



EcoSummary

BioRecon Report



Sodom 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 Sodom Branch. This bioassessment was in technical support of a compliance action by the FDEP Northwest District's Waste Management Cleanup Section. Sodom Branch at the bioassessment site is a first order stream, originating at the landfill, below Mudhill Road, less than 2 miles southwest of Wausau, Washington County (Lat. 30° 36' 34.2" Long. 85° 36' 52.3"). Steephead slope streams such as Rattlesnake Head were observed in adjacent, less disturbed headwater areas. Sodom Branch flows into Choctawhatchee Bay via Pine Log Creek and Choctawhatchee River. Sodom Branch drains the Dougherty/Marianna Plains of subcoregion 65g.



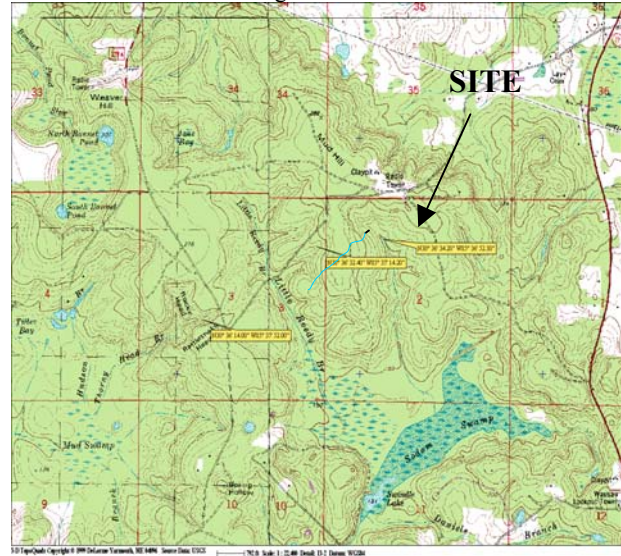
Results and Discussion

The BioRecon indicated an impaired biological community. Two of 3 biological indicators failed thresholds established for a healthy aquatic wildlife community:

Biometrics	Value	Thresholds
Taxa Richness	26	≥24
Florida Index	14	≥22
EPT	10	≥17

Sediments from gully formation along the slopes of the landfill (see insert on upper left of photograph) limited the stream biological community. Sand smothered 70% of the aquatic habitats, which reduced the stream's wildlife diversity and productivity. A trace amount of gravel present probably indicated a gravel bottom substrate in the stream before stormwater runoff from the landfill filled the channel with sand. During rainfall events, the turbidity and sediment pollution load will be transported to Sodom Swamp and eventually to Choctawhatchee Bay. The dissolved oxygen concentration (8.3 mg/l) was above State Standards (5 mg/l) with good DO % saturation (87%). The specific conductance was 50 umho/cm compared 28 found in Rattlesnake Head, a nearby comparison site. The sediments and substrates had normal odors. Acute toxicity test screening of Sodom Branch using water fleas and fish (bannerfin shiners) found 100% survival at 48 hours. Shiners (*Notropis*) were observed in Sodom

Branch's headwaters. Iron/sulfur bacteria were rare in this eastern drainage of the Mudhill landfill in comparison to the Little Reedy Branch drainage on the western side of the slope. It appeared most of the landfill's contaminated groundwater drained to the west-southwest.



Conclusions

The Sodom 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 sediment runoff from the landfill contributed to this stream not meeting State designated use. Sediment loading from the landfill's surface water runoff destroyed wildlife habitat. Sand deposition smothered wildlife habitat, impairing the stream's fish and wildlife nursery function. Stormwater runoff from the Mudhill landfill negatively impacts Sodom Branch, Pine Log Creek, Choctawhatchee River, and Choctawhatchee Bay's fish and wildlife. Habitat smothering, sediment loading and limited macro benthos could affect the federally endangered gulf sturgeon, which inhabits the Choctawhatchee River System. Stormwater retention to restore the natural percolation onsite would prevent gully formation discharging sediment that fill State Waters. This would also assist in restoring the natural steephead springs at the site. Downstream on Sodom Branch, sediment runoff from the Washington County Public Works Facility to the northeast was observed. This erosion was already recognized by the new public director as a problem to be fixed. 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**