

EcoSummary

BioRecon Report



Open Branch above Eglin Road 214/374, Walton County July 18, 2000

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

Purpose

A bioassessment was performed at this Open Branch site to document its biota and wildlife habitat at the start of an Eglin Air Force Base watershed rehabilitation project. The BioRecon was conducted to assist the Base's Jackson Guard program monitoring the federally listed endangered Okaloosa Darter.

Background

Open Branch at the bioassessment site (Lat. 30° 38' 33.9 " Long. 86° 19' 29.1") is a second order stream originating in steepheads above and in Eglin Range C-72 located south of Highway 285 and west of DeFuniak Springs. Open Branch flows into Choctawhatchee Bay via Rocky Creek and Bayou. This site drains the Southern Pine Plains and Hills subecoregion (65f).



Results

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

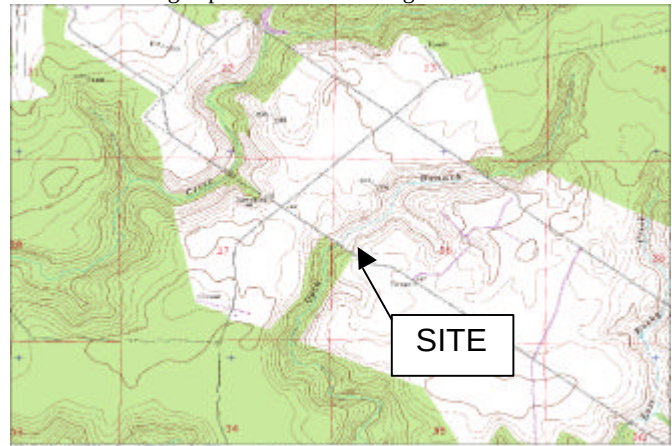
Biometrics	Values	Thresholds
Taxa Richness	19	≥24
Florida Index	8	≥22
EPT	4	≥17

The biota consisted of bloodworm midges and other pollution tolerant wildlife. Sediment loading, hydrological and buffer zone modifications negatively impacted fish and wildlife in this stream reach. Stream habitats were smothered by silt/sand (88%) from road sediments and weapons test range C-72 runoff. Iron/sulfur bacteria were abundant in the anaerobic sediments, which had a hydrogen sulfide odor. The Eglin Road 214/374 culverts and fill material used to span the stream and riparian zone acted as a dam (see photo). These conditions exacerbated smothering in addition to encouraging a beaver dam. Compared to other local streams, hydrological modifications to Open Branch had increased water temperature by 3.5° C, lowered the dissolved oxygen concentration by 2.4 mg/l, and widened the stream over 10 fold, which

reduced water velocity. Human disturbances reduced the riparian buffer zone to a width of 1 meter. The riparian zone's tree canopy originally consisted of an Atlantic white cedar type forest, which heavily shaded the stream. It converted to an open canopy of St. Johns wort and forbs after range personnel removed the streamside trees by mechanical/chemical methods.

Significance

This Open 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. Sediment loading from test range and dirt road erosion had affected fish and wildlife by eliminating habitat. This limited the stream's fish and wildlife nursery function, and impacted the federally listed endangered Okaloosa Darter found in Open Branch. The western panhandle of Florida experiences severe erosion. Soft sandy soil, intense rainfall, and steep topographical relief make this area highly susceptible to erosion after range operations remove vegetative cover.



Suggestions

Removing road fill and replacing with a bridge spanning Open Branch Creek and its floodplain would help restore the stream's natural morphological characteristics. Adding habitat such as large woody debris, along with stream bank protection and channel restoration during the stream rehabilitation program for the Okaloosa Darter should enhance fish and wildlife productivity and diversity. Proper placement of large pine logs along the stream bank would enhance riffle/pool habitat (velocity and depth) for the darters and other stream wildlife. Riparian buffer zones greater than 18 meters should be created and maintained. The buffer zones provide the shade, food, habitat (woody debris/leaf fall) and filter runoff necessary for the propagation of Open Branch's biota. Restoring the stream's natural hydrology (i.e. increase depth/width ratio) and riparian forests (replanting native Atlantic white cedars, allowing streamside tree growth) buffer zones would benefit the watershed's fish and wildlife including the endangered Okaloosa darter. **For more information, contact Donald Ray, FDEP Northwest District, 160 Governmental Center, Pensacola, FL 32501 (850) 595-8300 x1126 or SC 695-8300**