EcoSummary

Jones Creek above Brigadier Street
Pensacola Junior College (west campus)
March 28, 2006

FLORIDA AMBIENT

FAIL

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 BioRecon was conducted at Jones Creek as a pre-restoration bioassessment to monitor Escambia County's stream restoration project. The project summary from the Escambia County Jones Creek Stream Restoration Project quality assurance plan is as follows:

"Escambia County contracted a professional stream restoration design firm to develop a master conceptual plan to restore Jones Creek and floodplain utilizing natural stream channel design techniques (County matching funds). Federal grant funds will be utilized to finalize the design and implement the stream and floodplain restoration project according to natural stream channel design. The proposed restoration project will remove dredged material from the stream bank, improve water quality in federally listed impaired waters, re-establish the connectivity of Jones Creek with the adjacent wetland floodplain, restore sheet-flow hydrology through the floodplain wetland by filling in the stormwater ditches, and rehydrate approximately 50 acres of floodplain wetlands that have been historically ditched and drained. In addition, the Jones Creek channel will undergo several improvement projects, such as culvert removal and development of stream meanders, cross vanes, and side channel pools. The project objective is to improve aquatic and wetland resources and habitat in the Jones Creek Watershed."

A post-restoration BioRecon providing biological assessment of habitat and invertebrate

communities will be done by FDEP District biologists at the completion of this Jones Creek restoration project.

Watershed Characteristics

The Jones Creek bioassessment site (STORET # 33020126) located at Latitude 30 degrees 23 minutes 42.4 seconds West Longitude 87 degrees 17 minutes 7.4 seconds drains the Gulf Coast Flatwoods subecoregion 75a. It is probably a third order stream; however it is difficult to determine the stream order because of man-made alterations to the watershed. Jones Creek is a State listed Class III water body designated for recreation and the propagation and maintenance of a healthy, well-balanced population of fish and wildlife. Jones Creek flows into Pensacola Bay via Bayou Chico. Land use in the approximately 2700 acre watershed includes residential, commercial, and institutional parcels with about 500 acres of the Jones Swamp wetlands comprising about 15% of the total area.

Results

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

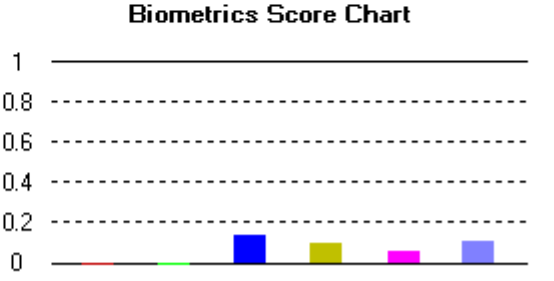
Biometrics	Metric Score
# TOTAL TAXA	0
# EPHEMEROPTERA TAXA	0
# TRICHOPTERA TAXA	0.14
# LONG-LIVED TAXA	0.1
# CLINGER TAXA	0.06
# SENSITIVE TAXA	0.11
TOTAL METRIC SCORE :	0.41
/ Correction Factor :	0.6
= BIORECON SCORE :	1

○ Pass 6 - 10
◉ Fail 0 - 5

JONES CREEKABOVE BRIGADIER RD. CULVERT SOUTH OF WEST PJC CAMPUS

BioRegion : Panhandle West

Sample Date : Mar 28, 2006



The macroinvertebrate community consisted of a total of 16 pollution indicating taxa dominated by midges (chironomidae) and the tolerant caddisfly *Cheumatopsyche* . Worms and isopods were abundant. Amphipods were common. Beetles, dragonflies, true bugs, crayfish, and leeches were also present. Mayflies,stoneflies, and caddisflies, the major component of healthy panhandle streams were noticeably missing except for the pollution tolerant *Cheumatopsyche*.

The Jones Creek Habitat Assessment rated marginal (48%), down-graded by poor

conditions of Substrate Availability, Habitat Smothering and Artificial Channelization. Substrate Diversity rated a marginal score. Water Velocity, Bank Stability, and Riparian Zone Vegetation Quality (down-graded by the presence of invasive Chinese tallow and privet) rated suboptimal. Riparian Buffer Zone Width rated optimal.

The sediments (60% mud/muck/silt) were anaerobic with hydrogen sulfide odors. The water was a tannic color and turbid (secchi 0.2 meters) with hydrogen sulfide odor and oil sheen. Oil cans were among the observed litter in the stream, some of it washed in by runoff from the college parking lot. The dissolved oxygen (DO) concentration of 5.15 mg/l barely met the Florida Administrative Code 62-302.530(31), ("shall not be less than 5 mg/l"). Water temperature was a cool 14.5 degrees centigrade. The percent DO concentration was only 49% indicating a probable DO violation during the summer as the water temperatures increase. Conductivity was 74 umho/cm, a little above background conductivity measurements found in area streams (less than 50 umho/cm). The pH was 6.35 standard units. Periphyton was common rather than abundant, although it smothered some substrates and iron/sulfur bacteria were rare. Mosquito fish, the only vertebrate observed in the 100 meter sample reach were common.

Significance

The Jones 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. Previous bioassessments of Jones Creek below Navy Boulevard (State Road 295) down stream of this site during 1995 and 1996 found essentially the same impaired biological community with 15 and 16 total taxa.

Suggestions

Complete the stream restoration activities proposed by the Escambia County Engineering Department Water Quality Section staff. Use properly placed large woody debris (mature pine logs function best) in the stream to restore fish and wildlife habitat and re-establish the stream's natural hydrology to a more sinuous channel with pools and riffles. Maintain at least an eighteen meter riparian buffer zone along the stream. Continue forest management practices to protect and restore native riparian and transitional zone forests (remove invasive vegetation like Chinese privet and tallow) to enhance fish and wildlife diversity and productivity. It is recommended the County's ecological restoration program in the Jones Creek watershed be expanded to include residential, commercial, and institutional lands.

For more information, please contact
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For more information on the DEP Bioassessment programs, please visit our web site at http://www.dep.state.fl.us/water/bioassess

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