EcoSummary

Page Bridge Branch below Telogia Power

November 14, 2007

FAIL

FLORIDA AMBIENT

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



This bioassessment was performed at Page Bridge Creek (name from Liberty County officials) below Telogia Power LLC (current company name in Industrial Waste records) at the request of the Northwest District Director. Liberty County officials described Page Bridge Creek as being dead and asked if it was result of the previous Reichhold Chemical Company operations or the result of Telogia Power's operation. Water quality and biological stream health data was needed for the permit renewal evaluatory process.

Watershed Characteristics

Page Bridge Creek, at the bioassessment site (STORET 22020051), was located less than 2 miles south of theTelogia community in Liberty County (Latitude N30 degrees 20 minutes 12.1 seconds; Longitude W84 degrees 48 minutes 38). This stream drains the Brush Island Swamp, along with industrial, highway, railroad, and silviculture land-use areas. Page Bridge Creek flows to Stokes Branch, Telogia Creek, and Ochlockonee River before emptying into Ochlockonee Bay . Page Bridge Creek is designated Class III waters for recreation and maintenance of a

healthy, well-balanced aquatic community. The watershed drains the Southern Pine Plains and Hills of subecoregion 65f. The Brush Island Swamp had been modified by the industrial site, highway, and railroad tracks. Page Bridge Creek below Telogia Power had been dredged and riparian zone cleared in the past.

Results and Discussion

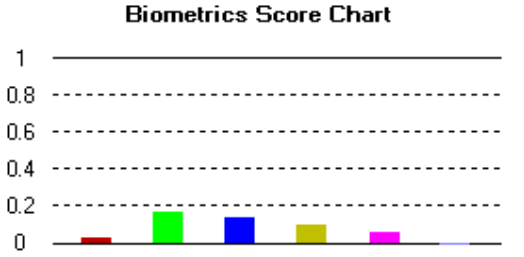
The bioassessment indicated a severely impaired biological community, scoring only 1 out of 10 for the BioRecon Score. All 6 biological indicators failed thresholds established for a healthy aquatic wildlife community:

Biometrics	Metric Score
# TOTAL TAXA	0.03
# EPHEMEROPTERA TAXA	0.17
# TRICHOPTERA TAXA	0.14
# LONG-LIVED TAXA	0.1
# CLINGER TAXA	0.06
# SENSITIVE TAXA	0
TOTAL METRIC SCORE :	0.5
/ Correction Factor :	0.6
= BIORECON SCORE :	1

○ Pass 6 - 10
◉ Fail 0 - 5

TRIB OF STOKES BR, TST SITE-TIMBER ENERGY FYI

BioRegion : Panhandle West
Sample Date : Nov 14, 2007



The Total Taxa (17) at the test site was half that of the adjacent tributary, Big Cypress Branch (34) that was used as a control site. The Florida Index (5) at the Page Bridge Creek test site also was half the control (10). The EPT (3) was only 40% of the control site (5) and included *Caenis*, a tolerant mayfly and *Cheumatopsyche*, a tolerant caddis fly. The control site in contrast, included sensitive EPT taxa typically found in healthy panhandle streams. This included the mayflies *Eurylophella*, *Paraleptophlebia*, *Stenacron* and the caddis flies *Heteroplectron* and *Nectopysche* along with cases for *Oecetis* and *Phylocentropus*. Bloodworms (*Chironomus)*, tolerant of low dissolved oxygen concentrations and poor water quality were the most abundant taxa observed below Telogia Power. Sponges (Porifora) and riffle beetles (Elmidae) not found in the test site were abundant in the control site despite mostly stagnant conditions cause by an apparent improperly installed road culvert.

The Page Bridge Creek Habitat Assessment rated marginal (44%), down-graded by poor conditions of Habitat Smothering (100% organic loading), Substrate Availability, Artificial Channelization, and Riparian Buffer Zone Width. Substrate Diversity rated

a marginal score. Water Velocity and Riparian Zone Vegetation Quality rated suboptimal. Bank Stability rated optimal.

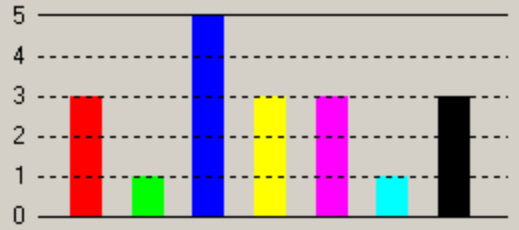
The dissolved oxygen (DO) concentration of 3 mg/l at 0.1 meters depth below Telogia Power was in violation of the Rule 62-302.530(30), F.A.C. ("shall not be less than 5 mg/l"). The percent DO concentration was 31%. The Big Cypress Branch control was 4.16 mg/l DO and 39% saturation from the stagnant condition caused by what appears to be an improperly placed silviculture road culvert. Water temperature in Page Bridge Branch below Telogia Power was elevated at 17.47 degrees centigrade (63 degrees F) compared to 13.52 degrees (56 degrees F) at Big Cypress Branch. This 7 degree F increase did not meet Class III water standards of Rule 62-302.530(65), F.A.C. for maximum temperature differential of 5 degrees Fahrenheit. The facility had paid FDEP $131,000 in 1999 for past Thermal Criteria violations of Rule 62-302.530(65), F.A.C. Conductivity was elevated below Telogia Power at 1,710 umho/cm in violation of Rule 62-302.530(22), F.A.C. The 1999 Fifth Year compliance monitoring found the effluent conductivity at 1,400 umho/cm. Conductivity was 124 umho/cm at Big Cypress Branch. Biochemical Oxygen Demand was elevated to 3.6 mg/l below Telogia Power and less than 0.5 mg/l in Big Cypress Branch. The pH was similar at both sites, 6.91 standard units below Telogia Power and 6.86 standard units in Big Cypress Branch. Turbidity was 3 NTU below Telogia Power and 1 NTU in Big Cypress Branch. Chlorophyll a was at an algal bloom concentration of 15.7 ug/l below Telogia Power. Big Cypress Branch was less than 5 ug/l Chlorophyll a, typical of panhandle streams.

Sediment odors were hydrogen sulfide and sulfur. Sediment oils were absent. The water was clear, slightly tannic, and green with normal odor. Iron/sulfur bacteria and aquatic macrophytes were absent. Periphyton was rare although there was a plankton bloom evidenced by the chlorophyll concentrations noted above. The only fish present were mosquito fish, which were common. Darters, pirate perch, and salamanders were common at the Big Cypress Branch control site.

Stream condition index samples at the test site during 1993 and 1999 had a consistently poor score of 19. The test site had the typical tolerant taxa. However, more sensitive riffle beetles not present in 1993 re-appeared at the test site during 1999, but disappeared again in 2007.

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Stream Condition Index Metric Scores



BioRegion : **Panhandle West**

Index Period : **Summer - Aug 1999**

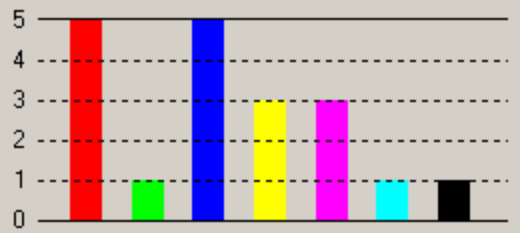
○ Excellent	27 - 33
○ Good	21 - 26
◉ Poor	14 - 20
○ Very Poor	7 - 13

Core Metrics	Value	5 Points	3 Points	1 Point	Score
# TOTAL TAXA	23	>= 31	30 - 16	< 16	3
EPT INDEX	3	>= 7	6 - 4	< 4	1
# CHIRONOMID TAXA	9	>= 9	8 - 5	< 5	5
% DOMINANT TAXON	28.83	<= 22	23 - 61	> 61	3
% DIPTERA	31.53	-	<= 50	> 50	3
FLORIDA INDEX	6	>= 16	15 - 8	< 8	1
% SUSPENSION FEEDERS / FILTERERS	10.36	>= 12	11 - 6	< 6	3

Macroinvertebrate Dip Net
(20 sweeps of most productive substrates)

SCI TOTAL SCORE 19

TRIB OF STOKES BR, TST SITE-TIMBER ENERGY FYI



BioRegion : Panhandle West

Index Period : Summer - Oct 1993

Excellent	27 - 33
Good	21 - 26
Poor	14 - 20
Very Poor	7 - 13

Core Metrics	Value	5 Points	3 Points	1 Point	Score
# TOTAL TAXA	31	>= 31	30 - 16	< 16	5
EPT INDEX	2	>= 7	6 - 4	< 4	1
# CHIRONOMID TAXA	10	>= 9	8 - 5	< 5	5
% DOMINANT TAXON	48.29	<= 22	23 - 61	> 61	3
% DIPTERA	24.79	-	<= 50	> 50	3
FLORIDA INDEX	6	>= 16	15 - 8	< 8	1
% SUSPENSION FEEDERS / FILTERERS	5.13	>= 12	11 - 6	< 6	1

Macroinvertebrate Dip Net
(20 sweeps of most productive substrates)

SCI TOTAL SCORE 19

Conclusions

The Page Bridge Creek site below Telogia Power did not meet Class III State Water Quality Standards of Chapter 62-302, F.A.C. for recreation and the propagation and maintenance of a healthy, well-balanced population of fish and wildlife. Some of the factors responsible for the biological impairment included: dissolved oxygen (DO) concentration in violation of Rule 62-302.530(30), F.A.C., water temperature not meeting the Thermal Criteria of Rule 62-302.530(65), F.A.C., conductivity in violation of Rule 62-302.530(22), F.A.C., Biochemical Oxygen Demand elevated to 3.6 mg/l, and Chlorophyll a at algal bloom concentration levels.

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