



Hillsborough River, Owens' Pullet Farm, Crystal Springs, Hillsborough County August 21, 1996

Purpose

Water chemistry and aquatic invertebrate samples were collected in order to provide data for a preliminary impact assessment of the Hillsborough River in the vicinity of an unpermitted pullet farm. Standard methodology developed by SWAMP was utilized.

Basin Characteristics

The study site was located on the upper watershed of the Hillsborough River in eastern Hillsborough County, near Crystal Springs within the Greater Tampa Bay Ecosystem Management Area. Land use in the area includes urban development (approximately 40%), agriculture (30%), rangeland (10%), dairies and pullet farms/egg facilities (5%). The floodplain is an extensive cypress swamp, which provides a protective buffer from non-point source runoff. The headwaters, in the Green Swamp, have been acquired by the Southwest Florida Water Management District (SWFWMD). The Owens Pullet Farm has been in operation since the 1970's, without a DEP discharge permit. Upon discovery of the facility, the main concern was potential contamination from the pullet waste treatment lagoon, as well as from residual pollutants present in a breached wastewater retention pond formerly used for a hog raising facility that had been located there. Both structures were built in the flood plain.

Four sites were chosen for comparison (Fig. 2) A site upstream of the Owen's property (#1), one adjacent to the property (#2), one downstream (#3) and a fourth (#4) further downstream of the property and also downstream of Southside Branch. The latter stream drains the City of Zephyrhills and cattle pasture. At the time of sampling, the water was quite low and the river remained within its banks.

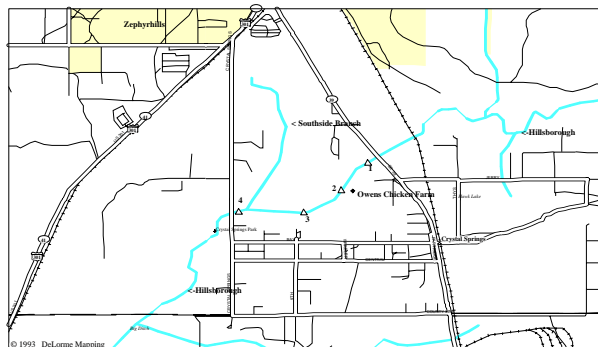


Fig. 2. Approximate location of Sites.

The sites had similar habitats and water velocity, with the exception of Site 3. Sites 1, 2 and 4 were sluggish, deep and swampy, with a muddy bottom. At Site 3, the river narrowed, velocity increased, and the bottom was sandy.

Results

Habitat Stability

All sites were rated optimal by SWAMP habitat assessment methodology (Fig. 3). There was a slight increase in the habitat score at site 3 due to increased water velocity at that location in the stream. Habitat stability and quality did not appear to be affected by the pullet farm

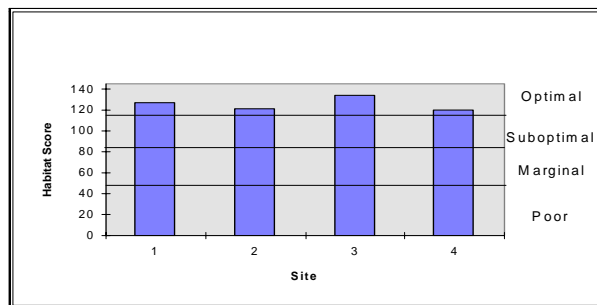


Fig. 3. Habitat scores

Water Chemistry

Values for physicochemical parameters were similar, and within normal ranges, at all stations (Fig. 4). Conductivity was slightly higher at Site 4. This is probably due to spring water entering the Hillsborough via Southside Branch.

site	Temp °C	pH std units	DO mg/l	conduct umho /cm
1	26.2	7.3	5.6	236
2	25.5	7.1	5.1	237
3	25.4	7.2	5.1	234
4	25.0	7.2	5.0	261

Fig. 4. Physicochemical values.

site	NH ₃ (mg/l)	NO ₂ -NO ₃ (mg/l)	TP (mg/L)	Fecal Col. (#/100 ml)	Total Col. (#/100 ml)
1	0.025	0.059	0.16	80	1500
2	0.032	0.051	0.15	60	1400
3	0.021	0.061	0.16	20	1500
4	0.029	0.51	0.15	160	2300

Fig. 5. Chemical and biological values.

Values for all chemical and biological parameters analyzed were also similar at each site, with the exception of nitrate-nitrogen and coliform bacteria (Fig. 5). Both parameters increased at Site 4 (Figs. 6 and 7, respectively), although did not exceed state standards. This suggests that these pollutants

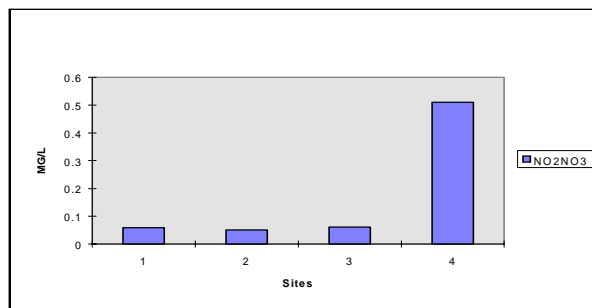


Fig. 6. Nitrate-nitrite values.