EcoSummary

Swampy Creek below Coyote Landfill
above Hatcher Cemetary Road
May 2, 2006

FAIL

FLORIDA
AMBIENT

BioRecon: A rapid, cost-effective screening mechanism for identification of biological impairment

For samples collected before June 8, 2004
All field and laboratory methods followed FDEP Standard Operating Procedures and met FDEP quality assurance/quality control standards. **For samples collected on or after June 8, 2004**
All field and laboratory methods followed FDEP Standard Operating Procedures (SOPs) and met DEP quality assurance/quality control standards.

Purpose



A bioassessment was performed at this site to assess the impacts of the Coyote Construction and Demoliton Debris Landfill on the biota and wildlife habitat in Swampy Creek. A background bioassessment for comparative purposes was performed at Sourwood Branch located 3 miles north of this site, south of County Road 282 . These bioassessments were in technical support of a compliance action by the FDEP Northwest District's Waste Management Cleanup Section. This facility is in evaluation monitoring due to elevated aluminum, iron, sulfate, and total dissolved solids documented in monitoring well MW-2. Required follow-up monitoring reports found beryllium, chromium, iron, and selenium concentrations in an unnamed tributary that flow into a stream locally known as Swampy Creek exceeding the State surface water standards (Florida Administrative Code Chapter 62-302.503). Mercury and silver were elevated; however compliance with surface water standards cannot be determined because the laboratory detection was above the surface water criteria as listed in Florida Administrative Code Chapter 62-302.503

Watershed Characteristics

Swampy Creek at the bioassessment site below Highway 20 above Hatcher Cemetery Road is located about a mile east of Freeport's city limits in Walton County (Latitude N30 degrees 30 minutes 34 seconds; Longitude W86 degrees 10 minutes 37.3 seconds). It is a second order steephead stream impounded by a road culvert below the sample site. The headwaters originate about 2100 feet upstream of the sample site. Swampy Creek flows to Goodwin Creek, Alaqua Creek and Bayou before emptying into Choctawhatchee Bay. The watershed drains the Gulf Coast Flatwoods of subecoregion 75a.

Results

The BioRecon indicated a severely impaired biological community. All 6 biological indicators failed thresholds established for a healthy aquatic wildlife community:

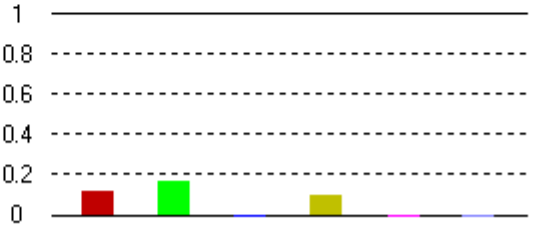
Biometrics	Metric Score
# TOTAL TAXA	0.12
# EPHEMEROPTERA TAXA	0.17
# TRICHOPTERA TAXA	0
# LONG-LIVED TAXA	0.1
# CLINGER TAXA	0
# SENSITIVE TAXA	0
TOTAL METRIC SCORE :	0.39
/ Correction Factor :	0.6
= BIORECON SCORE :	1

SWAMPY CREEK MOUTH BLW COYOTE LANDFILL ABV HATCHER CEMETARY ROAD

BioRegion : Panhandle West

Sample Date : May 02, 2006

Biometrics Score Chart



○ Pass 6 - 10

◉ Fail 0 - 5

The macroinvertebrate community consisted of a total of 20 pollution tolerant taxa dominated by midges (20 chironomidae) and the tolerant mayflies Callibaetis (19) and Caenis (18). Stoneflies and caddisflies, the major component of healthy panhandle streams, were noticeably missing. Sourwood Branch, the background site, had over twice the taxa (42), mainly clean water indicators. Half the background's total taxa (21) were stoneflies (5), caddisflies (9), and mayflies (7), the foundation of a well-balanced stream community.

The Swamp Creek Habitat Assessment rated marginal (49%), down-graded by poor conditions of Habitat Smothering and Water Velocity. Substrate Diversity, left bank Bank Stability, and Right bank Riparian Buffer Zone Width rated a marginal score. Substrate Availability and both bank's Riparian Zone Vegetation Quality rated suboptimal. Artificial Channelization, Right Bank Stability and left bank

Riparian Buffer Zone Width rated optimal.

The sediments were covered by iron/sulfur bacteria and were anaerobic with hydrogen sulfide odors. The water had a fishy odor with sheen of iron/sulfur bacteria. Periphyton and iron/sulfur bacteria were over-abundant. The dissolved oxygen (DO) concentration of 3.1 mg/l (2.9 mg/l at 0.61 meters depth) was in violation of the Florida Administrative Code 62-302.530(31), ("shall not be less than 5 mg/l"). The percent DO concentration was 35 % (33% at 0.61 meters depth). The Sourwood Branch background was 8.6 mg/l DO and 94% saturation. Water temperature was 22 degrees centigrade compared to 20 degrees at Sourwood Branch. The DO concentration is expected drop as the water temperatures increase during June through September because of solar radiation from the open canopy. Sourwood Branch's spring fed water temperature will stay near 20 degrees because of shade from the riparian forest's canopy. Conductivity was 362 umho/cm, which indicated the dissolved metals. Background conductivity in area streams is less than 50 umho/cm (31umho/cm at Sourwood Branch).

Conclusions

The Swamp Creek site did not meet Class III State Water Quality Standards 62-302 for recreation and the propagation and maintenance of a healthy, well-balanced population of fish and wildlife. A previous bioassessment of Goodwin Creek at another construction and demolition debris landfill also found impairment. The elevated aluminum, iron, sulfate, total dissolved solids, beryllium, chromium, iron, selenium, mercury, and silver concentrations from the Coyote Landfill affect Swampy Creek and the pollution load will be transported down to Alaqua Bayou and into Choctawhatchee Bay. Even the more common elements aluminum and iron can cause serious environmental problems in high concentration (see the Goodwin Creek report). A local citizen reported witnessing 3 fish kills in Alaqua Bayou during 3 months of the winter 2005/2006 season. He speculated pollutants leaching from the landfills along the streams at head of the Bayou as the source of the problem.

For more information, please contact
Donald H. Ray
Northwest District Office
160 Government Center, Pensacola, FL 32502
(850) 595-8300 (Suncom 695-8300 x 1126)
E-mail: donald.ray@dep.state.fl.us

Published by the Florida Department of Environmental Protection
Tallahassee, Florida
For more information on the DEP Bioassessment programs, please visit our web site at http://www.dep.state.fl.us/water/bioassess

Swampy Creek below Coyote Landfill above Hatcher Cemetary Road

