EcoSummary

Eightmile Creek below Ashland Avenue

March 8, 2005

POOR

TMDL STUDIES

Stream Condition Index (SCI): The standardized biological assessment tool used by FDEP biologist to indicate ecosystem health and identify impairment as compared to reference (natural) conditions of streams within the various ecoregions of Florida

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 2005 SCI bioassessment was performed to verify biological impairment documented by a 1997 Eight Mile Creek Watershed Total Maximum Daily Load (TMDL) BioRecon. This site failed all three biometrics of that 1997 BioRecon conducted to assess the health of the biota and wildlife habitat in Eight Mile Creek. For this reason, Eight Mile Creek was included on the FDEP Basin Rotation Group 5 (Perdido Basin) Planning List of Impaired Waters. The FDEP planning list is an inventory of surface waters or segments of which impairment of one or more parameters is suspected and additional sampling is required to verify the suspected impairment(s). Stream Condition Index (SCI) assessments are required to verify biological impairment of a stream or water body segment (Rule 62-330.330). When

impairment is verified, a TMDL will be developed, as provided in Subsection 403.067(2) in Florida Statutes, to determine reductions in the pollutant to obtain the water body's designated use.

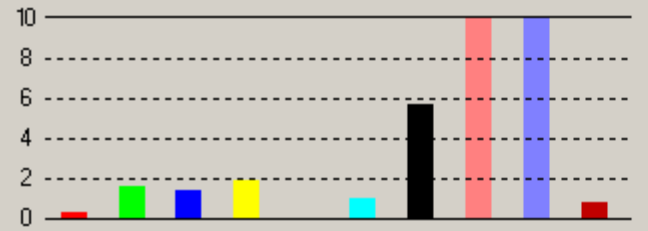
Watershed Characteristics

Eight Mile Creek (STORET 33010122) at the bioassessment site (latitude North 30 degrees 31 minutes 7.2 seconds longitude West 87 degrees 17 minutes 53.3 seconds) is a third order stream that drains the Southern Pine Plains and Hills of subecoregion 65f. Its headwaters begin along U.S. Highway 29 above Nine Mile Road north of Pensacola, Escambia County. Eight Mile Creek above this SCI site on Ashland Avenue in Ensley is highly urbanized with filled riparian wetlands and deeply dredged ditches that replaced the original stream channel. The watershed flows into Perdido Bay and is designated Class III waters for recreation and maintenance of a healthy, well-balanced aquatic wildlife community.

Results

The SCI score indicated an impaired biological community with a poor condition metric score. The SCI final score of 37 of a possible 100 index points failed to meet biological indicator thresholds established for a healthy aquatic wildlife community:

EIGHTMILE CREEK ABOVE ASHLAND AVE ESC. CO. PNS



BioRegion : Panhandle West

Sample Date : Mar 08, 2005

Good	73 - 100
Fair	46 - 72
Poor	19 - 45
Very Poor	0 - 18

Core Metrics	Value	0 - 10 Points	Metric Score
# TOTAL TAXA	17	16 - 49	0.3
# EPHEMEROPTERA TAXA	1	0 - 6	1.67
# TRICHOPTERA TAXA	1	0 - 7	1.43
# CLINGER TAXA	3	0 - 15.5	1.94
# LONG-LIVED TAXA	0	0 - 5	0
# SENSITIVE TAXA	2	0 - 19	1.05
% DOMINANT TAXON	24.04	43 - 10	5.75
% SUSPENSION FEEDERS / FILTERERS	47.6	1 - 45	10
% TANYTARSINI	26.92	0 - 26	10
% VERY TOLERANT	25.96	36 - 0	0.85
	TOTAL METRIC SCORE :		32.99
	/ Correction Factor :		0.9
	= SCI FINAL SCORE :		37

Macroinvertebrate Dip Net (20 sweeps, emphasizing most productive substrates)

Eight Mile Creek's macroinvertebrate community was very degraded. Midges and tolerant organisms replaced the sensitive stonefly, mayfly, and caddisfly community found naturally in panhandle streams. Nonpoint source runoff and habitat destruction appear to be the main source of anthropogenic impairment. Water quality parameter (i.e. alkalinity, calcium, magnesium, Kjeldahl nitrogen, organic carbon, and total phosphorus) values were slightly elevated over typical of panhandle waters. Eight Mile Creek water quality worsens during and after rainfall (turbidity 58 NTU, suspended solids 45 mg/l, fecal coliform bacteria 14091/100 ml, and total coliform bacteria 67000/100 ml after a 09/26/05 rain), because of urban nonpoint source runoff. Much litter, trash, buckets, plastic bags, and other discarded plastic items were evidence of affects from periodic stormwater runoff from an urban area. Stormwater runoff from Ashland Avenue was designed to wash roadside litter into the stream. Many discarded tires, a clothes dryer, and bloated deer carcass were observed in the 100-meter samples reach. There was a bluegreen and filamentous green algae bloom and iron/sulfur bacteria presence was common at this site. The Habitat Assessment rated marginal at 41% due to poor ratings of Available Substrate (1.4%) and Habitat Smothering (90%) by fine particle organic matter. Substrate diversity, Water Velocity, Bank Stability,

Riparian Buffer Zone Width, and Riparian Zone Vegetation Quality for the right bank rated marginal. The invasive Chinese privet was the dominant understory shrub. Left bank Riparian Zone Vegetation Quality rated suboptimal. Artificial Channelization at this reach and left bank Riparian Buffer Zone Width rated optimal.

Significance

Biological impairment is verified by this SCI. TMDL development to reduce pollutant loading will proceed according to the Impaired Waters Rule, Chapter 62-303, Florida Administrative Code. Eight Mile Creek in this reach 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. Destruction of the stream corridor upstream of this site along with historical urban development without regard for stormwater impacts to the Eight Mile Creek fish and wildlife community are the main reasons for the biological impairment. Components of nonpoint source runoff (i.e. turbidity, oil/grease, bacteria) and habitat alteration and destruction resulted in Eight Mile to not meet its designated use.

Suggestions

Restore wetlands in the watershed and re-design the stormwater runoff infrastructure to allow natural detention and water quality treatment before discharging to Eight Mile Creek. Former stream channels converted to drainage ditches can be restored and riparian buffer zones re-vegetated. Portions of the watershed are flood prone because land development occurred in areas that were originally wetlands. Eight Mile Creek corridor's hydrologic and geomorphic conditions along with the biological and chemical characteristics in this report should be analyzed to make appropriate restoration decisions. *Stream Corridor Restoration: Principles, Processes, and Practices* is a recommended technical reference manual that details stream corridor restoration techniques that can help improve streams considered degraded from erosion, sedimentation and excess nutrients. This manual by the Natural Resources Conservation Service, Washington, DC contains field-tested methods and approaches.

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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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