



EcoSummary

BioRecon Report



Little Rocky Creek below Clay Pit C-15, Walton County September 9, 1999

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

Purpose

A bioassessment was performed at this site on a Little Rocky Creek tributary to assess the impacts of mine pit runoff on its biota and wildlife habitat. This bioassessment was in technical support of a University of Florida grant with Eglin Air Force Base's Jackson Guard to study sedimentation impacts of mine runoff on riparian zone vegetation.

Background

The Little Rocky Creek tributary at the bioassessment site is a first order stream, originating about 3 miles northeast of Niceville (Lat. 30°34' 40.6" Long. 86° 23' 14.9") about 1300 feet east of the Okaloosa County line. Little Rocky Creek flows into Choctawhatchee Bay via Rocky Creek and Rocky Bayou. This site drains the Southern Pine Plains and Hills of subcoregion 65f. The Rocky Creek drainage and adjacent Turkey Creek are only watersheds in the world that contain the endangered Okaloosa Darter.



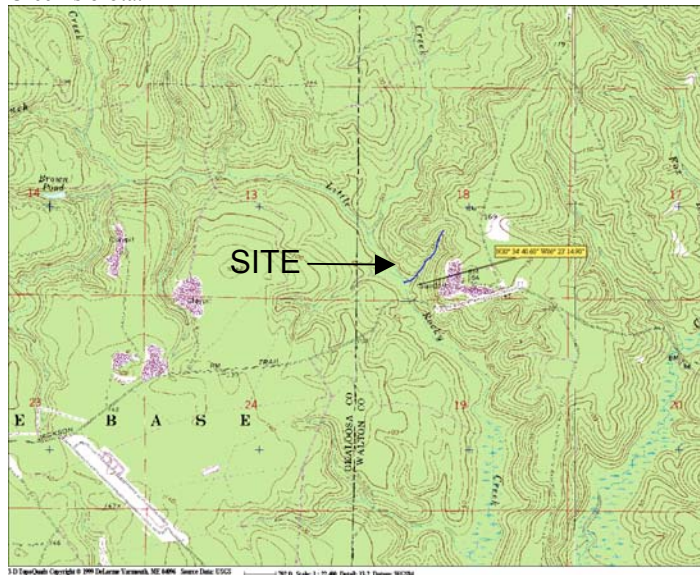
Results

The BioRecon indicated a severely impaired biological community. All 3 biological indicators at Little Rocky Creek failed thresholds established for a healthy aquatic wildlife community. Biometrics results from another first order stream, Mt. Sinai Branch about 5 miles to the north, are given below as a comparison

Biometrics	L.Rocky Cr.Values	Mt. Sinai Br. Values	Thresholds
Taxa Richness	9	33	≥24
Florida Index	4	28	≥22
EPT	1	19	≥17

The stream community at this site was severely limited by sediment runoff from the C-15 mining pit. The habitat assessments rated poor at 35% compared to natural conditions. Iron/sulfur bacteria were common, producing sheen on the water surface in the low velocity stream backwaters. Clay and sand sediments washed from the mining pit smothered 85% of the aquatic habitats, which eliminated most of the stream's wildlife diversity and productivity. Sediments filled the stream channel to a depth of 1 meter. This left a water depth of 0.2 meters or less, too shallow to support a well-balanced fish population. The creek was severely braided from sediments filling the stream channel. Smothering from the mine pit sediment runoff had killed much of Little Rocky Creek tributary's wetland forest riparian buffer zone. These buffer zones provide the shade, food, habitat (woody debris/leaf fall/roots) and filtration necessary for the continued propagation of

Creek's biota.



Significance

This Little Rocky Creek tributary 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 from the mine pit runoff caused this stream to not meet State designated use. Sediment deposition has reduced stream flow, which impairs the stream's fish and wildlife nursery function. Habitat smothering from sedimentation and water pollution from the mine pit sediment runoff may negatively affect Choctawhatchee Basins' fish and wildlife. Intense rainfall, sandy soil, and steep topographical relief make the Little Rocky Creek watershed highly susceptible to erosion after removal of vegetative cover. During rainfall events turbidity, iron and sediment pollution loads will be transported to Little Rocky, Rocky Creeks, Rocky Bayou, and Choctawhatchee Bay. Iron is a contributor for red tide blooms in marine waters. During the summer of 2000, Choctawhatchee Bay experienced fish kills including juvenile gulf coast sturgeon, an endangered species, attributed to a red tide bloom. Shading from turbidity and sediment smothering destroy seagrass and oyster reef nursery areas in down stream estuarine waters. Reduced flows, plus iron and sediment loading could affect the federally endangered Okaloosa darter in the Rocky Creek drainage and the gulf sturgeon, which inhabits the Choctawhatchee Bay System.

Suggestions

Eglin's Jackson Guard has plans to stabilize the mine pit and restore the riparian zone at this site. This is part of their watershed rehabilitation project to protect the Okaloosa Darter on the Federal list of endangered species. Restoring the stream's natural hydrology (i.e. depth/width ratio), maintaining a >18 meter riparian forest buffer zone and eliminating sediment runoff would allow the watershed's fish and wildlife habitat (woody debris, leaf packs, undercut banks, roots, and aquatic vegetation) to return. **For more information, contact Donald Ray, FDEP Northwest District, 160 Governmental Center, Pensacola, FL 32501 (850) 595-8300 x1126 or SC 695-8300**