

# 2008 Monitoring Summary

## Ambient Monitoring Site

### Perdido River at Barrineau Park Road in Baldwin County (30.69047/-87.44026)

#### BACKGROUND

Perdido River at PDBB-5 is one of a network of 94 ambient sites monitored annually by the Alabama Department of Environmental Management (ADEM) to identify long-term trends in water quality and to provide data for the development of Total Maximum Daily Loads (TMDL) and water quality data.

Perdido River was also selected for biological and water quality monitoring as part of the 2008 Assessment of the Southeast Alabama (SE AL) River Basins. The objectives of the SE AL Basin Assessments were to assess the biological integrity of each monitoring site and to estimate overall water quality within the SE AL basin group. Habitat and macroinvertebrate assessments were not conducted because the river was not wadeable.



Figure 1. Perdido River at PDBB-5, May 5, 2010.

Table 1. Summary of watershed characteristics.

Watershed Characteristics		Perdido-Escambia River
<b>Basin</b>		Perdido-Escambia River
<b>Drainage Area (mi<sup>2</sup>)</b>		393
<b>Ecoregion<sup>a</sup></b>		65f
<b>% Landuse</b>		
Open water		<1
Wetland	Woody	3
	Emergent herbaceous	<1
Forest	Deciduous	3
	Evergreen	48
	Mixed	8
Shrub/scrub		10
Grassland/herbaceous		<1
Pasture/hay		6
Cultivated crops		15
Development	Open space	4
	Low intensity	1
	Moderate intensity	<1
	High intensity	<1
Barren		<1
<b>Population/km<sup>2b</sup></b>		15
<b># NPDES Permits<sup>c</sup></b>	<b>TOTAL</b>	84
	Coastal Certification	1
	Construction Stormwater	59
	Mining	4
	Industrial General	5
	Industrial Individual	9
	Municipal Individual	4
	Underground Injection Control	2

a.Southern Pine Plains & Hills

b.2000 US Census

c.#NPDES permits downloaded from ADEM's NPDES Management System database, 23 February 2011

#### WATERSHED CHARACTERISTICS

Watershed characteristics are summarized in Table 1. Perdido River at PDBB-5 is a *Fish & Wildlife (F&W)* stream located in the Southern Pine Plains and Hills ecoregion (65f) in Baldwin County. Based on the 2000 National Land Cover Dataset, landuse within the watershed is mainly forest (59%). Development accounted for 7% of land cover in the area. Eighty-four permitted discharges were located in the watershed.

#### WATER CHEMISTRY

Results of water chemistry are presented in Table 2. In situ measurements and water samples were collected June, August, and October to help identify any stressors to the biological communities. In situ measurements showed Perdido River to be meeting temperature, turbidity, dissolved oxygen, and pH criteria for its *F&W* use classification. However, median temperature and specific conductance was slightly elevated as compared to the median concentration of data collected at ADEM's reference reaches in sub/ecoregion 65f. Nutrient values were as expected for this sub/ecoregion based on the 90th percentile of reference reach data collected. No metals, pesticides/herbicides (atrazine) or semi-volatile organics samples were collected.

#### SUMMARY

As part of the assessment process, ADEM reviews all available data including the monitoring information presented in this report. Habitat and macroinvertebrate assessments could not be completed due to non-wadeable conditions at the site. With the exception of slightly elevated temperature and conductivity parameters, the water quality data suggested no immediate problems at PDBB-5. Macroinvertebrate and habitat assessments should be conducted, if possible, during ADEM's 2013 basin assessment project to evaluate the condition of the biological community.

**Table 2.** Summary of water quality data collected in June, August and October, 2008. Minimum (Min) and maximum (Max) values calculated using minimum detection limits (MDL) when results were less than this value. Median, average (Avg), and standard deviations (SD) values were calculated by multiplying the MDL by 0.5 when results were less than this value.

Parameter	N	Min	Max	Med	Avg	SD
<b>Physical</b>						
Temperature (°C)	3	22.5	27.0	26.0 <sup>M</sup>	25.2	2.4
Turbidity (NTU)	3	1.5	4.2	2.5	2.7	1.4
Total Dissolved Solids (mg/L)	3	31.0	39.0	36.0	35.3	4.0
Total Suspended Solids (mg/L)	3	< 5.0	< 5.0	2.5	2.5	0.0
Specific Conductance (µmhos)	3	25.0	27.0	26.1 <sup>G</sup>	26.0	1.0
Hardness (mg/L)	3	4.0	13.0	5.0	7.3	4.9
Alkalinity (mg/L)	3	2.0	15.0	8.0	8.3	6.5
Stream Flow (cfs)	3	237.0	274.0	270.0	260.3	20.3
<b>Chemical</b>						
Dissolved Oxygen (mg/L)	3	7.7	8.5	8.0	8.1	0.4
pH (su)	3	6.0	6.5	6.1	6.2	0.3
Ammonia Nitrogen (mg/L)	3	< 0.010	< 0.010	0.005	0.007	0.003
Nitrate+Nitrite Nitrogen (mg/L)	3	0.182	0.279	0.206	0.222	0.050
Total Kjeldahl Nitrogen (mg/L)	3	< 0.100	0.650	0.370	0.357	0.300
Total Nitrogen (mg/L)	3	< 0.329	0.832	0.576	0.579	0.252
Dissolved Reactive Phosphorus (mg/L)	3	< 0.005	0.013	0.006	0.007	0.005
Total Phosphorus (mg/L)	3	0.013	0.019	0.014	0.015	0.003
<sup>J</sup> CBOD-5 (mg/L)	3	< 1.0	1.3	0.5	0.8	0.5
Chlorides (mg/L)	3	< 6.0	< 6.0	3.0	3.0	0.0
<b>Biological</b>						
Chlorophyll a (ug/L)	3	< 1.00	1.50	0.50	0.83	0.58
<sup>J</sup> Fecal Coliform (col/100 mL)	3	12	280	14	102	154

G=value higher than median concentration of all verified ecoregional reference reach data collected in the ecoregion 65f; J=estimate; M=value>90% of all verified ecoregional reference reach data collected in the ecoregion 65f; N= # of samples.

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