A Report by the Ecosystem Management Water Quality Assessment Section
#98-010

Wares Creek, Manatee County
June, 1998
Greater Tampa Bay EMA

Purpose

Biological samples were taken in Wares Creek during an investigation of impacts associated with the aerial spraying of malathion during the Medfly Eradication Program, Summer, 1998. This report is intended to present the biological data for use in the application of Florida's Total Maximum Daily Loading program.

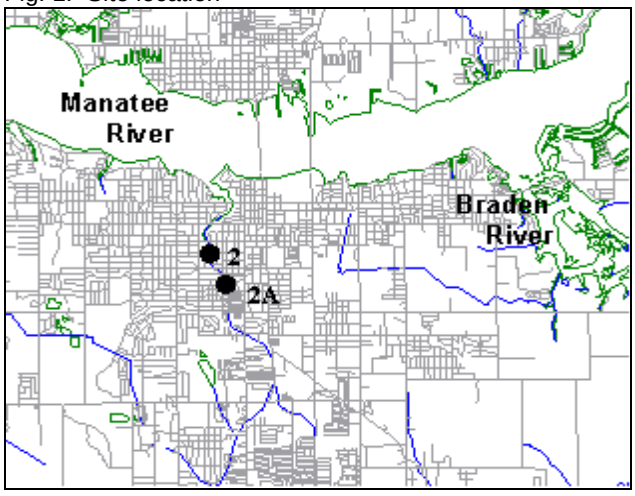
Methods

Macroinvertebrates were collected at two sites on Wares Creek on June 5, 1998 (Figure 1). This sampling event was conducted prior to the onset of the aerial spraying program. Site 2 was tidally influenced, while site 2A was freshwater. Petite ponar grabs were deployed at the marine site, in triplicate. Dip net sweeps were used in the fresh water reach.

Basin Characteristics

Ware Creek is located in northwestern Manatee County in the city of Bradenton. It is a sluggish bayou that flows into the Manatee River, which in turn flows into Tampa Bay River. The landuse is the area is almost entirely high density residential, and much of the system has been channelized, functioning as a drainage ditch. The riparian zone is extremely limited and the creek is seawalled for much of its tidal reach. There are no permitted domestic or industrial wastewater discharges in the watershed.

Fig. 1. Site location



Results

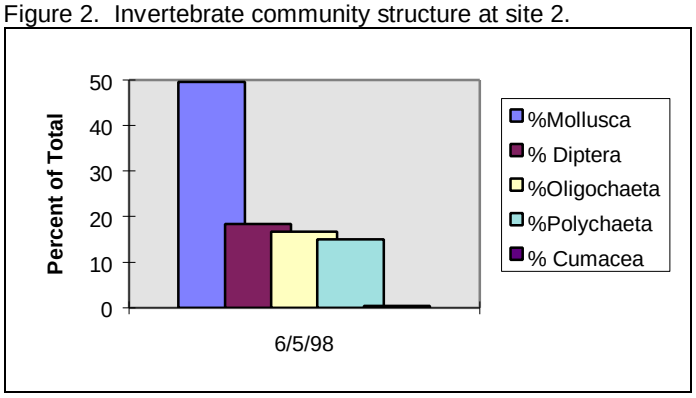
Physicochemical measurements are shown in Table 1.

Table 1.

Site	DO (mg/l)	pH (SU)	Salinity (ppt)	Temp. (° C)
2	2.11	6.91	9.7	29.57
2A	2.58	7.31	-	28.56

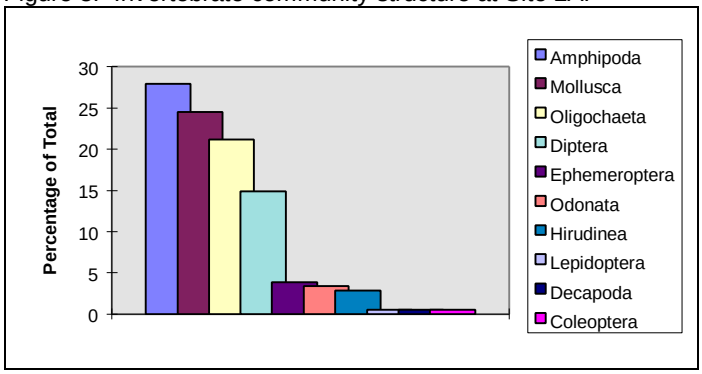
The aquatic invertebrate community at Site 2 was degraded (Fig. 2). Only 10 taxa and 5 orders were collected in three petite ponars. The assemblage was dominated by the snail, *Pyrogophorus platyrachis*, and Dolichopodidae larvae. Crustaceans, particularly amphipods, were noticeably absent. Amphipods are normally abundant in marine sediments. They are also known to be important environmental indicators in marine benthic communities.

Figure 2. Invertebrate community structure at site 2.



The invertebrate community more diverse at Site 2A (Fig. 3). Forty-two taxa in 10 orders were collected. This likely due to the predominance of submerged vegetation providing habitat and food source and to the sampling methodology, which samples a larger area than do petite ponars. However, the organisms sampled were almost entirely those that are tolerant to low oxygen concentration and other environmental pollutants.

Figure 3. Invertebrate community structure at Site 2A.



Suggestions

The parameters of concern in Ware Creek were not sampled during the study. These were biological oxygen demand (BOD) and coliforms. This suggests problems with a wastewater treatment plant discharge. But there are no such discharges to Ware Creek and haven't been for a number of years. All developments are currently on the City WWTP system, which discharges into the Manatee River via Robinson's Ditch. The BOD is likely to rise when the submerged vegetation, which is very abundant in the summer months, dies and is decayed by microorganisms. This would be reflected in low DO levels. The low DOs may be solely responsible for the degraded invertebrate community, but its likely that there are other toxins present, such as heavy metals, which are common in urban runoff. In addition, the prolific vegetation in summer months may be indicative of nutrient loading. It is recommended that Wares Creek stay on the TMDL list, with parameters of concern including DO, nutrients, heavy metals and pesticides. Habitat improvement would also be necessary to restore ecological integrity.

For more information, contact Peggy Morgan, FDEP Southwest District, 3804 Coconut Palm Dr., Tampa, FL 33619; (813) 744 - 6100