EcoSummary

BioRecon Report

Little Reedy Branch below Mudhill Landfill, Washington County

January 24, 2002

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

Introduction

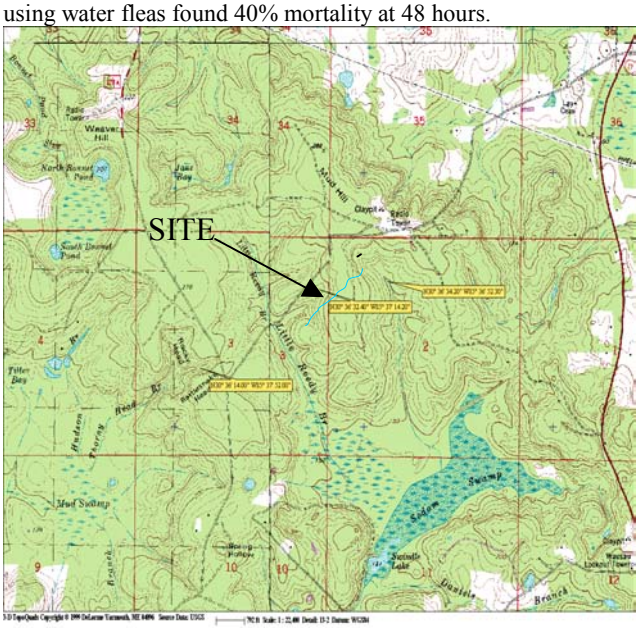
A bioassessment was performed at this site to assess the impacts of Washington County's Mudhill landfill to the biota and wildlife habitat in the headwaters of Little Reedy Branch. This bioassessment was in technical support of a compliance action by the FDEP Northwest District's Waste Management Cleanup Section. Little Reedy Branch at the bioassessment site is a first order stream, originating at the landfill, below Mudhill Road, ~2 miles southwest of Wausau, Washington County (Lat. 30° 36' 32.4" Long. 85° 37' 14.2"). Steephead slope streams such as Rattlesnake Head were observed in adjacent, less disturbed headwater areas. Little Reedy Branch flows into Choctawhatchee Bay via Pine Log Creek and Choctawhatchee River. Little Reedy Branch drains the Dougherty/Marianna Plains of subecoregion 65g.

Results and Discussion

The BioRecon indicated a severely impaired biological community. All 3 biological indicators failed thresholds established for a healthy aquatic wildlife community:

Biometrics	Value	Thresholds
Taxa Richness	12	≥24
Florida Index	2	≥22
EPT	0	≥17

The stream biological community and habitat assessment (43%) were severely limited. A profuse bloom of iron/sulfur bacteria covered the stream, producing a sheen that covered much of the water surface. Iron/sulfur bacteria smothered 100% of the aquatic habitats, which reduced the stream's wildlife diversity and productivity. Sediment and iron/sulfur bacteria smothering were observed at least a mile downstream of the sample site. These bacteria and the associated precipitated iron smother the gills and bodies of the fish and wildlife. The stream was very turbid after disturbance, and the floc-like sediments re-suspended rapidly. During rainfall events, the turbidity, iron and sediment pollution load will be transported down Little Reedy Branch to the Choctawhatchee River and into Choctawhatchee Bay. Iron is a contributor for algal blooms in marine waters. The Bay has experienced fish kills (including juvenile gulf sturgeon) caused by red tide blooms during 1999 and 2000. Excessive iron loading may be a factor. The dissolved oxygen (DO) concentration (3.64 mg/l) was reduced to below State Standards (5 mg/l). The DO at the adjacent Rattlesnake Head was 6.14 mg/l coming directly from ground. The Little Reedy Branch specific conductance was 106 umho/cm compared with 28 umho/cm found in Rattlesnake Head. The Little Reedy Branch sediments and substrates had an anaerobic, iron/sulfur odor typical of landfill leachate. Acute toxicity test screening of Little Reedy Branch using water fleas found 40% mortality at 48 hours.



Conclusions

The Little Reedy Branch 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. The iron/sulfur bacteria and chemical leachate effects from the landfill contributed to this stream not meeting State designated use. Organic sediment and nutrient loading from the landfill's groundwater discharge reduced the dissolved oxygen below the Florida Administrative Code standards 62-302.530(31), ("shall not be less than 5 mg/l"). Low DO, organic deposition, smothered wildlife habitat, and toxicity test mortality impaired the stream's fish and wildlife nursery function. Leachate affects from the Mudhill landfill negatively impacts Little Reedy Branch, Pine Log Creek, Choctawhatchee River, and Choctawhatchee Bay's fish and wildlife. Habitat smothering, organic loading and limited macro benthos could affect the federally endangered gulf sturgeon, which inhabits the Choctawhatchee River System. Isolating the landfill leachate onsite would prevent contaminates from migrating to State Waters through natural springs at the site. Restoration of the stream's natural hydrology (i.e. flow, depth) and preserving riparian wetland forests buffer zones would benefit the watershed's fish and wildlife. **For more information, contact Donald Ray, FDEP Northwest District, 160 Governmental Center, Pensacola, FL 32501 (850) 595-8300 x1126 or SC 695-8300**