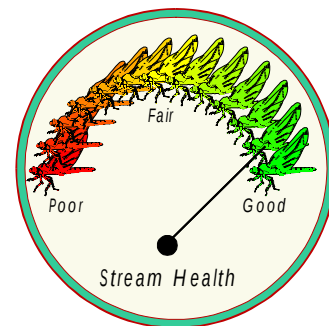


EcoSummary

SCI Report



Little Orange Creek At S.R. 21, Putnam Co. September 26, 1995 & February 12, 1996

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 the State of Florida

Purpose

Little Orange Creek is a blackwater stream located in eastern Alachua and western Putnam Counties near Hawthorne, FL. Although Little Orange Creek lies just outside the boundaries of FDEP's Central District, this biological reference site is sampled by biologists from the Orlando office as a courtesy to the Northeast District, due to its proximity to several other sample sites in the northern part of the Central District. In September 1995, the stream was analyzed both the Stream Condition Index (SCI) and the Biorecon rapid bioassessment tool for the purpose of comparing the results of the two methods. Because it flows into a tributary of the Ocklawaha River, it is important to monitor the ecological health of this stream.



Basin Characteristics

Little Orange Creek originates in a series of small swampy lakes near the Beckhamtown community in Alachua County. It flows generally in a southeast direction, emptying into Little Orange Lake, and afterwards meeting Orange Creek at the town of Orange Springs. Orange Creek joins the Ocklawaha River less than two miles to the east, just upstream of Rodman Dam. The Little Orange Creek drainage area is 38.3 mi². Approximately 72% of the land in the basin is undeveloped forested uplands, wetlands, and water bodies. Agriculture and rangeland account for roughly 19% of land use, chiefly in the northern portion of the basin. Most of the remaining 9% is low density urban development.

Results

With few exceptions, all water quality indicators examined suggested outstanding ecological health at Little Orange Creek. SCI results for Little Orange Creek showed excellent biological integrity when compared with other biology reference streams throughout the state. A total of 37 and 32 different macroinvertebrate species were found in the September 1995 and February 1996 samples, respectively. These included 10 taxa that are members of the sensitive water quality group designated "EPT" (larval mayflies, stoneflies, and caddisflies) in 1995, and nine in 1996. The stream

also had excellent Florida Index (good water quality taxa) scores: 22 in summer and 21 in winter.

The Biorecon results from September 1995 showed good agreement with the accompanying SCI score. The Biorecon gave the site a healthy rating, with 31 total taxa, 8 EPT, and 24 Florida Index points.

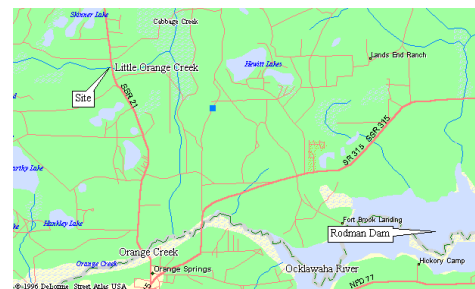
Habitat assessment scores were also very good. Of a possible score of 145, the stream received 135 points in summer and 138 in winter. Slight sand and silt smothering of some habitats due to minor bank erosion prevented Little Orange Creek from receiving a perfect habitat rating. On both dates, the mean depth of the stream was 0.5 m and the water velocity was about 0.3 m/sec. Water quality at Little Orange Creek was good on almost all counts. Dissolved oxygen levels were 6.3 and 7.7 mg/L in summer and winter, respectively. Conductivity, alkalinity, unionized ammonia, chlorides, and sulfates were all low or normal. Typical of dark water swamp-fed streams, the pH was quite low (5.0). In September 1995, Kjeldahl N and total phosphorus levels were high, but returned to normal in February 1996. Historical records show that total and fecal coliform counts were strongly elevated in February 1994, but this was not the case in later samplings.

Significance

These results show that water quality and biological integrity remain good at Little Orange Creek. However, occasional pulses of elevated nutrients and bacteria underscore the fact that the current health of this stream could be negatively affected by intensified development. Hopefully, land management practices that help preserve aquatic environments will be used here.

Suggestions

Continued monitoring of this site is suggested in order to determine if the ecological integrity of Little Orange Creek remains good



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