFW), and it is thus important to monitor its ecological health.

Watershed Characteristics

Originating in an area called Lake Swamp along the southeastern border of Flagler County and the northeastern tip of Volusia County, Groover Branch flows south to meet the Tomoka where it turns to the northeast near the intersection of SR 40 and Interstate 95. The upper portion of the watershed is canalized. Land use in the 9.4 square mile watershed becomes progressively heavier from upstream to downstream. The majority of the watershed is sparsely developed, being mainly silviculture and natural land in the northern part, with some low density residential development farther south, and considerable medium density development still farther downstream where it nears the river. Groover Branch is slow-flowing, at times not flowing at all, as was seen in August.

Results

Groover Branch received a "very good" rating on the SCI in March 2000, but a "poor" rating in August. In March, there were 26 different macroinvertebrate taxa collected in the subsample, including 3 from the sensitive EPT group, which is made up of larval mayflies, stoneflies, and caddisflies. On this date, the stream earned a Florida Index score of 5. (The Florida Index is based on the number of pollution-intolerant macroinvertebrate species present.) The most abundant invertebrates collected were snails of the family Hydrobiidae, making up 29% of all individuals in the subsample. In August, only 17 taxa were collected. There was only one EPT present (the mayfly *Caenis*), and the Florida index score was a mere 1. The dominant macroinvertebrates were bivalve clams, which accounted for 27% of the sample.

Nutrient levels on both occasions ranged from low to moderate. High iron values were found on both dates (1010 ug/L), but these values are not inconsistent with background concentrations found in shallow groundwater in this area of the state, and thus probably represent natural conditions. Not surprisingly, dissolved oxygen was low (2.7 mg/L) in August. Dissolved oxygen data was not available for March. Coliform bacteria levels were low to slightly high in March, but were extremely high in August. Fecal coliforms were present at a concentration of 1000 colonies/100 mL, and total coliforms at 4500 colonies/100 mL. Both of these constitute violations of surface water quality standards.

Habitat assessment scores were suboptimal on both dates. A lack of aquatic habitat diversity, habitat smothering, riparian zone destruction, erosion, and large amounts of exotic vegetation contributed to this assessment result.

Significance

These results suggest that Groover Branch, at least where it was sampled, is not a very stable system. During drought periods, it becomes stagnant, resulting in the elimination of sensitive water quality indicators. Because the downstream part of the system is highly developed, and because the upstream part is canalized, water levels fluctuate rapidly and dramatically, resulting in accelerated erosion and negative impacts to the biota of the stream. These effects could be transferred downstream into the lower Tomoka River.

Suggestions

To reduce erosion, streamside landowners should not remove riparian vegetation. They should also be careful with oil, paints, and other potential hazardous wastes which could leach into the system. Septic and sewer systems should be maintained properly to reduce bacterial contamination of the stream.

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