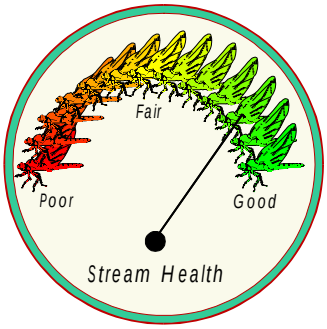
EcoSummary

SCI Report



Crabgrass Creek At U.S. Hwy 192, Osceola Co.
September 3, 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

Crabgrass Creek was chosen for sampling because it had never been monitored by FDEP prior to this time. It was therefore sampled as an "unknown" site using Stream Condition Index (SCI) methodology. Because it flows through an agricultural area and into a tributary of the St. Johns River, it is important to monitor the water quality of this stream.

Basin Characteristics

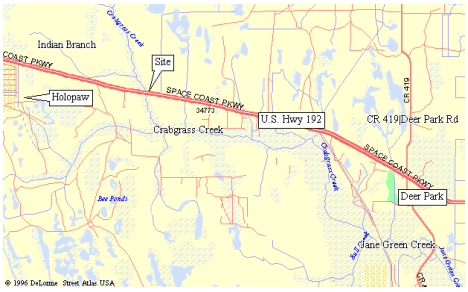
Crabgrass Creek originates in swamps in the vicinity of Old Melbourne Highway near Tohopkee, Florida. From there it flows south and then east, combining with Bull Creek to form Jane Green Creek near the community of Deer Park at the eastern edge of Osceola County. Jane Green Creek then becomes a swamp before flowing into the St. Johns River near Lake Hellen Blazes in the eastern part of southern Brevard County. This area is characterized by numerous small wetlands and streams which eventually make their way into the St. Johns River. The Crabgrass Creek drainage area is 39.7 square miles. Basin land use here is primarily agriculture and open pasture (approximately 83%). Sixteen percent of the land is undeveloped wetlands and uplands. Active rangeland and urban development combined make up just over 1% of the land use in the Crabgrass Creek drainage basin.

Results

The health of the biological community at Crabgrass Creek appeared to be good at the time of sampling. It received a Stream Condition Index score of 31, placing it in the "very good" category when compared to biological reference streams within the Florida peninsula. A total of 38 different macroinvertebrate species were found in the sample. This number included four that are members of the sensitive water quality group designated "EPT", which includes larvae of mayflies, stoneflies, and caddisflies. A Florida Index (good water quality taxa) score of nine was determined for the site. The most abundant macroinvertebrate species (13% of those in the subsample) was the aquatic elmid beetle Dubiraphia vittata. The habitat assessment showed good results. Out of a possible total score of 145, it received 116 points, earning it a low optimal rating for habitat quality. This was due to low water velocity (near zero at the time of sampling). The lack of flow, however, did not appear to have substantially affected the health of the macroinvertebrate community. Other factors, such as habitat availability, good riparian buffer zone, and minimal habitat smothering and erosion contributed to the overall good habitat score. Water quality in Crabgrass Creek was marginal. The dissolved oxygen level in the stream was only 2.1 mg/L, well below the state standard of 5.0 mg/L for Class III streams. This could be related to the slow flow coming from upstream swamps, and/or to the high total ammonia and total phosphorus values detected here. Possibly due to the elevation of these nutrients, periphytic algae was common at the site. Algae blooms often result in a decrease in dissolved oxygen. All other water quality parameters were within normal ranges.

Significance

These results suggest that agricultural land use in the area might have had some impact on water quality in Crabgrass Creek, considering the elevated nutrient levels present. At this point, however, these factors do not appear to be serious enough to have produced an apparent negative effect on the makeup of the macro-invertebrate community.



Suggestions

Hopefully, land management practices that minimize adverse effects to the aquatic environment will be maintained in the area. Continued sampling of Crabgrass Creek and other associated streams is recommended in order to monitor for possible further impacts to the system.

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