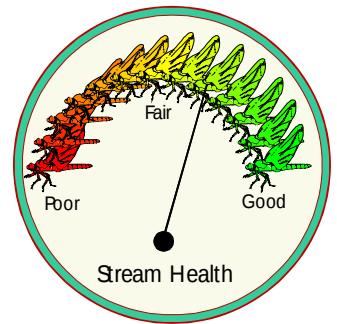


EcoSummary

SCI Report



South Prong Sebastian River at Hwy 512, Indian River County August 5, 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

The South Prong of the Sebastian River (a.k.a. Sebastian Creek) is one of a number of stream reaches that were chosen as test or "unknown" sites for use in the development of the Stream Condition Index (SCI). At the time of this assessment, FDEP's Central District had not done any water quality sampling at this site since 1986. Monitoring of the water quality of this stream is important because it flows through a highly developed urban and agricultural area before emptying into the Indian River north of Sebastian Inlet.

Basin Characteristics

The South Prong proper originates just north of County Road 510 near Wabasso. However, a very large series of criss-crossed agricultural canals



empties into the river from the south. This agricultural section extends from west of the Vero Beach Municipal Airport north to the south prong of the river. Forty-three percent of the land use in this basin is agriculture, with field and

pasture accounting for 24%. North of CR 510, drainage from the Sebastian urban area and the Sebastian Airport flows into the river. Downstream (north) of Sebastian, the majority of the land in the South Prong basin is undeveloped, with pockets of agriculture and urbanization interspersed.

Results

Overall assessment results suggest that the ecological fitness of Sebastian River's South Prong is fairly good, but by no means outstanding. Twenty-seven macro-invertebrate taxa were found at the site. Of this number, six were members of the sensitive water quality group designated "EPT" (larval mayflies, stoneflies, and caddisflies). The score for Florida Index (good water quality taxa) was 12. The SCI score of 29 placed it in the lower range of the "very good" category. It is important to note that the dominant invertebrate collected in the sample was a marine organism, the tanaid crustacean *Hexapleomera robusta*. The presence of this and another marine species, the isopod *Uromunna reynoldsi*, is evidence of salt water influence from the Indian River estuary.

Habitat assessment scores were suboptimal. Of a possible score of 145, the stream received 87 total points. There was fairly substantial bank erosion, leading to a moderate degree of sand and silt smothering of habitats. The width of the riparian (bank) vegetation zone was only two meters on the least buffered side, providing little filtration and nutrient removal from runoff. Water quality measurements at the South Prong showed mixed results.



The dissolved oxygen concentration was 5.6 mg/L, which meets state criteria. Values for pH, most forms of nitrogen, and turbidity were also normal. However, levels of nitrate/ nitrite and total phosphorus were somewhat high. Alkalinity was quite high, measuring 166 mg/L CaCO₃. Conductivity was high (1480 mmhos/cm), as were chlorides and sulfates. However, the last three parameters probably are indicators of salt water influence.

Significance

These results demonstrate that, although not severely degraded, the ecological health of Sebastian River's South Prong is only marginal. Nonpoint runoff from agriculture might have contributed to these results. Because it is one of many streams emptying into the Indian River estuary, it is important that the ecological health of the Sebastian River not degrade further.

Suggestions

Continued monitoring of the site is suggested to determine if further degradation takes place. Beneficial land management practices in the watershed, such as establishment or preservation of a sufficient riparian buffer zone, careful use of pesticides and fertilizers, and well-conceived development strategies, should help to preserve or improve the health of this stream.

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