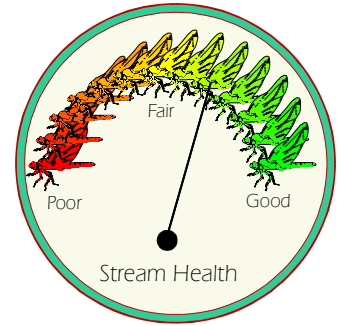


# EcoSummary

SCI Report



## Shortcut Canal @ Howard Avenue Black Hammock, Seminole County 8 September 1997

**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

Shortcut Canal and other streams flowing through Black Hammock have the potential to carry large loads of agricultural nonpoint-source pollution to Lake Jesup downstream. It is therefore important to monitor the health of these water bodies. This site was chosen for the dual purposes of providing information to persons and agencies involved in restoration efforts being undertaken on Lake Jesup (spearheaded by St. Johns River Water Management District) and for the continuing development of FDEP stream bioassessment methodology.

### Basin Characteristics

As the name implies, this is not a natural waterbody, but a canal (or more accurately, a series of canals) which flows north into Lake Jesup. The two-square-mile drainage area is made up of 55% agricultural land drained by the canals, about 20% residential development centered at Lake Charm and the western part of Black Hammock, and roughly 25% undeveloped land, which is chiefly wetlands. With the exception of a half-mile stretch where it flows in an ill-defined course through a small wetland, it is made up of several interconnected box-cut roadside ditches which drain farmland

### Results

Biological sampling carried out at Shortcut Canal shows that the man-made water body is in fairly good ecological condition compared with other streams in the area. The SCI assessment yielded a score of 25, placing it in the "good" category. Of the 21 macroinvertebrate taxa collected in the subsample, four were from the EPT group. The Florida Index score for Shortcut Canal was 11. The dominant taxon was the amphipod *Gammarus* sp. Chemical water quality sampling showed mixed results at this site. Total phosphorus and calculated unionized ammonia values were quite high — greater than the 80th percentile compared with other Florida streams. On the other hand, total Kjeldahl nitrogen and nitrate/nitrite measurements were average, in the 54th and 57th percentiles, respectively. There were 420 colonies/100mL fecal coliforms, which is quite high (88th percentile), but not exceeding water quality standards.

Both chlorides and sulfates (and thus conductivity) were very high in this stream. In this area, saline water is present in the lower

portions of the surficial aquifer beneath the freshwater layer. Excessive use of groundwater in the area for agriculture, plus extensive canalization of the land, have exacerbated saltwater intrusion into fresh groundwater sources. This has resulted in very high levels of sulfates and chlorides in this and other streams in the area (especially those to the east of Shortcut Canal), as well as the contamination of drinking water sources for residents in the eastern portion of Black Hammock. Thus, the chloride level in Shortcut Canal is in the 99th percentile compared with other Florida streams. Sulfates are in the 90th percentile.

Shortcut Canal's habitat assessment score was fairly low. Being a man-made ditch, it scored relatively poorly on all portions of the habitat assessment. The habitat assessment score was 87 out of a possible 145 points.



### Significance

Although certainly not pristine, Shortcut Canal performed better on the SCI than other area streams. Water chemistry measurements, however, were not as good. The main ecological problem with Shortcut Canal and other streams in Black Hammock has to do with agriculture. All have been channelized to function as drainage ditches for the agricultural operations prevalent in this area. Water laden with nutrients and probably pesticides flows into these ditches, which in turn flow due north into Lake Jesup.

### Suggestions

We believe that the Black Hammock area is an ideal candidate for an Ecosystem Management effort. Farmers in the area could be educated about current problems and offered suggestions for more environmentally sound and hopefully financially feasible alternative methods. The establishment of better land management practices in the area should help to improve the water quality in Shortcut Canal and other streams, as well as Lake Jesup downstream

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