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Biological Assessment of

Pensacola Main Street WWTP

Escambia County

NPDES #FL0021440

Sampled July 1998

March 1999

Biology Section
Division of Administrative and Technical Services
Bureau of Laboratories

Comprehensive Quality Assurance Plan No. 870346G

Department of Environmental Protection

Results of Fifth Year Inspections

Discharger: Pensacola Main Street WWTP
County: Escambia
NPDES Number: FL0021440
Permit Expiration Date: 4/01/99

Toxics Sampling Inspection (XSI)

Date Sampled: 6 July 1998

Results: Iron (438 µg/L) was the only metal detected which exceeded the Class III marine water quality standard (Rule 62-302.530(39) FAC). No organic pollutants were detected in the effluent sample.

Compliance Biomonitoring Inspection (CBI)

Date Sampled: 6 July 1998

Results: The effluent was not toxic to the invertebrate, *Ceriodaphnia dubia,* or the fish, *Cyprinella leedsi.*

Impact Bioassessment Inspection (IBI)

Date Sampled: 6 July 1998

Results: Measures of macroinvertebrate community health indicated that both test sites, especially test site 2, were degraded. The decrease in diversity at test site 2 did not comply with Class III marine water quality standards (Rule 62-302.530(11) FAC). The lack of pollution-sensitive organisms at both test sites, also indicates that the discharger is having a negative effect on the receiving waters. Algal communities did not appear to be affected by the discharge.

Water Quality Inspection (WQI)

Date Sampled: 6 July 1998

Results: Nutrient concentrations were elevated in the effluent sample. Nutrient concentrations at the receiving-water sites were low with the exception of test site 1. Total phosphorus, ammonia, TKN, and nitrate+nitrite levels at test site 1 exceeded those normally found in 70% of Florida's estuaries. In response, the Algal Growth Potential (AGP) exceeded the 10 mg dry wt/L "problem threshold" at test site 1 (13.2 mg dry wt/L). The effluent AGP was 143 mg dry wt/L.

This Biological Assessment was prepared by DEP staff to provide information to be used in reviewing an NPDES permit renewal application for the subject facility. This assessment will be used in conjunction with other information concerning the facility and its receiving water body to determine appropriate final permit conditions.

Introduction

The Pensacola Main Street Wastewater Treatment Plant is located in Escambia County, Florida (see map in the Appendix). This facility handles domestic waste and has a design capacity of 20.0 MGD. The facility's advanced wastewater treatment includes pure-oxygen activated sludge processing, with mechanically-cleaned bar screens, aerated grit chamber, alum addition for phosphorus removal, primary clarification, lime addition for pH adjustment, nitrification and biological denitrification, polymer addition, final clarification, chlorination, and dechlorination with final discharge into Class III waters of Pensacola Bay. The actual flow during the survey was 14.4 MGD.

The state permit limits for the facility are listed in Table 1. Monthly operating results indicate several plant upsets within the past year, including exceedences of total suspended solids and total nitrogen, as well as toxicity violations (see the Facility Summary in the Appendix). The most recent toxicity violation occurred in April, 1998. The Main Street WWTP has exceeded total nitrogen limits on a continuous basis in the past and, as a result, has modified its treatment process to an anoxic/oxic process. Due to past nitrogen and toxicity problems with the facility's effluent, the facility is currently under a consent order. The consent order requires the facility to be in compliance with Department standards by April 1, 1999.

Methods

The focus of this investigation was to determine the discharger's effects on the receiving waters. A comparison of biological community health was made between a control site (located 1 kilometer northwest of Fair Point within Pensacola Bay) and two test sites bracketing the discharge (see map in the Appendix). A habitat assessment was performed *in situ* to establish comparability between sites. Supplemental physical/chemical data were also collected at the effluent and study sites on July 6, 1998. The effluent was analyzed for nutrients, metals, and for organic constituents (base neutral and acid extractables, and pesticide extractables). Methods used for all chemical analyses are on file at the DEP Central Chemistry Laboratory in Tallahassee.

Acute-screening toxicity bioassays, using the freshwater invertebrate, *Ceriodaphnia dubia,* and the freshwater fish, *Cyprinella leedsi,* as test organisms, were performed on an effluent sample.

Benthic macroinvertebrate communities were evaluated at control and test sites, and invertebrates were collected using three replicate petite Ponar grabs.

Phytoplankton were sampled at both control and test sites via subsurface grabs. Chlorophyll *a* was also determined for phytoplankton communities. Algal Growth Potential (AGP) tests were performed using *Selenastrum capricornutum* as the test organism for the freshwater effluent and *Dunaliella tertiolecta* for the marine receiving-water sites. Bacterial populations were analyzed for total and fecal coliforms. Sediment from control and test sites was analyzed for particle grain size. All field and laboratory biological methods were carried out following Biology Section Standard Operating Procedures (SOP's). The latest version of the SOP's can be viewed on our web site at 'www.dep.state.fl.us/labs/sops.htm'.

Several different measurements of macroinvertebrate and algal community health have been employed to determine the effects of the discharge. These measurements include: habitat assessment, taxa richness, Shannon-Weaver Diversity Index, community composition, functional feeding groups, and algal biomass. For a discussion of each of these measures see the *Explanation of Measurements of Community Health* in the Appendix.

For graphical purposes, the percent differences between the control and test sites involving the number of taxa, the diversity index, the number of polychaete taxa, and the % pelecypods are measured as the control site minus test site divided by the control site. The percent differences between sites involving the % tubificids, algal density, chlorophyll *a*, and algal growth potential are measured as the test site minus control site divided by the control site.

The following personnel were involved in this investigation: Glenn Butts and Kenny Furguson (DEP Northwest District), and Julie Baughman, Ken Espy, Marshall Faircloth, Russel Frydenborg, Joy Jackson, Scott Lashbrook, Elizabeth Miller, Urania Quintana, Johnny Richardson, Lisa Tamburello, Steve Wolfe, David Whiting, and Vicki Whiting (DEP Central Biology Laboratory in Tallahassee). The report was reviewed by the Point Source Studies Review Committee, consisting of Wayne Magley, Chuck Ziegmont, and Michael Tanski, as well as District representatives.

Table 1. Effluent limits and summary of chemistry data.

Pensacola Main Street WWTP	Effluent Limits	Effluent Samples	Control Site	Test Site 1	Test Site 2
Organic Constituents (µg/L)					
	-	None Detected	-	-	-
Metals (µg/L)					
Aluminum	1,500 *	117 I	-	-	-
Arsenic	50 *	20 U	-	-	-
Cadmium	9.3 *	0.09 I	-	-	-
Chromium	50 *	10 U	-	-	-
Copper	2.9 *	1.2 I	-	-	-
Iron	300 *	438	-	-	-
Lead	5.6 *	0.73	-	-	-
Mercury	0.025 *	0.1 U	-	-	-
Nickel	8.3 *	6 I	-	-	-
Selenium	71 *	30 U	-	-	-
Silver	2.3 **	0.11 I	-	-	-
Zinc	86 *	25 J	-	-	-
Nutrients (mg/L)					
Ortho-phosphate	-	0.7 A	0.004 U	0.066	0.004 U
Total phosphorus	1.0 a (max)	0.92	0.012	0.17 A	0.011
Ammonia	-	4.1	0.05 U	0.53	0.05 U
Nitrate+nitrite	-	0.63	0.004 U	0.12	0.004 U
TKN	-	5.2	0.35	1.1 A	0.34
Organic Nitrogen	-	1.1	0.3	0.57	0.29
Total Nitrogen	6.0 a (max)	5.8	0.35	1.22	0.34
General Phys-Chem Parameters					
Habitat Assessment	-	-	55	32	32
D.O. (mg/L) surface	≤ 5**	6.2	6.8	4.1	7.0
D.O. (mg/L) mid-depth	-	-	4.2	0.7	0.8
D.O. (mg/L) bottom	-	-	4.8	0.9	0.9
pH (SU) surface	6.5 - 8.5 **	6.7	7.5	6.9	7.5
pH (SU) mid-depth	-	-	7.8	7.4	7.5
pH (SU) bottom	-	-	7.8	7.4	7.6
Conductivity (µmhos/cm) surface	-	646	25,465	33,000	24,800
Conductivity (µmhos/cm)- mid	-	-	42,740	42,768	42,220
Conductivity (µmhos/cm)-bottom	-	-	43,108	43,036	43,132
Temperature (°C) surface	-	32	30.8	27.5	29.9
Temperature (°C) mid-depth	-	-	24.2	23.4	23.9
Temperature (°C) bottom	-	-	29.9	23.2	23.2
Salinity (ppt) - surface	-	-	16	21	15
Salinity (ppt) - mid-depth	-	-	28	28	27
Salinity (ppt) - bottom	-	0	28	28	28
Turbidity (NTU)	-	1	1	2	1
C.B.O.D. 5 day (mg/L)	8.0 a (max)	-	-	-	-
B.O.D., 5 day (mg/L)	-	1.4	1	1.7	0.9
T.S.S. (mg/L)	8.0 a (max)	5	14	20	18
Flow (MGD)	20 a	14.4	-	-	-
Total Residual Chlorine (mg/L)	0.1 (max)	0.05	-	-	-
AGP (mg dry wt/L)	-	143	0.1	13.2	0.1
Toxicity (48-hour static, screening bioassay)					
Bioassay - Fish	-	Not Toxic	-	-	-
Bioassay - Invertebrate	-	Not Toxic	-	-	-
Microbiology (# counts/100mL)					
Fecal Coliforms	200 **	8 B	≤ 10	30 B	≤ 10
Total Coliforms	-	20 B	≤ 10	40 B	≤ 10

A - Value reported is the mean of two or more determinations
B - Results based on colony counts outside the acceptable range
I - Value reported is less than the minimum quantitation limit, and ≥ the minimum detection limit
J - Estimated value
U - Material analyzed for but not detected; value reported is the minimum detection limit

* Permit Limit
** Class III water quality standard
a - Annual average
b - Monthly average
c - Daily average

Table 2. Community structure of control and test sites.

Pensacola Main Street WWTP	Control Site	Test Site 1	Test Site 2
Macroinvertebrate Quantitative			
Number of Taxa	30	20	12
Shannon-Weaver Diversity	4	3.5	2
Number of Polychaete Taxa	16	8	7
Community Composition			
% Cumacea	4	1	1
% Decapoda	1	4	0
% Echinodermata	2	8	0
% Gastropoda	0	2	1
% Nemertea	20	14	6
% Pelecypoda	28	7	1
% Polychaeta	44	59	89
% Other	1	5	2
Functional Feeding Groups			
% Browsers-grazers	1	1	1
% Burrowing Deposit Feeders	7	1	3
% Predators/Carnivores	26	26	8
% Scavengers	2	5	1
% Scrapers	0	1	1
% Surface Deposit Feeders	12	25	41
% Suspension Feeders	47	31	43
% Unknown	5	10	2
Phytoplankton Algae			
Number of Taxa	10	11	8
Shannon-Weaver Diversity	1.9	2.5	1.6
Chlorophyll *a* (µg/L)	1 U	1 U	1 U
Algal Density (#/mL)	556	590	678
% Blue-green	1	3	1
% Cryptophytes	23	21	17
% Diatoms	62	53	67
% Dinoflagellates	7	5	4
% Green	6	5	12
AGP (mg dry wt/L)	0.1	13.2	0.1

U - Material analyzed for but not detected; value reported is the minimum detection limit

Results

Shorelines at the control site consisted mostly of natural, non-altered shoreline with occasional riprap, while the shorelines at the two test sites consisted mostly of riprap and vertical seawalls. Substrates at the control and test sites consisted primarily of mud with some areas of sand and shell (see Marine Habitat Assessment sheets in the Appendix). Dissolved oxygen levels at the surface were similar between the control site (6.8 mg/L) and test site 2 (7.0 mg/L), while test site 1 was much lower with (4.1 mg/L). The salinity was similar among the three study sites (Table 1).

No organic pollutants were detected in the effluent sample. Aluminum, lead, cadmium, copper, nickel, silver and zinc were detected at levels that complied with Class III water quality standards (Table 1). Iron (438 µg/L) was detected at a level which exceeded the Class III marine water quality standard (Rule 62-302.530(39) FAC).

The effluent sample was not toxic to the freshwater fish, *Cyprinella leedsi*, or to the freshwater invertebrate, *Ceriodaphnia dubia*, during the 48-hour bioassay (Appendix).

Effluent total and fecal coliform counts complied with Class III marine water quality standards (Table 1). Similarly, total and fecal coliforms were low at the receiving-water sites.

Sediments at all three study sites were made up primarily of silt with some areas of sand (see Marine Habitat Assessment Sheets in Appendix). Particles 0.125 mm in diameter and smaller made up 91%, 81%, and 89% of the control site, test site 1, and test site 2, respectively.

The effluent total phosphorus concentration (0.92 mg/L) was close to the permitted limit of 1.0 mg/L (Table 1). Nutrient levels were low at the control site and test site 2 and somewhat elevated at test site 1 in comparison.

AGP, which measures bioavailable nutrients via algal response, was sampled at both the effluent and receiving water sites. AGP at both the control site (0.1 mg dry wt/L) and test site 2 (0.1 mg dry wt/L) were at the detection limit, while the AGP at test site 1 was 13.2 mg dry wt/L. The effluent AGP was 143 mg dry wt/L.

Phytoplankton data were used to assess algal community health (Figure 1). Taxa richness was low at all three study sites, with 10 taxa at the control site, 11 taxa at test site 1, and 8 taxa at test site 2 (Table 2). Shannon-Weaver diversity was highest at test site 1, lowest at test site 2, and intermediate at the control site. Chlorophyll *a* was undetected at all three sites.

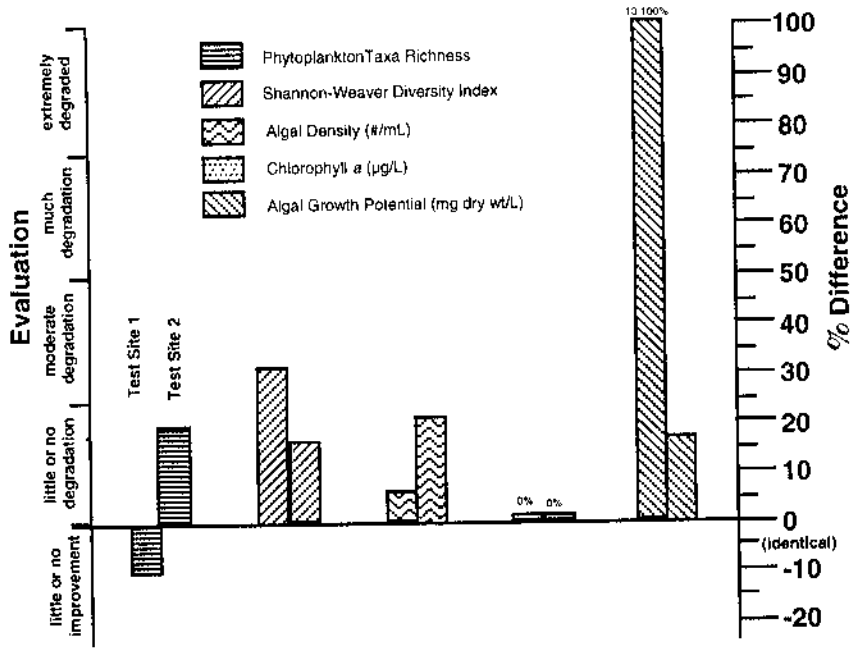


Figure 1. Effect of discharge on the phytoplankton community.

Benthic macroinvertebrate taxa richness was highest at the control site, lowest at test site 2, and intermediate at test site 1 (Table 2). Similarly, Shannon-Weaver diversity was highest at the control site, lowest at test site 2 and intermediate at test site 1. Polychaete taxa richness was 50% higher at the control site (16 taxa) compared to test site 1 (8 taxa), and 56% higher than test site 2 (7 taxa). Although the control site was dominated by the mostly pollution-insensitive group, nemertea, it also contained such pollution-sensitive groups as, cumaceans and mysidaceans. Few, if any, of these groups were represented at the test sites. Test sites 1 and 2 were dominated by such pollution-tollerant polychaetes as, *Capitella* sp., *Minuspio* sp., and *Paraprionospio pinnata*. Pelecypods, normally considered "good water quality indicators", made up 28% of the total community at the control site, 7% of test site 1, and 1% of test site 2.

Discussion

Habitat quality at the control site (55 points) was considered to be of "good" quality and was higher than either of the two test sites (32 points each) which were considered "fair".

As in a recent bioassessment (FDEP 1998), the iron concentration in the effluent (438 µg/L) exceeded Class III marine water quality standards (Rule 62-302.530(39) FAC).

The effluent nutrient levels were somewhat elevated. Nutrient levels at test site 1 were elevated compared to the control site and test site 2. For example, total phosphorus (0.17 mg/L), ammonia (0.53 mg/L), nitrite+nitrate (0.12 mg/L), and TKN (1.1 mg/L) at test site 1, exceeded those levels normally found in over 70% of other Florida estuaries (see *Typical Values for Selected Parameters in Florida Waters* in Appendix). Elevated effluent levels of both total phosphorus (0.92 mg/L) and TKN (5.2 mg/L) contributed to the high AGP levels in the effluent sample (143 mg dry wt/L).

AGP values at both the control site and the test site 2 were well below the 10 mg dry wt/L "problem threshold", while they exceeded this threshold at test site 1. The AGP at test site 1 (13.2 mg dry wt/L) was above the 10 mg dry wt/L "problem threshold" (Ron Raschke, U.S. EPA, pers. comm.). However, examining the phytoplankton community data in conjunction with the AGP values, it appears that the effluent was not adversely affecting the algal communities. Algal densities were low for a marine system and similar between the three sites (Table 2).

Quantitative measures of macroinvertebrate community health indicated that the communities at the test sites, especially test site 2, were of poorer quality than that of the control site. The Shannon-Weaver Diversity Index declined by 50% at test site 2 compared to the control site, which fails to comply with Class III water quality standards (Rule 62-302.530 (11) FAC). The decline in diversity, the lack of pollution-sensitive organisms, and the decline in filter-feeding pelecypods from 28% community composition at the control site to 1% at test site 2, all illustrate the poor health of the macroinvertebrate communities at the test sites. Signs of impairment were also noted in a recent bioassessment conducted on this facility (FDEP 1998). At that time, differences in sediment composition were thought to be responsible for the reduction in diversity at the test sites. During the current study, the sediments were similar among the three study sites. The facility appears to be

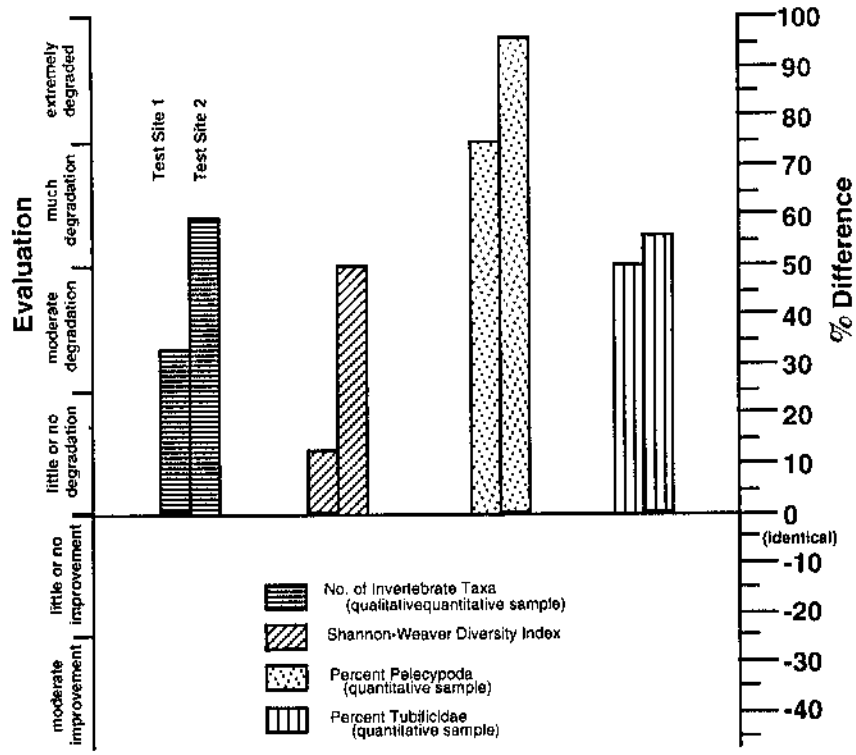


Figure 2. Effect of discharge on the benthic macroinvertebrate community

having a negative effect on the macroinvertebrate communities in the receiving waters of Pensacola Bay.

Literature Cited

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Raschke, R. L. and D. A. Schultz. 1987. The use of the algal growth potential test for data assessment. J. Wat. Poll. Cont. Fed. 59(4): 222-227.

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Typical Values for Selected Parameters in Florida Waters

Adapted from Joe Hand, FDER, personal communication, 1991
(data was collected between 1980 and 1989)

Percentile Distribution

Parameter	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%
STREAMS (1617 stations)											
Phytoplankton Chlorophyll *a*	0.22	0.52	0.94	1.60	3.02	4.63	6.72	9.87	14.68	27.35	48.70
Periphyton Chlorophyll *a*	0.31	0.43	0.77	1.04	2.16	2.94	6.45	10.51	17.00	39.51	60.85
H-D Diversity	0.84	2.12	2.48	2.74	2.88	3.09	3.25	3.40	3.52	3.76	3.90
Qualitative Taxa Richness	9.00	12.00	17.00	20.00	22.00	24.50	26.00	28.00	31.00	37.00	53.00
H-D Taxa Richness	6.00	6.50	9.00	11.50	13.00	15.00	17.00	21.50	26.00	29.00	32.00
TKN	0.30	0.39	0.56	0.73	0.87	1.00	1.11	1.26	1.49	1.93	2.80
Ammonia	0.02	0.02	0.04	0.05	0.06	0.08	0.11	0.14	0.20	0.34	0.60
NO2-NO3	0.01	0.01	0.03	0.05	0.07	0.10	0.14	0.20	0.32	0.64	1.05
Total Phosphorus	0.02	0.03	0.05	0.06	0.10	0.13	0.18	0.25	0.39	0.74	1.51
Ortho Phosphorus	0.01	0.01	0.03	0.04	0.05	0.08	0.11	0.17	0.27	0.59	1.37
Turbidity	0.60	0.90	1.20	1.45	2.10	2.80	3.60	4.50	6.65	10.45	16.30
LAKES (477 stations)											
Phytoplankton Chlorophyll *a*	0.80	1.71	2.88	4.28	10.06	13.40	20.00	30.10	47.20	65.44	113.90
Dredge Diversity	0.71	0.97	1.43	1.74	1.98	2.12	2.21	2.59	2.85	3.15	3.17
Dredge Taxa Richness	3.00	5.00	6.50	7.00	9.00	10.00	11.00	13.00	15.00	17.00	21.00
TKN	0.36	0.49	0.67	0.83	1.08	1.26	1.40	1.51	1.68	2.11	3.46
NH3+NH4	0.01	0.02	0.02	0.03	0.04	0.06	0.08	0.12	0.15	0.21	0.28
NO2-NO3	0.00	0.00	0.01	0.01	0.01	0.02	0.04	0.05	0.10	0.14	0.23
Total Phosphorus	0.01	0.02	0.02	0.03	0.05	0.07	0.09	0.11	0.14	0.23	0.42
Ortho-Phosphorus	0.00	0.01	0.01	0.02	0.03	0.04	0.05	0.06	0.08	0.21	0.32
Turbidity	1.00	1.25	1.55	2.05	2.75	4.50	6.45	9.60	14.10	26.00	40.00
ESTUARIES (690 stations)											
Phytoplankton Chlorophyll *a*	2.14	3.28	4.49	5.13	6.00	6.93	7.94	9.60	12.40	17.60	22.20
Dredge Diversity	1.34	1.53	1.91	2.28	2.56	2.90	3.15	3.59	4.01	4.53	4.98
Dredge Taxa Richness	4.00	6.00	9.00	11.00	15.00	18.50	25.00	35.00	41.00	62.00	90.00
TKN	0.26	0.34	0.42	0.50	0.59	0.69	0.76	0.82	0.95	1.30	1.49
NH3+NH4	0.01	0.02	0.03	0.04	0.05	0.06	0.08	0.09	0.13	0.22	0.28
NO2-NO3	0.00	0.00	0.01	0.01	0.01	0.02	0.03	0.05	0.08	0.17	0.23
Total Phosphorus	0.01	0.02	0.06	0.07	0.10	0.11	0.14	0.17	0.23	0.43	0.59
Ortho-Phosphorus	0.01	0.02	0.03	0.04	0.04	0.05	0.07	0.09	0.12	0.21	0.44
Turbidity	3.50	4.00	4.50	5.05	5.40	5.60	6.30	6.80	8.00	11.40	11.75

Units:
Phytoplankton Chlorophyll *a* (ug/L), Periphyton Chlorophyll *a* (mg/m^2), Nutrients (mg/L), Turbidity (NTU), Taxa richness and diversity values are for macroinvertebrates

Explanation of Measurements of Community Health

Several different measurements of macroinvertebrate and algal community health have been employed to determine the effects of a discharge. These are briefly discussed here.

Taxa richness: Stress tends to reduce the number of different types of organisms present in a system, although moderate nutrient enrichment may sometimes be correlated with increased algal taxa richness.

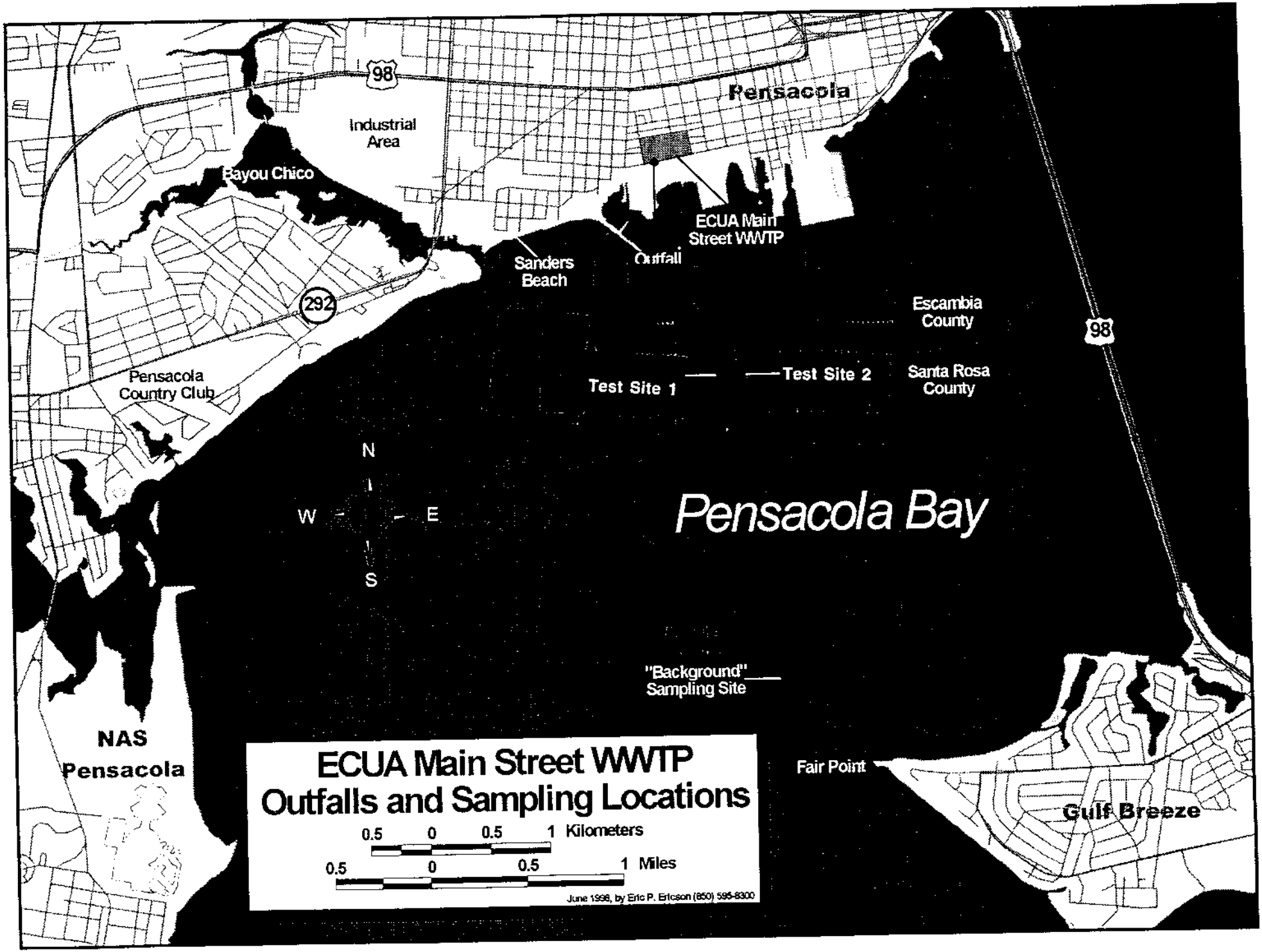
Shannon-Weaver diversity: This index is specified in the Florida Administrative Code as a measure of biological integrity. Low diversity scores are undesirable. They represent conditions where only a few organisms are abundant, to the exclusion of other taxa. Excessive numerical dominance of a single type of organism (a high % contribution of the dominant taxon) is a related measure which is also associated with disturbance.

Numbers of pollution sensitive taxa: Some organisms become rare or absent as the intensity or duration of disturbance increases. Species sensitivity data from other sources, such as Chang *et al.* (1992), Farrell (1992), Hudson *et al.* (1990), Hulbert (1990), Lenat (1993), and Whitmore (1989), are used as appropriate.

Community structure: Substantial shifts in proportions of major groups of organisms, compared to control conditions, may indicate degradation. In marine systems, an increase in the % tubificid oligochaetes, a decrease in the % pelecypods, and a decrease in the number of polychaete taxa are all considered indicators of disturbance (Engel *et al.* 1994).

Trophic composition/feeding guilds: Disturbance can shift the feeding strategies of invertebrates. In Florida for example, pollution may be responsible for reducing the numbers of filter-feeders (FDEP 1994) and shredders (EA Engineering 1994).

Algal biomass: High algal biomass (algal density or chlorophyll *a*) implies nutrient stress.


98
Pensacola
Industrial Area
Bayou Chico
ECUA Main Street WWTP
Outfall
Sanders Beach
292
Escambia County
98
Pensacola Country Club
Test Site 1
Test Site 2
Santa Rosa County
N
W
E
S
Pensacola Bay
"Background" Sampling Site
NAS Pensacola
Fair Point
Gulf Breeze
ECUA Main Street WWTP
Outfalls and Sampling Locations
0.5 0 0.5 1 Kilometers
0.5 0 0.5 1 Miles
June 1998, by Eric P. Ericson (850) 595-8300

Facility Summary

Facility Name: Main Street WWTF

Date Summary Prepared: 5/7/97

Location map:
401 West Government Street
Pensacola, Florida

County: Escambia

District: Northwest/10

NPDES Permit # FL0021440
expiration date: 9/30/99

State Permit # DO17-212396
expiration date: 4/1/99

Facility Type: Ind.
Dom. Fed. Agric.

Function of facility: To operate a 20.0 MGD WWTF with final effluent discharge to Pensacola Bay.

Description of treatment process: Treatment includes AWT pure oxygen activated sludge, with mechanical cleaned bar screens, aerated grit chamber, alum addition for phosphorus removal, primary clarification, lime addition for pH adjustment, nitrification and biological denitrification, polymer addition, final clarification, chlorination, and dechlorination.

Receiving waters: Pensacola Bay

Classification: I II **III**

Design Flow: 20.0 MGD

Mean Flow: 15.53 MGD

Flow during survey: 14.36 MGD (May 98 MOR)

Discharge is: **Continuous** Intermittent Seasonal Rainfall dependent
Other (describe)
Best time to sample is: N/A

If facility has a mixing zone, give details (size, parameters, etc.) N/A

List effluent limits (attach relevant paperwork):

Parameter	Frequency	Sample Type	Limit (units)
Flow*	Continuous	---	20.0 MGD (ann avg daily flow)
pH-Eff.	Hourly	Grab	6.5 (min) to 8.5 (max)
Chlorine Residual	Daily, 7/week	Grab***	.01 (max)
Dissolved Oxygen	Daily, 7/week	Grab	≥5 mg/L (avg 24 hrs)
CBOD5 - Inf.	Daily, 7/week	24 Hr. Comp.**	N/A
CBOD5 - Eff.	Daily, 7/week	24 Hr. Comp.**	8.0 mg/L (max ann avg)
TSS - Inf.	Daily, 7/week	24 Hr. Comp.**	N/A
TSS - Eff.	Daily, 7/week	24 Hr. Comp.**	8.0 mg/L (max ann avg)
Silver	Monthly	24 Hr. Comp.**	2.3 ug/L (max)
Total N	Daily, 7/week	24 Hr. Comp.**	6.0 mg/L (max ann avg)
Total P	Daily, 7/week	24 Hr. Comp.**	1.0 mg/L (max ann avg)

Phenols	Quarterly	Grab	300 ug/L (max)
Fecal Coliform	Daily, 7/week	Grab	200/100 mL (max)

* - Flow recorder and totalizer
** - Flow proportional sampling
*** - Prior to discharge to State Waters

List permit violations (from MOR data or other source) and plant upsets within past year:

April 97- Total N (ann avg) excursion of 6.8 mg/L
June 97- TSS (monthly avg) excursion 11.9 mg/l
TSS (max wkly avg) excursion 29.8 mg/l
July 97- No report for Phenols July through October 1997 DMR
No report for Toxicity July 1997 DMR
October 97 - Total N (ann avg) excursion of 6.3 mg/L
November 97- Total N (ann avg) excursion of 6.4 mg/L
December 97-Total N (ann avg) excursion of 6.6 mg/L
January 98-Total N (ann avg) excursion of 7.6 mg/L
February 98 - Total N (ann avg) excursion of 8.6 mg/L

Describe previous impact bioassessments, WQBEL's and previous or current enforcement actions:

The latest bioassay reviewed occurred April 1998. Results indicate test specie, Cyprinella leedsi failed the 96 hour static renewal screen acute toxicity tests with a 55.1% mortality. The permit states that the tests will only be valid if the control mortality does not exceed 10% for either species.

After reviewing the last twelve months worth of bioassays, the facility failed 45% of the tests.

Discuss comparability of MOR results to past FDEP results and whether there are trends (improving, declining) in the data set:

Main Street has exceeded Total Nitrogen limits on a continous basis in the last twelve months. The past treatment process had been modified to an anoxic/oxic process. This modification should bring the facility into compliance.

Additional information:

At present time the facility is under a consent order, due to past nitrogen and toxicity problems with the facility's effluent. The Consent Order requires the facility to be in compliance with Department standards by April 1, 1999..

Staff contributing to this review (signature)

Glenn Butts_____Biologist
_____Inspector
_____Engineer
Amy Hospodar_____Other
Kenny Ferguson_____Other

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET (Version 4)

SUBMITTING AGENCY CODE: 8010 / SUBMITTING AGENCY NAME: FDER NWD	STORET STATION NUMBER: 33.0200 08	DATE (M/D/Y): 07-06-98	TIME: 1216	RECEIVING BODY OF WATER: PENSACOLA BAY

REMARKS:	LOCATION: OFF FAIR POINT BUOY #92	FIELD ID/NAME: # 4
CONTROL SITE		

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land-Use (specify relative percent in each category):

Forest	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
			100			

Local Watershed Erosion (check box): None [X] Moderate [ ] Heavy [ ]

Local Watershed NPS Pollution (check box): No evidence [X] Some potential sources [ ] Obvious sources [ ]

Point-Source Pollution (list location and describe): NONE IN IMMEDIATE VICINITY

Estimated System Width (range, m):	Estimated System Depth (range, m):	yes
High Water Mark (m above bed):	Velocity (range, m/s):	Impounded [ ] Channelized [ ]

Canopy Cover % : Open : [X] Lightly Shaded (11-45%): [ ] Moderately Shaded (46-80%): [ ] Heavily Shaded: [ ]

SEDIMENT/SUBSTRATE

Sediment Odors: Normal: [X] Sewage: [ ] Petroleum: [ ] Chemical: [ ] Anaerobic: [ ] Other: [ ]

Sediment Oils: Absent: [X] Slight: [ ] Moderate: [ ] Profuse: [ ]

Sediment Deposits: Sludge: [ ] Paper Fiber: [ ] Mud: [X] Sand: [X] Shell: [X] Other: [ ]

Substrate Types	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)				Riffles			
Leaf Packs				Sand	40		PONAR
Aquatic Vegetation				Mud/Muck/Silt	20		
Rock or Shell Rubble	30			Benthic leaf mats			
Undercut Banks/Roots				Other: CLAY	10		

WATER QUALITY

	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (µmho/cm):	SAL		Secchi (m):
Top	0.3	30.79	7.77	6.32	25965	15.4		
Mid-depth	4.5	24.19	7.79	4.16	42740	27.5		
Bottom	9.4	29.91	7.76	4.75	43108	27.8		

System Type : Stream: [ ] (Sand Bottomed, Swamp & Bog, Alluvial, Sand Bot w/ Spring, Calcareous, Misc.) Lake: [ ] Wetland: [ ] Estuary: [X] Other: [ ]

Water Odors (check box): Normal: [X] Sewage: [ ] Petroleum: [ ] Chemical: [ ] Other: [ ]

Water Surface Oils (check box): None: [X] Sheen: [ ] Globs: [ ] Slick: [ ]

Clarity (check box): Clear: [X] Slightly turbid: [ ] Turbid: [ ] Opaque: [ ]

Color (check box): Tannic: [ ] Green (algae): [ ] Clear: [X] Other: [ ]

Weather Conditions: HOT MID 90's F

Abundance:	Absent	Rare	Common	Abundant
Periphyton	[X]	[ ]	[ ]	[ ]
Fish	[ ]	[ ]	[X]	[ ]
Aquatic Macrophytes	[X]	[ ]	[ ]	[ ]
Iron/sulfur Bacteria	[X]	[ ]	[ ]	[ ]

SAMPLING TEAM: G. BUTTS, L. Donelan, K. Ferguson, F. Powell

SIGNATURE: Glenn Butts

DATE: 07-06-98

DEPARTMENT OF ENVIRONMENTAL REGULATION

MARINE BENTHIC HABITAT ASSESSMENT FIELD DATA SHEET

SUBMITTING AGENCY CODE: 8010 / SUBMITTING AGENCY NAME: FDEP NWD	STORET STATION NUMBER: 33.02.0008	DATE (M/D/Y): 07-06-98	RECEIVING BODY OF WATER: PENSACOLA BAY
REMARKS: CONTROL SITE	LOCATION: OFF FAIR POINT BUOY ~~#3~~ 2		FIELD ID/NAME: # 4

Habitat Parameter / score	Excellent	Good	Fair	Poor
Littoral Alterations: 7	None—Unaltered shoreline. 9-10 points	Mostly natural shoreline, but with occasional riprap. 6-8 points	Shoreline consisting mostly of riprap and vertical seawalls. 3-5 points	Shoreline consisting almost entirely of vertical seawalls. 0-2 points
Community Types Observed: 15	At least four communities observed from the following list: mangrove swamp, marsh, oyster bar, grass bed, reef, saltern, natural beach, or tidal creek. 38-50 points	Two or three communities observed from those listed. 26-37 points	One community observed from those listed. 13-25 points	No communities observed from those listed. 0-12 points
Tidal Fluctuation: 3	>0.75 m. 4-5 points	0.5 - 0.75 m. 3 points	0.25 - 0.5 m. 2 points	<0.25 m. 0-1 point
Freshwater Discharges/ Alterations: 8	Only natural runoff.. 9-10 points	Mostly natural runoff, but with a few, small stormwater sources. 6-8 points	Considerable stormwater discharge from local roads, parking lots, etc. 3-5 points	Extensive manmade discharges, especially from canals draining large tracts of land. 0-2 points
Flow and Wave Action: 9	Light to moderate wave action present except under the harshest weather conditions. Flow unrestricted by manmade structures. 9-10 points	—	—	Heavy wave action sometimes present even during average weather conditions, or flow restricted by manmade structures so that velocities are very high. 0-2 points
Sediment Type: 13	Combination of sand, gravel, and shell. 12-15 points	Primarily sand, with small areas of mud. 8-11 points	Mixture of sand and mud, or well-aerated mud only. 4-7 points	Anaerobic mud. 0-3 points

TOTAL SCORE 55

COMMENTS: SOME H_2S Odor noticed in substrate. SAND/gravel/shell mix. some organics

ANALYSIS DATE: 07-06-98	ANALYST: Glenn Butts	SIGNATURE: Glenn Butts

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET (Version 4)

SUBMITTING AGENCY CODE: 8C10 / SUBMITTING AGENCY NAME: FDEP NWD	STORET STATION NUMBER: 33,02,0312	DATE (M/D/Y): 07-06-98	TIME 1050	RECEIVING BODY OF WATER: PENSACOLA BAY

REMARKS:	LOCATION: AT MAIN STREET WWTP BOIL	FIELD ID/NAME:
TEST SITE 1		# 2

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land-Use (specify relative percent in each category):

Forest	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
			30	70		

Local Watershed Erosion (check box): None ☐ Moderate ☒ Heavy ☐

Local Watershed NPS Pollution (check box): No evidence ☐ Some potential sources ☐ Obvious sources ☒

Point-Source Pollution (list location and describe): ECUA MAIN STREET WWTP, 43 NAVY OUTFALL DOWN BAY

Estimated System Width (range, m):	Estimated System Depth (range, m):	yes
High Water Mark (m above bed):	Velocity (range, m/s):	Impounded ☐ Channelized ☐

Canopy Cover % : Open : ☒ Lightly Shaded (11-45%): ☐ Moderately Shaded (46-80%): ☐ Heavily Shaded: ☐

SEDIMENT/SUBSTRATE

Sediment Odors: Normal: ☐ Sewage: ☐ Petroleum: ☐ Chemical: ☐ Anaerobic: ☒ Other: ☐ H2S

Sediment Oils: Absent: ☒ Slight: ☐ Moderate: ☐ Profuse: ☐

Sediment Deposits: Sludge: ☐ Paper Fiber: ☐ Mud: ☒ Sand: ☒ Shell: ☒ Other: ☐

Substrate Types	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)				Riffles			
Leaf Packs				Sand	10		PONAR
Aquatic Vegetation				Mud/Muck/Silt	80		
Rock or Shell Rubble				Benthic leaf mats			
Undercut Banks/Roots				Other: CLAY	10		

WATER QUALITY

	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (µmho/cm):	SAL		Secchi (m):
Top	0.3	27.78	6.92	4.1	33000	19.8		
Mid-depth	4.4	23.37	7.41	0.66	42768	27.5		
Bottom	8.1	23.15	7.35	0.86	43036	27.7		

System Type : Stream: ☐ (Sand Bottomed, Sand Bot w/ Spring, Swamp & Bog, Calcareous, Alluvial, Misc.) Lake: ☐ Wetland: ☐ Estuary: ☒ Other: ☐

Water Odors (check box): Normal: ☒ Sewage: ☐ Petroleum: ☐ Chemical: ☐ Other: ☐

Water Surface Oils (check box): None: ☒ Sheen: ☐ Globs: ☐ Slick: ☐

Clarity (check box): Clear: ☒ Slightly turbid: ☐ Turbid: ☐ Opaque: ☐

Color (check box): Tannic: ☐ Green (algae): ☐ Clear: ☒ Other: ☐

Weather Conditions: HOT, CLEAR, MID 90's F. BAY CALM

Abundance:	Absent	Rare	Common	Abundant
Periphyton	☒	☐	☐	☐
Fish	☐	☐	☐	☒
Aquatic Macrophytes	☒	☐	☐	☐
Iron/sulfur Bacteria	☒	☐	☐	☐

SAMPLING TEAM:	SIGNATURE:	DATE:
G. Butts, L. Donelan, K. Ferguson, F. Rowell	Glenn Butts	07-06-98

DEPARTMENT OF ENVIRONMENTAL REGULATION

MARINE BENTHIC HABITAT ASSESSMENT FIELD DATA SHEET

SUBMITTING AGENCY CODE: 3010 / SUBMITTING AGENCY NAME: FDEP NWD	STORET STATION NUMBER: 33-02-0312	DATE (M/D/Y): 07-06-98	RECEIVING BODY OF WATER: PENSACOLA BAY

REMARKS:	LOCATION: AT MAIN STREET WWTP BOIL	FIELD ID/NAME:
TEST SITE 1		# 2

Habitat Parameter / score	Excellent	Good	Fair	Poor
Littoral Alterations: 3	None—Unaltered shoreline. 9-10 points	Mostly natural shoreline, but with occasional riprap. 6-8 points	Shoreline consisting mostly of riprap and vertical seawalls. 3-5 points	Shoreline consisting almost entirely of vertical seawalls. 0-2 points
Community Types Observed: 12	At least four communities observed from the following list: mangrove swamp, marsh, oyster bar, grass bed, reef, saltern, natural beach, or tidal creek. 38-50 points	Two or three communities observed from those listed. 26-37 points	One community observed from those listed. 13-25 points	No communities observed from those listed. 0-12 points
Tidal Fluctuation: 3	>0.75 m. 4-5 points	0.5 - 0.75 m. 3 points	0.25 - 0.5 m. 2 points	<0.25 m. 0-1 point
Freshwater Discharges/ Alterations: 4	Only natural runoff.. 9-10 points	Mostly natural runoff, but with a few, small stormwater sources. 6-8 points	Considerable stormwater discharge from local roads, parking lots, etc. 3-5 points	Extensive manmade discharges, especially from canals draining large tracts of land. 0-2 points
Flow and Wave Action: 5	Light to moderate wave action present except under the harshest weather conditions. Flow unrestricted by manmade structures. 9-10 points	—	—	Heavy wave action sometimes present even during average weather conditions, or flow restricted by manmade structures so that velocities are very high. 0-2 points
Sediment Type: 5	Combination of sand, gravel, and shell. 12-15 points	Primarily sand, with small areas of mud. 8-11 points	Mixture of sand and mud, or well-aerated mud only. 4-7 points	Anaerobic mud. 0-3 points

TOTAL SCORE 32

COMMENTS: AIR TEMP IN MID 90'S F. DAY CALM, BOIL CLEARLY VISIBLE

ANALYSIS DATE:	ANALYST:	SIGNATURE:
07-06-98	Glenn Butts	Glenn Butts

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET (Version 4)

SUBMITTING AGENCY CODE: 8070 / SUBMITTING AGENCY NAME: FDEP NWD	STORET STATION NUMBER: 33.02.0713	DATE (M/D/Y): 07-06-98	TIME: 1122	RECEIVING BODY OF WATER: PENSACOLA BAY

REMARKS:	LOCATION: 50 YDS EAST OF MAIN STREET BOIL	FIELD ID/NAME: # 3
TEST SITE 2		

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land-Use (specify relative percent in each category):

Forest	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
			30	70		

Local Watershed Erosion (check box): None ☐ Moderate ☒ Heavy ☐

Local Watershed NPS Pollution (check box): No evidence ☐ Some potential sources ☐ Obvious sources ☒

Point-Source Pollution (list location and describe): ECUA MAIN STREET WWTP

Estimated System Width (range, m):	Estimated System Depth (range, m):	yes
High Water Mark (m above bed):	Velocity (range, m/s):	Impounded ☐ Channelized ☐

Canopy Cover % : Open : ☒ Lightly Shaded (11-45%): ☐ Moderately Shaded (46-80%): ☐ Heavily Shaded: ☐

SEDIMENT/SUBSTRATE

Sediment Odors: Normal: ☐ Sewage: ☐ Petroleum: ☐ Chemical: ☐ Anaerobic: ☒ Other: ☐ H2S

Sediment Oils: Absent: ☒ Slight: ☐ Moderate: ☐ Profuse: ☐

Sediment Deposits: Sludge: ☐ Paper Fiber: ☐ Mud: ☒ Sand: ☒ Shell: ☒ Other: ☐

Substrate Types	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)				Riffles			
Leaf Packs				Sand	20		PONAR
Aquatic Vegetation				Mud/Muck/Silt	70		
Rock or Shell Rubble	10			Benthic leaf mats			
Undercut Banks/Roots				Other:			

WATER QUALITY

	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (µmho/cm):	SAL		Secchi (m):
Top	0.3	29.93	7.95	6.98	29800	15.1		
Mid-depth	4.0	23.9	7.59	0.77	42220	27.1		
Bottom	7.9	23.19	7.58	0.90	43132	27.8		

System Type : Stream: ☐ (Sand Bottomed / Sand Bot w/ Spring / Swamp & Bog / Calcareous / Alluvial / Misc.) Lake: ☐ Wetland: ☐ Estuary: ☒ Other: ☐

Water Odors (check box): Normal: ☒ Sewage: ☐ Petroleum: ☐ Chemical: ☐ Other: ☐

Water Surface Oils (check box): None: ☒ Sheen: ☐ Globs: ☐ Slick: ☐

Clarity (check box): Clear: ☒ Slightly turbid: ☐ Turbid: ☐ Opaque: ☐

Color (check box): Tannic: ☐ Green (algae): ☐ Clear: ☒ Other: ☐

Weather Conditions: HOT MID 90's F

Abundance:	Absent	Rare	Common	Abundant
Periphyton	☒	☐	☐	☐
Fish	☐	☐	☒	☐
Aquatic Macrophytes	☒	☐	☐	☐
Iron/sulfur Bacteria	☒	☐	☐	☐

SAMPLING TEAM:	SIGNATURE:	DATE:
G. BUTTS, L. Dowelan, K Ferguson, F. Powell	Glenn Butts	07-06-98

DEPARTMENT OF ENVIRONMENTAL REGULATION

MARINE BENTHIC HABITAT ASSESSMENT FIELD DATA SHEET

SUBMITTING AGENCY CODE: 8010 / SUBMITTING AGENCY NAME: FDEP NWD	STORET STATION NUMBER: 33.02.0J13	DATE (M/D/Y): 07-06-98	RECEIVING BODY OF WATER: PENSACOLA BAY

REMARKS:	LOCATION: 50 YDS EAST OF MAIN STREET BOIL	FIELD ID/NAME:
TEST SITE 2		# 3

Habitat Parameter / score	Excellent	Good	Fair	Poor
Littoral Alterations: 3	None—Unaltered shoreline. **9-10 points**	Mostly natural shoreline, but with occasional riprap. **6-8 points**	Shoreline consisting mostly of riprap and vertical seawalls. **3-5 points**	Shoreline consisting almost entirely of vertical seawalls. **0-2 points**
Community Types Observed: 12	At least four communities observed from the following list: mangrove swamp, marsh, oyster bar, grass bed, reef, saltern, natural beach, or tidal creek. **38-50 points**	Two or three communities observed from those listed. **26-37 points**	One community observed from those listed. **13-25 points**	No communities observed from those listed. **0-12 points**
Tidal Fluctuation: 3	>0.75 m. **4-5 points**	0.5 - 0.75 m. **3 points**	0.25 - 0.5 m. **2 points**	<0.25 m. **0-1 point**
Freshwater Discharges/ Alterations: 4	Only natural runoff.. **9-10 points**	Mostly natural runoff, but with a few, small stormwater sources. **6-8 points**	Considerable stormwater discharge from local roads, parking lots, etc. **3-5 points**	Extensive manmade discharges, especially from canals draining large tracts of land. **0-2 points**
Flow and Wave Action: 5	Light to moderate wave action present except under the harshest weather conditions. Flow unrestricted by manmade structures. **9-10 points**	—	—	Heavy wave action sometimes present even during average weather conditions, or flow restricted by manmade structures so that velocities are very high. **0-2 points**
Sediment Type: 5	Combination of sand, gravel, and shell. **12-15 points**	Primarily sand, with small areas of mud. **8-11 points**	Mixture of sand and mud, or well-aerated mud only. **4-7 points**	Anaerobic mud. **0-3 points**

TOTAL SCORE 32

COMMENTS: SUBSTRATE APPEARS MORE SANDY THAN BOIL. H_2S odor noticed.

ANALYSIS DATE:	ANALYST:	SIGNATURE:
07-06-98	Glenn Butts	Glenn Butts

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Pensacola Mainstreet WWTP
County: Escambia
Contact / District: G. Butts / NW
NPDES Permit #: FL0021440
LIMS Sample #: 333624 LIMS Job #: TLH-1998-07-07-19
sample log 7/15/98 DW
Test Type: (Screening) / Definitive
(Static) / Static Renewal / Flow-through
Test Number: 1 of 2
Remarks:

Sample Collection: Date 7/6/98 Time 08:15
Test Beginning: Date 7/7/98 Time 1115
Test Ending: Date 7/9/98 Time 13:00
Organism Batch #: 29 Diluent Batch #: 31
Organism Age: <24 hrs SRT toxicant batch #: N/A
Test organism: Ceriodaphnia dubia

Temperature Range
Room: 24.5 - 26.5°C
Incubator #1: 23.9 - 25.0°C

Conc.	Chamber #	Number Live 0 hr	Number Live 24 h	Number Live 48 h	pH 0 hr	pH 24 h	pH 48 h	Temperature (°C) 0 hr	Temperature (°C) 24 h	Temperature (°C) 48 h	D.O. (mg/L) 0 hr	D.O. (mg/L) 24 h	D.O. (mg/L) 48 h	UNCORRECTED Cond. (mmhos/cm) / Cond. (µmhos/cm) 0 hr	Cond. 24 h	Cond. 48 h
Ctl A	A	5	5	5	8.1		8.3	24.4		25.4	8.0		7.3	170		185
Ctl B	B	5	5	5			8.3			25.2			7.5			185
Ctl C	C	5	5	5			8.3			25.1			7.6			190
Ctl D	D	5	5	5			8.3			25.0			7.7			190
100% A	A	5	5	5	7.0		8.6	24.3		25.2	7.1		7.7	550		535
100% B	B	5	5	5			8.6			25.2			7.7			545
100% C	C	5	5	5			8.6			25.2			7.5			570
100% D	D	5	5	5			8.6			25.2			7.7			580
measured by:		FW	FW	DAW	MF		MW	MF		DAW	MF		MW	MF		MW
recorded by:		MF	FW	DAW	FW		CH	FW		CH	FW		CH	FW		CH

Investigators' Signatures

Marshall Faircloth
Laura Mumbolo
Courtenay Hall
Dan Wright

	Salt Water / Well Water	20% Min Water	Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L):			0.05	—	Glenn Butts	MF
Lab Total Residual Cl2 (mg/L):	—	<0.03	<0.03	DA100	CH	MF
Alkalinity (mg/L as $CaCO_3$):	—	75	178	Hach	CH	MF
Hardness (mg/L as $CaCO_3$):	—	90	155	Hach	CH	MF
Total ammonia (mg/L as N):	—	<0.017	3.04	Hach	CH	MF
Salinity:	—	0	0	YCT	CH/MF	MF

Water Quality Parameters

reviewer

form updated 5/22/98

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Pensacola Mainstreet WWTP
County: Escambia
Contact / District: G. Butts / NW
NPDES Permit #: FL00 21440
LIMS Sample #: 333624 LIMS Job #: TLH-1998-07-07-19
sample log 7/15/98 BW
Test Type: (Screening) / Definitive
(Static) / Static Renewal / Flow-through
Test Number: 2 of 2

Remarks:

Sample Collection: Date 7/6/98 Time 08:15
Test Beginning: Date 7/7/98 Time 1140
Test Ending: Date 7/9/98 Time 1300
Organism Batch #: 49 Diluent Batch #: Well
Organism Age: 15 days SRT toxicant batch #: N/A
Test organism: Cyprinella leedsi

Temperature Range
Room: 24.5–26.5 °C
Incubator #3: 25.0–25.5°C

Conc.	Chamber #	Number Live 0 hr	24 h	48 h	pH 0 hr	24 h	48 h	Temperature (°C) 0 hr	24 h	48 h	D.O. (mg/L) 0 hr	24 h	48 h	UNCORRECTED Cond. (mmhos/cm) (Cond. (µmhos/cm)) 0 hr	24 h	48 h
Ctl A	H1	5	5	5	7.7	8.3	8.5	24.5	25.2	25.6	8.0	7.9	7.3	250	255	265
Ctl B	H2	5	5	5	7.7	8.3	8.5	24.5	25.5	26.2	8.1	8.1	7.5	250	265	270
Ctl C	H3	5	5	5	7.7	8.3	8.5	24.4	26.4	26.0	8.2	7.8	7.1	250	265	265
Ctl D	H4	5	5	5	7.7	8.3	8.5	24.5	27.0	26.0	8.2	7.9	7.3	250	265	265
100% A	H5	5	5	5	7.0	8.0	8.4	24.7	25.8	26.2	7.1	7.6	7.1	565	595	600
100% B	H6	5	5	5	7.0	7.9	8.4	24.7	26.0	26.0	7.1	7.7	7.1	585	605	605
100% C	H7	5	5	5	7.0	8.0	8.4	24.6	27.4	26.5	7.1	7.2	7.1	585	620	610
100% D	H8	5	5	5	7.0	7.9	8.4	24.6	26.7	26.0	7.1	7.5	7.1	545	610	605
measured by:		MF	DAW	DAW	MF	DAW	DAW	MF	DAW	DAW	MF	DAW	DAW	MF	DAW	DAW
recorded by:		FW	DAW	CH	FW	CH	CH	FW	CH	CH	FW	CH	CH	FW	CH	CH

Investigators' Signatures

Marshall Faircloth
Dawn Wentworth
Dawn Wainwright
Cynthia Head
D

reviewer

form updated 5/22/98

Water Quality Parameters	Salt Water (Well Water)	20% Min Water	Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L):			0.05	—	Glenn Butts	MF
Lab Total Residual Cl2 (mg/L):	<0.03	—	<0.03	DR100	CH	MF
Alkalinity (mg/L as $CaCO_3$):	129	—	171	Hach	CH	MF
Hardness (mg/L as $CaCO_3$):	142	—	155	Hach	CH	MF
Total ammonia (mg/L as N):	<0.07	—	304	Hach	CH	MF
Salinity:	0	—	0	YCT	CH/MF	MF

Phytoplankton taxa list and densities (#/mL) for Pensacola Main Street WWTP, collected via subsurface grabs in Pensacola Bay on 6 July, 1998.

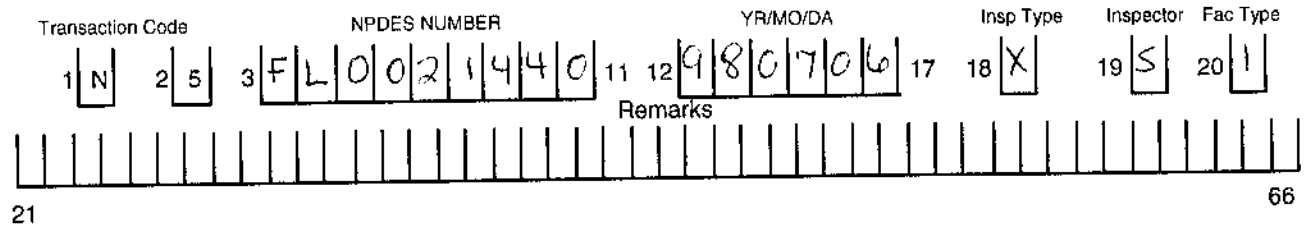
	Control Site	Test Site 1	Test Site 2
Bacillariophyceae			
Centrales sp.	35	-	-
Chaetoceros sp.	12	-	-
Coscinodiscus sp.	6	15	13
Cyclotella sp.	288	252	437
Cylindrotheca sp.	-	10	-
Nitzschia sp.	-	24	-
Undetermined Pennales	6	5	-
Tetraselmis sp.	-	-	4
Thalassiothrix sp.	-	10	-
Chlorophyceae			
Undetermined Chlorophyceae	35	29	79
Chrysophyceae			
Dictyocha sp.	6	82	-
Cryptophyceae			
Chroomonas sp.	127	121	114
Cyanophyceae			
Chroococcus sp.	3	-	-
Dactylococcopsis sp.	-	5	-
Merismopedia sp.	-	-	4
Oscillatoria sp.	-	10	-
Dinophyceae			
Undetermined Dinophyceae	9	1-	13
Peridinium sp.	24	-	4
Prorocentrum sp.	6	19	9

Benthic macroinvertebrate taxa list for Pensacola Main Street, collected via Ponar grab samples in Pensacola Bay, on 6 July, 1998. Densities, in number/m^2, represent the mean of three replicates.

	Control Site	Test Site 1	Test Site 2
Amphipoda			
Ampelisca cristata	16	-	-
Listriella barnardi	-	-	47
Oedicerotidae	16	-	-
Diptera			
Chironomidae	-	31	-
Cumacea			
Cyclaspis sp.	31	-	-
Cyclaspis varians	78	-	16
Leucon americanus	-	16	-
Decapoda			
Pinnixa sp.	16	31	-
Palaemonidae	-	16	-
Echinodermata			
Amphiuridae	47	109	-
Gastropoda			
Anachis obesa	-	16	-
Muricidae	-	16	-
Vitrinellidae	-	-	16
Undetermined Gastropoda	-	-	16
Isopoda			
Anthuridae	16	-	-
Mysidaceae			
Mysidopsis sp.	16	-	-
Nemertea			
Undetermined Nemertea	529	187	140
Oligochaeta			
Tubificidae	-	16	-
Pelecypoda			
Lucina radians	31	-	-
Mactra fragilis	-	-	16
Nucula crenulata	-	47	-
Nucula sp.	31	-	-
Nuculana sp.	451	-	-
Tellidora cristata	187	-	-
Tellina versicolor	31	-	-
Mactridae	16	47	-
Undetermined Pelecypoda	-	-	16
Polychaeta			
Capitella sp.	-	-	31
Cossura sp.	109	-	47
Eurythoe sp.	62	-	-

Heteropodarke sp.	62	-	47
Malmgreniella sp.	16	31	-
Minuspio longibranchiata	-	389	-
Minuspio sp.	140	16	1540
Paraprionospio pinnata	280	62	529
Pista sp.	16	-	-
Polydora sp.	16	-	-
Prionospio sp.	62	109	-
Sigambra tentaculata	16	16	-
Spiophanes bombyx	109	-	-
Streblospio benedicti	-	16	-
Capitellidae	78	-	-
Chrysopetalidae	-	47	-
Cirratulidae	-	31	-
Glyceridae	16	-	-
Lumbrineridae	47	-	-
Nephtyidae	16	-	-
Pilargidae	-	-	31
Polynoidae	62	78	-
Sabellidae	62	-	-
Sigalionidae	-	-	16
Spionidae	16	-	-
Turbellaria			
Stylochus sp.	-	31	-

Fill Out This Section For All Surface Water Discharger Inspections (CEI, CSI, CBI, PAI, XSI - RI Optional)



Fill Out This Section For All Surface Water Discharger Inspections (CEI, CSI, CBI, PAI, XSI - RI Optional)

