

Biological Assessment of

Everglades City STP

Collier County, Florida

NPDES #FL0027618

Sampled September 1990

February 1991

Biology Section
Division of Administrative and Technical Services

Introduction

Biological, chemical, and toxicological data concerning the Everglades City STP were collected on 11 September 1990 and analyzed. This information will be used to evaluate the facility's permit criteria.

The Everglades City STP is located in Collier County, Florida. This contact stabilization facility discharges into a holding pond which has an overflow into Lake Placid Canal, a branch of the Barron River. Violations of permit parameters have been noted in the past, including the exceedence of TSS and BOD, and the inadequate percent removal. The plant has a design capacity of 0.1 MGD, and will be undergoing renovation soon.

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 reference site and a test site (the area down gradient of the discharge) located on each of the two branches of the Barron River (see map in Appendix). A habitat assessment was performed *in situ* to establish comparability between sites. Supplemental physical/chemical data were also collected on the effluent and study sites. An acute screening toxicity bioassay using *Notropis leedsi* as the test organism was performed on an effluent sample (Peltier and Weber 1985, FDER 1985). A Microtox® test, using the bacterium, *Photobacterium phosphoreum*, to evaluate toxicity, was also performed. The effluent was analyzed for organic constituents (base neutrals, acid extractables and pesticide extractables) and metals. Additionally, nutrient analyses were performed on reference and test sites. Methods used for all chemical analyses are on file at the Tallahassee DER Chemistry Laboratory.

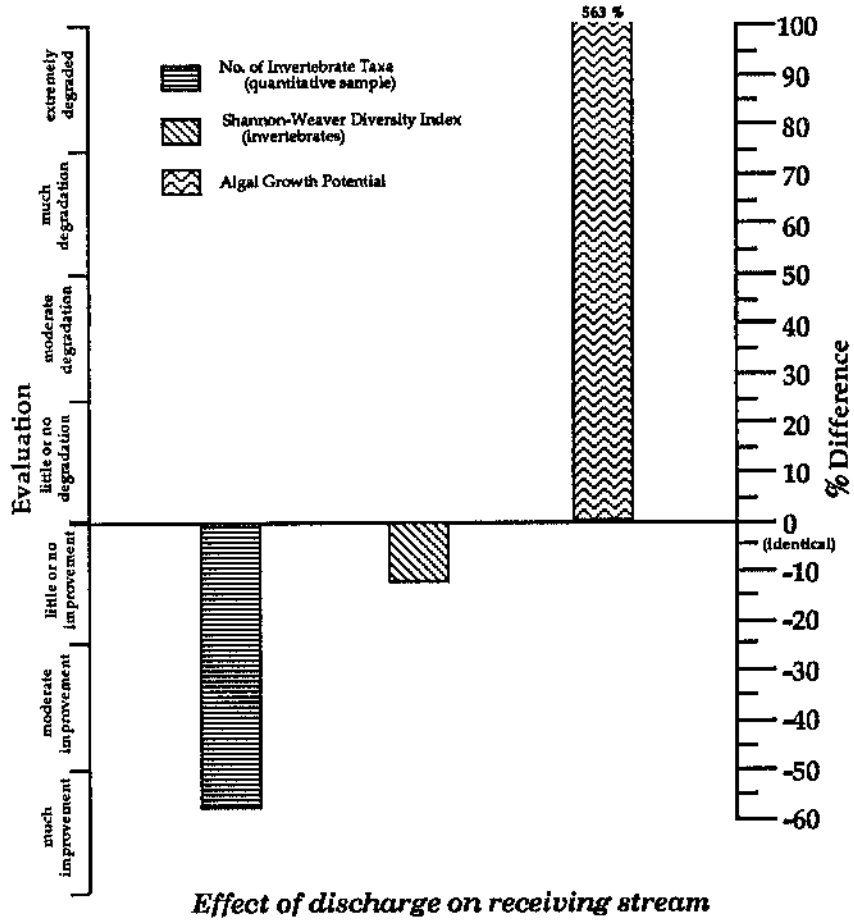
Benthic macroinvertebrate communities were evaluated at reference and test sites. Collection methods consisted of three ponar grabs per site. Bacterial populations were analyzed for fecal coliforms following the methods of APHA (1989). The Algal Growth Potential test, using *Selenastrum capricornutum* as the test organism, followed Miller *et al.* (1978).

Explanation of Measurements of Community Health

Several different measurements of macroinvertebrate community health have been employed. Many of these, such as the number of taxa and the Shannon-Weaver diversity index, are well known. Others are briefly explained here. Czekanowski's Similarity Index is a multivariate ordination procedure which compares organism abundance and taxonomic structure between sites. The determination of the Quantitative Similarity Index (for taxonomic % composition) is a two step process. First, the relative proportions of major taxonomic groups are calculated for each site. Then, the lesser of the two percentages for each discrete taxonomic group is totaled. A QSI (% composition) of 100% means

Major characteristics of community structure of control and test sites.

	Control Site	Test Site
Macroinvertebrate Quantitative		
Number of Taxa	7	11
Shannon-Weaver Diversity	2.4	2.7
% Malacostraca	49.2	60.7
% Pelycepoda	18.0	7.1
% Decapoda	4.9	14.3
% Thoracica	16.4	0
% Gastropoda	11.5	0
% Polychaeta	0	10.7
% Cnidaria	0	3.4
% Oligochaeta	0	3.4
% Collector-Gatherers	54.1	89.3
% Collector-Filterers	34.4	7.1
% Scrapers	11.5	0
% Predators	0	3.6
% Shredders	0	0
Algal Growth Potential (mg dry wt/l)	0.32	2.12



Effect of discharge on receiving stream
(measured as difference between control and test sites).

that the two sites being compared are identical. This same type of procedure is used for calculating the QSI (functional feeding groups).

For graphical purposes, the percent differences between the reference and test sites involving the number of taxa and diversity are measured as the reference site minus test site divided by the reference site. The percent difference between sites involving algal growth potential is measured as the test site minus reference site divided by the reference site.

The following personnel were involved in this investigation: Mark Charneski (DER South District) and Lyn Burton, Russel Frydenborg, Kathleen Lurding, and Sandra McClure (Tallahassee Biology Laboratory).

Results and Discussion

Habitat scores for the control and test sites were 63 and 61, respectively (Appendix). Both streams were channelized, and of similar depth and water velocity. Physical-chemical measurements indicated that water was slightly acidic at both stations, and that conductivity was higher at the reference site (16,400 µmhos/cm) than at the test site (11,900 µmhos/cm). Dissolved oxygen was adequate at the test site (5.1 mg/l), but was slightly depressed at the control site (3.8 µg/l) (Appendix). Although these two sites appear to be comparable in terms of water quality, the substrate quality was vastly different. At the reference site, the substrate consisted of mostly oyster shell and to a lesser extent, sand. At the test site, mangrove leaf litter was the dominant substrate component.

The effluent did not cause mortality to the bannerfin shiner, *Notropis leedsi,* in the 48 hour static acute toxicity test. Results of the Microtox® test indicated that the discharge was stimulatory to *Photobacterium phosphoreum* (Appendix).

Analysis of effluent organic constituents revealed phenol at a concentration of < 15 µg/l. Also, several benzene derivatives were tentatively identified (estimated concentration 100 µg/l) (Appendix). These levels are very low and are not likely to pose a threat to the biota. Analysis of metals in the effluent indicated the presence of mercury (< 0.2 µg/l), copper (20 µg/l), and zinc (18 µg/l). None of these concentrations was high enough to cause problems in marine waters.

Nutrient analysis of waters from the reference and test sites showed that low concentrations of total phosphorus, total Kjeldahl nitrogen, and ammonia were present at both locations. Bioreactive forms of nitrogen and phosphorus were undetected (Appendix). An increase in the algal growth potential occurred, however, between the reference and test sites. Although the graph on this page shows a 563% increase, which ordinarily would be indicative of extreme degradation, the higher level of 2.12 mg dry wt/l is still below the threshold at which problems are expected.

Fecal coliforms were analyzed at both reference and test sites. Although levels were higher at the upstream site (Appendix), no water

quality problems were indicated due to bacterial populations.

Measures of macroinvertebrate community health (Table and Figures) demonstrated that there were differences between the two study sites. The upper left figure indicates the degree of difference between the reference and test sites. Larger differences (that is, higher percentages) correspond with greater degrees of degradation. Negative values mean that the test site is better than the control. Only one organism was common to both areas, the common amphipod, *Grandidierella bonnieroides*. Both sites were dominated by malacostracans, but more taxa were recovered from the test site. Diversity was higher at the test site. The presence of organisms considered somewhat sensitive to pollution, including *Automate evermani*, *Ampelisca abdita*, and *Melita longisetosa*, also indicated that the test site was not degraded.

The lower right figure summarizes similarities between the sites. Smaller similarities (lower percentages) generally correspond with greater degradation. In this particular case, though, the lack of similarity between macroinvertebrate communities at the two sites is indicative of substrate differences. Indices of quantitative stability for percent composition and functional feeding groups were both 61.2%. The differences noted between these two sites are further emphasized by Czekanowski's Index, which was only 6.8%.

Conclusions

Effluent from the Everglades City STP was not toxic to *Notropis leedsi*, and was not found to contain deleterious amounts of priority pollutants or metals. Algal growth potential was higher downstream of the discharge, but was not high enough to indicate eutrophication problems. Nutrients were low at both the reference and test sites.

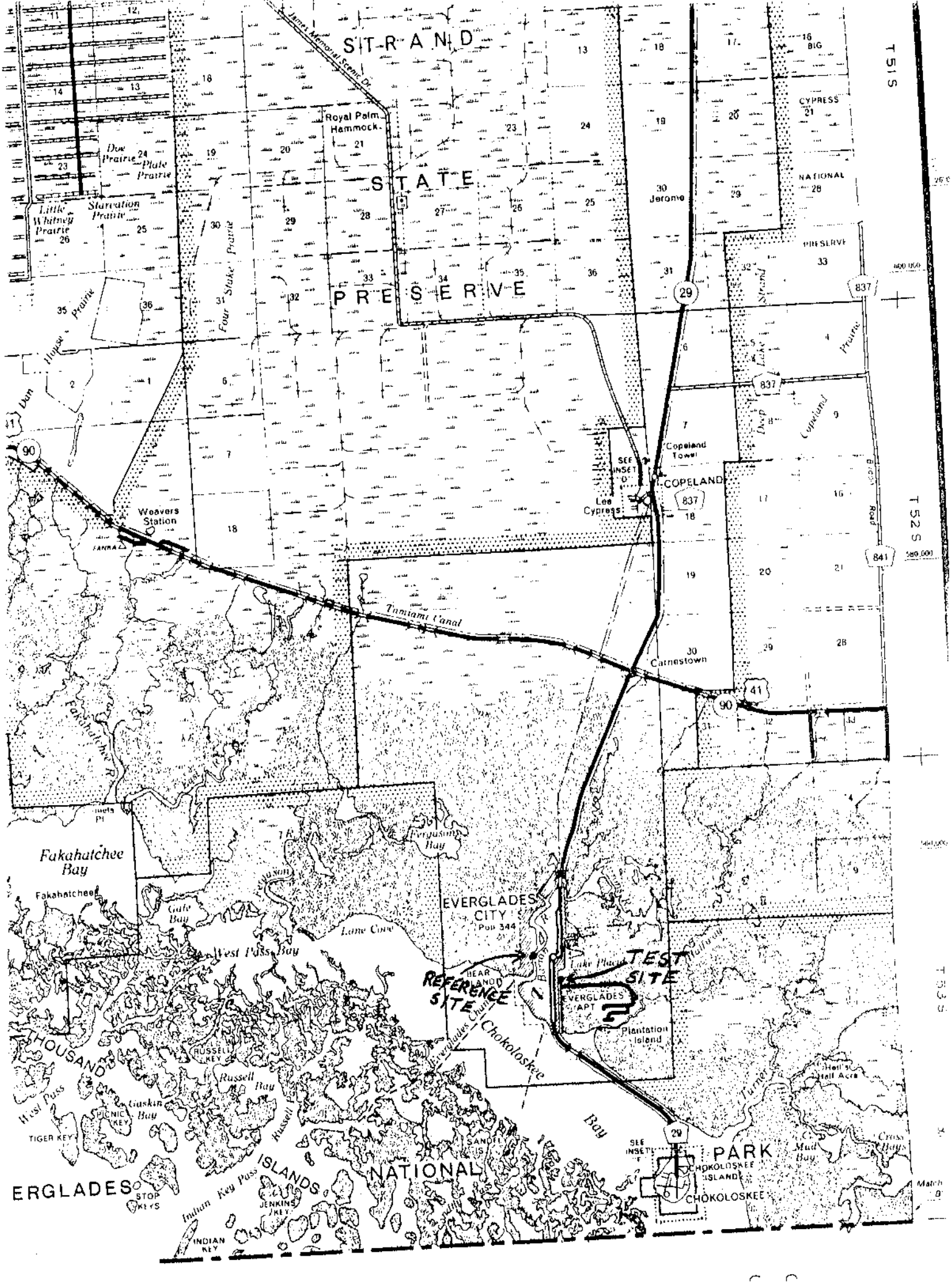
Benthic macroinvertebrate communities were dissimilar at the two sites, but this variation was most likely the result of substrate composition differences. The presence of organisms considered sensitive to stress in the vicinity of the Everglades City outfall indicated that the discharge was not harmful to the biota.

Literature Cited

American Public Health Assoc., American Water Works Assoc., and Water Pollution Control Federation. 1989. Standard Methods for the Examination of Water and Wastewater, 17th ed. New York, N.Y. 1268 p.

Florida Department of Environmental Regulation. 1985. Quality assurance manual for performing acute toxicity tests. 2nd edition. Fla. Dept. Environmental Regulation, Biology Section, Tallahassee. 53 pp.

Peltier, W. H. and C. I. Weber. 1985. Methods for measuring the acute toxicity of effluents to freshwater and marine organisms. 3rd edition. EPA/600/4-85/013. U. S. EPA, Cincinnati, Ohio. 216 pp.


STRAND
STATE
PRESERVE
Royal Palm Hammock
Doe Prairie
Plate Prairie
Starvation Prairie
Little Whitney Prairie
Four Stake Prairie
Hungse Prairie
Dan
James Memorial Scenic Dr
Jerome
CYPRESS
NATIONAL
PRESERVE
Copeland Tower
COPELAND
Lee Cypress
Weavers Station
Tamiami Canal
Carnestown
Fakahatchee R
Fakahatchee Bay
Fakahatchee
Gate Bay
West Pass Bay
Lane Cove
Ferguson Bay
EVERGLADES CITY
Pop 344
REFERENCE SITE
TEST SITE
Take Photos
Bear Island
Everglades Apt
Plantation Island
Everglades Channel
Chokoloskee
Chokoloskee Bay
Turner River
Hell's Half Acre
Cross Bayou
Mud Bay
Chokoloskee Island
PARK
NATIONAL
ERGLADES
THOUSAND ISLANDS
Russell Key
Russell Bay
Gaskin Bay
Picnic Key
Tiger Key
West Pass
Indian Key Pass
Stop Keys
Jenkins Key
Indian Key
Sandfly Is
SEE INSET
T51S
T52S
T53S
90
41
29
837
841

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
MARINE BENTHIC HABITAT ASSESSMENT FIELD DATA SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME: DER	STORET STATION NUMBER: 28030059	DATE (M/D/Y): 9/11/90	RECEIVING BODY OF WATER: Barrier River

REMARKS:	LOCATION: Everglades City	FIELD ID/NAME: Background site

Habitat Parameter / score	Excellent	Good	Fair	Poor
Littoral Alterations 5	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 27	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 comunities observed from those listed. **26-37 points**	One comunity observed from those listed. **13-25 points**	No comunities observed from those listed. **0-12 points**
Tidal Fluctuation 2	>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 12	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 63

COMMENTS: 50% Seawalled / 50 natural shoreline

ANALYSIS DATE:	ANALYST:	SIGNATURE:
9/11/90	Channeski	Mark Channeski

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
MARINE BENTHIC HABITAT ASSESSMENT FIELD DATA SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME: D.E.R.	STORET STATION NUMBER: 28030058	DATE (M/D/Y):	RECEIVING BODY OF WATER: Lake Placid Canal

REMARKS:	LOCATION: City of Everglades STP	FIELD ID/NAME: Discharge site

Habitat Parameter / score	Excellent	Good	Fair	Poor
Littoral Alterations 9	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 25	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 comunities observed from those listed. **26-37 points**	One comunity observed from those listed. **13-25 points**	No comunities observed from those listed. **0-12 points**
Tidal Fluctuation 2	>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 8 Mangrove leaves mostly	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 61

COMMENTS: 6 Mangroves eroding + falling into water 1/2 % of total shoreline.

ANALYSIS DATE:	ANALYST:	SIGNATURE:
9/11/90	Charneski	Mark Charneski

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME: DER	STORET STATION NUMBER: 28030059	DATE (M/D/Y): 9/11/90	RECEIVING BODY OF WATER: Barron River

REMARKS:	LOCATION: Everglades City	FIELD ID/NAME: Background site

RIPARIAN ZONE/INSTREAM FEATURES

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

Forest	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other
50			50			

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): None

Estimated Stream Width (range, m): 40	Estimated Stream Depth (range, m): 2.0		yes
High Water Mark (m above bed): 3	Velocity (range, m/s): .3	Impounded ☐ Channelized ☑	

Canopy Cover % (check box): Open: ☑ Lightly Shaded: ☐ Moderately Shaded: ☐ Heavily Shaded: ☐

SEDIMENT/SUBSTRATE

Sediment Odors: Normal: ☑ Sewage: ☐ Petroleum: ☐ Chemical: ☐ Anaerobic: ☐ Other: ☐

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

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

Substrate Types (estimated % surface coverage):

Limestone:		Sand/Silt/Clay Mix:	
Consolidated Clay:		Clay/Silt (inorganic):	
Gravel/Shell) Oyster	90	Coarse Organic Debris:	
Sand:	10	Mud/Muck (organic):	

WATER QUALITY

	Temp. (°C):	D.O. (mg/l):		
Top	30.4	3.8	Secchi Depth (m):	.7
Mid-depth	30.4	3.5	pH (SU):	6.8
Bottom	30.4	3.8	Conductivity (µmho/cm):	40,000
			Other Parameters:	

Stream Type (check box): Blackwater: ☐ Deep Aquifer Fed: ☐ Surficial Aquifer Fed: ☐ Alluvial: ☑ Other: ☐

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

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

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

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

Weather Conditions: Clear Sunny

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

ANALYSIS DATE:	ANALYST:	SIGNATURE:
9/11/90	Charneski	Mark Charneski

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME: D.E.R.	STORET STATION NUMBER: 28030058	DATE (M/D/Y): 9/11/90	RECEIVING BODY OF WATER: Lake Miriam Canal

REMARKS:	LOCATION: City of Everglades STP	FIELD ID/NAME: Discharge site

RIPARIAN ZONE/INSTREAM FEATURES

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

Forest	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other
50			50			

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):

City of Everglades STP effluent

Estimated Stream Width (range, m): 40	Estimated Stream Depth (range, m): 1.9		yes
High Water Mark (m above bed): .3	Velocity (range, m/s): .3	Impounded ☐ Channelized ☑	

Canopy Cover % (check box): Open: ☑ Lightly Shaded: ☐ Moderately Shaded: ☐ Heavily Shaded: ☐

SEDIMENT/SUBSTRATE

Sediment Odors: Normal: ☑ Sewage: ☐ Petroleum: ☐ Chemical: ☐ Anaerobic: ☐ Other: ☐

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

Sediment Deposits: Sludge: ☐ Paper Fiber: ☐ Mud: ☑ Sand: ☑ Shell: ☐ Other: ☑ plastic debris

Substrate Types (estimated % surface coverage):

Limestone:		Sand/Silt/Clay Mix:	
Consolidated Clay:		Clay/Silt (inorganic):	
Gravel/Shell		Coarse Organic Debris:	
Sand:	90	Mud/Muck (organic):	

WATER QUALITY

	Temp. (°C):	D.O. (mg/l):		
Top	29	5.1	Secchi Depth (m):	.7
Mid-depth	30.4	4.8	pH (SU):	6.7
Bottom	30.4	4.4	Conductivity (µmho/cm):	1629
			Other Parameters:	See meter sheet

Stream Type (check box): Blackwater: ☐ Deep Aquifer Fed: ☐ Surficial Aquifer Fed: ☐ Alluvial: ☑ Other: ☐

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

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

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

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

Weather Conditions: Clear, sunny

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

ANALYSIS DATE:	ANALYST:	SIGNATURE:
9/11/90	Charneski	Mark Charneski

Sample Number: 90-SEP-12-09-01 Sample Status: Authorized by Liang T. Lin
Sample Location: City Of Everglades STP/Collier Co. Matrix: Effluent
Field ID: B091190-40G & 50G Storet Station Number: 28030058
Date/Time Collected: 11-SEP-1990 09:30:37.52
Comments:

Sample Number: 90-SEP-12-09-01 Test status: Authorized by Laura Harrison
Analysis Id: W-BNA Analysis Description: base-neutral-acid water analysis

Storet Number	Analyte	Result	Units
34205	Acenaphthene	10 U	ug/L
34200	Acenaphthylene	10 U	ug/L
39330	Aldrin	10 U	ug/L
34220	Anthracene	10 U	ug/L
34526	Benzo(a)anthracene	10 U	ug/L
34230	Benzo(b)fluoranthene	10 U	ug/L
34242	Benzo(k)fluoranthene	10 U	ug/L
34247	Benzo(a)pyrene	10 U	ug/L
34521	Benzo(g,h,i)perylene	15 U	ug/L
34292	Benzyl butyl phthalate	10 U	ug/L
	a-BHC	10 U	ug/L
39337	b-BHC	10 U	ug/L
39340	d-BHC	10 U	ug/L
	g-BHC	10 U	ug/L
39120	Benzidine	10 U	ug/L
34273	Bis(2-chloroethyl)ether	10 U	ug/L
34278	Bis(2-chloroethoxy)methane	15 U	ug/L
34283	Bis(2-chloroisopropyl)ether	15 U	ug/L
39100	Bis(2-ethylhexyl)phthalate	10 U	ug/L
34636	4-Bromophenyl phenyl ether	10 U	ug/L
34581	2-Chloronaphthalene	10 U	ug/L
34641	4-Chlorophenyl phenyl ether	10 U	ug/L
34320	Chrysene	10 U	ug/L
39310	4,4'-DDD	10 U	ug/L
39320	4,4'-DDE	10 U	ug/L
39300	4,4'-DDT	10 U	ug/L
34556	Dibenzo(a,h)anthracene	15 U	ug/L
39110	Di-n-butyl phthalate	10 U	ug/L
34536	1,2-Dichlorobenzene	10 U	ug/L
34566	1,3-Dichlorobenzene	10 U	ug/L
34571	1,4-Dichlorobenzene	10 U	ug/L
34631	3,3'-Dichlorobenzidine	10 U	ug/L
39380	Dieldrin	10 U	ug/L
34336	Diethylphthalate	10 U	ug/L
34341	Dimethylphthalate	10 U	ug/L
34611	2,4-Dinitrotoluene	10 U	ug/L
34626	2,6-Dinitrotoluene	10 U	ug/L
34596	Di-n-octyl phthalate	10 U	ug/L
34361	Endosulfan-1	10 U	ug/L

Continued

A - Value reported is the mean of two or more determinations
E - Scientific notation
J - Estimated value
K - Actual value is known to be less than value given
L - Actual value is known to be greater than value given
N - Not analyzed for this compound
T - Value reported is less than the practice quantiation limit
U - Material was analyzed for but not detected; The value reported is the minimum detection limit
N/A - Not applicable NR - Not requested

Cont. from previous page for Sample Number: 90-SEP-12-09-01 Analysis_id: W-BNA

34356	Endosulfan-II	10 U	ug/L
34351	Endosulfan-sulfate	10 U	ug/L
39390	Endrin	10 U	ug/L
34366	Endrin-aldehyde	10 U	ug/L
34376	Fluoranthene	10 U	ug/L
34381	Fluorene	10 U	ug/L
39410	Heptachlor	10 U	ug/L
39420	Heptachlor-epoxide	10 U	ug/L
39700	Hexachlorobenzene	15 U	ug/L
34391	Hexachlorobutadiene	10 U	ug/L
34396	Hexachloroethane	60 U	ug/L
34386	Hexachlorocyclypentadiene	10 U	ug/L
34403	Indeno(1,2,3-cd)pyrene	10 U	ug/L
34409	Isophorone	10 U	ug/L
34696	Naphthalene	10 U	ug/L
34447	Nitrobenzene	10 U	ug/L
34438	N-Nitrosodimethylamine	50 U	ug/L
34428	N-Nitrosodi-n-propylamine	10 U	ug/L
34433	N-Nitrosodiphenylamine	15 U	ug/L
34671	PCB-1016	10 U	ug/L
39488	PCB-1221	10 U	ug/L
39492	PCB-1232	10 U	ug/L
39496	PCB-1242	10 U	ug/L
39500	PCB-1248	10 U	ug/L
39504	PCB-1254	10 U	ug/L
39508	PCB-1260	10 U	ug/L
	PCB-1262	10 U	ug/L
34461	Phenanthrene	10 U	ug/L
34469	Pyrene	10 U	ug/L
39400	Toxaphene	10 U	ug/L
34551	1,2,4-Trichlorobenzene	10 U	ug/L
34462	4-Chloro-3-methyl phenol	15 U	ug/L
34586	2-Chlorophenol	15 U	ug/L
34601	2,4-Dichlorophenol	15 U	ug/L
34606	2,4-Dimethylphenol	15 U	ug/L
34616	2,4-Dinitrophenol	30 U	ug/L
34657	2-Methyl-4,6-dinitrophenol	30 U	ug/L
34591	2-Nitrophenol	15 U	ug/L
34646	4-Nitrophenol	50 U	ug/L
39032	Pentachlorophenol	15 U	ug/L
34694	Phenol	15 K	ug/L
34621	2,4,6-Trichlorophenol	15 U	ug/L
	Comments (1):	Tentative identification of several	
	(2):	benzene derivatives; est. conc. 100 ug/L.	
	(3):		
	(4):		
	(5):		
	(6):		

A - Value reported is the mean of two or more determinations
E - Scientific notation
J - Estimated value
K - Actual value is known to be less than value given
L - Actual value is known to be greater than value given
N - Not analyzed for this compound
T - Value reported is less than the practice quantiation limit
U - Material was analyzed for but not detected; The value reported is the mimimum detection limit
N/A - Not applicable NR - Not requested

8-OCT-1990 13:30:43

Sample Number: 90-SEP-12-10-01 Sample Status: Authorized by Tim Fitzpatrick
Sample Location: City Of Everglades STP/Collier Co. Matrix: Effluent
Field ID: B091190-7M Storet Station Number: 28030058
Date/Time Collected: 11-SEP-1990 09:30:27.91
Comments:

Sample Number: 90-SEP-12-10-01 Test status: Authorized by Jack Merritt
Analysis Id: HG-H-W Analysis Description: Mercury by cold vapor using hydride sys.-water

Storet Number	Analyte	Result	Units
71900	Mercury	0.2 K	ug/L

Sample Number: 90-SEP-12-10-01 Test status: Authorized by Jack Merritt
Analysis Id: CD-G-W Analysis Description: Cadmium by graphite furnace for water saple

Storet Number	Analyte	Result	Units
01027	Cadmium	0.3 U	ug/L

Sample Number: 90-SEP-12-10-01 Test status: Authorized by Jack Merritt
Analysis Id: PB-G-W Analysis Description: Lead by furnace AA in water

Storet Number	Analyte	Result	Units
01051	Lead	2 U	ug/L

Sample Number: 90-SEP-12-10-01 Test status: Authorized by Tim Fitzpatrick
Analysis Id: W-ICP-23 Analysis Description: ICP multielement analysis for water samples

Storet Number	Analyte	Result	Units
01106	Aluminum	NR	ug/L
01002	Arsenic	20 U	ug/L
01097	Antimony	NR	ug/L
01007	Barium	NR	ug/L
01012	Beryllium	NR	ug/L
01027	Cadmium	NR	ug/L
00916	Calcium	NR	mg/L
01034	Chromium	10 U	ug/L
01037	Cobalt	NR	ug/L
01042	Copper	20	ug/L
01045	Iron	NR	ug/L
01051	Lead	NR	ug/L

Continued

A - Value reported is the mean of two or more determinations
E - Scientific notation
J - Estimated value
K - Actual value is known to be less than value given
L - Actual value is known to be greater than value given
N - Not analyzed for this compound
T - Value reported is less than the practice quantiation limit
U - Material was analyzed for but not detected; The value reported is the mimimum detection limit
N/A - Not applicable NR - Not requested

Cont. from previous page for Sample Number: 90-SEP-12-10-01 Analysis_id: W-ICP-23

00927	Magnesium	NR	mg/L
01055	Manganese	NR	ug/L
01067	Nickel	5 U	ug/L
00937	Potassium	NR	mg/L
01147	Selenium	NR	ug/L
01077	Silver	NR	ug/L
00929	Sodium	NR	mg/L
01082	Strontium	NR	ug/L
01059	Thallium	NR	ug/L
01087	Vanadium	NR	ug/L
01092	Zinc	18 A	ug/L

Sample Number: 90-SEP-12-10-02 Sample Status: Authorized by Tim Fitzpatrick
Sample Location: City Of Everglades STP/Collier Co. Matrix: Field Blank
Field ID: B091190-6M Storet Station Number:
Date/Time Collected: 11-SEP-1990 07:30:27.91
Comments:

Sample Number: 90-SEP-12-10-02 Test status: Authorized by Jack Merritt
Analysis Id: HG-H-W Analysis Description: Mercury by cold vapor using hydride sys.-water

Storet Number	Analyte	Result	Units
71900	Mercury	0.2 U	ug/L

Sample Number: 90-SEP-12-10-02 Test status: Authorized by Jack Merritt
Analysis Id: PB-G-W Analysis Description: Lead by furnace AA in water

Storet Number	Analyte	Result	Units
01051	Lead	2 U	ug/L

Sample Number: 90-SEP-12-10-02 Test status: Authorized by Jack Merritt
Analysis Id: CD-G-W Analysis Description: Cadmium by graphite furnace for water saple

Storet Number	Analyte	Result	Units
01027	Cadmium	0.3 U	ug/L

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L - Actual value is known to be greater than value given
N - Not analyzed for this compound
T - Value reported is less than the practice quantiation limit
U - Material was analyzed for but not detected; The value reported is the mimimum detection limit
N/A - Not applicable NR - Not requested

DER Biology Section — Acute Bioa[illegible]ench Sheet

Sample Source: Everglades STP
Address/City:
County:
Contact/District:
NPDES Permit #: _____ **Outfall #:** _____

Sample Collection: Date 9-11-90 Time _____
Test Beginning: Date 9-12-90 Time 1110
Test Ending: Date 9-14-90 Time 1000
Test Organism: N. leeasi
Life Stage/Age: 17 days

Test Number: 2 of 2 **Test Type:** Screening | Definitive
Static | Static Renewal | Flow-through

Remarks: * Aerated
10 aerated from 1.4 to 7.5
12 aerated from 1.5 to 7.9

Instrument Calibrations:

	pH	DO	Cond	Temp
0 hr	7@7, 9@9	8.5@24°	1381@24.3	24.1
24 hr	9@7, 9@9	8.5@24°	1375@23.8	23.3°
48 hr				

Conc.	Chamber #	Number Live 0	24	48	DO (mg/l) 0	24	48	pH 0	24	48	Temp. (°C) 0	24	48	Cond. (µmhos/cm) 0	24	48
Control	11	5	5	5	7.8	8.2	8.2	7.9	8.1	8.4 8.4	23.5	22.8	22.9			
"	19	5	5	5	7.8	8.2	8.2	7.9	8.2	8.0 8.0				240		241
100%	12	5	5	5	7.9	7.5	8.3	7.6	8.6	8.6 8.6	24.0	23.0	23.0			
"	10	5	5	5	7.5	7.8	8.1	7.6	8.5	8.5 8.5				7210		7130
Measured/Loaded by:		KML	MF	MF	SMC	AM	JMF	SMF	AWM	JMF	SMC	AWM	JMF	AWM	AWM	JMF
Recorded by:		KML	MF	MF	LB	LB	KML	LB	LB	KML	LB	LB	KML	LB	LB	KML

Investigators' Signatures

Sandy McClure
Marshall Faircloth
KMLurding
Tom Burton
Reviewer

Water-quality Parameters

	Well Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Cl2:					
Lab Tot. Resid. Cl2:			0.0	HACH	KML
Alkalinity:	109	107	316	HACH	AWM
Hardness:	115	137	724	HACH	AWM
Total Ammonia:					

MICROTOX™ Data Reduction Sheet

SOURCE: B091190-1T everglades

GRAPH
CALC EC _____ (_____ MIN, _____ ° C) = _____ %SAMPLE mg/L

SAMPLE DATA:

SAMPLE TYPE (EFFLUENT, LEACHATE, ETC.):

DATE ASSAYED: 9/12/90 TIME:

VISUAL COLOR: CORRECTION REQUIRED: YES NO

VISUAL TURBIDITY: SEPARATION REQUIRED: YES NO

INITIAL pH: pH ADJUSTED TO: WITH:

OSMOTICALLY ADJUSTED WITH: MOAS (DRY NaCl) OTHER

PRIMARY DILUTION OF SAMPLE:

OPERATOR: MS Cangro REAGENT VIAL LOT NO. M-

REMARKS:

MICROTOX™ TEST

SAMPLE CUVETTE	% SAMPLE	READINGS 5 MIN	READINGS 15 MIN	Γ5	Γ15	NOTES
						0
A1	0	72	59	X	X	122
B1		95	80			133
C1		85	64			127
A2	12.38	95	77		-.06	125
B2		91	71			118
C2		92	73			117
A3	24.75	102	86		-.16	120
B3		101	82			121
C3		97	79			116
A4	49.5	108	104		-.22	132
B4		103	83			119
C4		96	81			115
A5	99	110	95		-.26	120
B5		111	95			114
C5		108	90			114
EC_{50} (MIN, ° C)				Stimulatory		

REVIEWED BY:
DATE: 2/6/91

Sample Number: 90-SEP-12-12-01 Sample Status: Authorized by Yuh-Hsu Pan
Sample Location: City Of Everglades STO/Collier Co. Matrix: Fresh Surf Water
Field ID: B091190-8N Reference site Storet Station Number:
Date/Time Collected: 11-SEP-1990 10:15:02.69
Comments:

Sample Number: 90-SEP-12-12-01 Test status: Authorized by Yuh-Hsu Pan
Analysis Id: W-TP Analysis Description: Analysis for total phosphorus in water

Storet Number	Analyte	Result	Units
00665	Total Phosphorus	0.11	mg P/L

Sample Number: 90-SEP-12-12-01 Test status: Authorized by Yuh-Hsu Pan
Analysis Id: W-TKN Analysis Description: TKN for water sample

Storet Number	Analyte	Result	Units
00625	N KJEL TOT	0.65	mg N/L

Sample Number: 90-SEP-12-12-01 Test status: Authorized by Yuh-Hsu Pan
Analysis Id: W-NO2NO3 Analysis Description: Analysis for nitrite+nitrate in water

Storet Number	Analyte	Result	Units
00630	NO2NO3-N	0.020 U	mg N/L

Sample Number: 90-SEP-12-12-01 Test status: Authorized by Yuh-Hsu Pan
Analysis Id: W-NH3 Analysis Description: Analysis for ammonia in water

Storet Number	Analyte	Result	Units
00610	Ammonia-N	0.068 A	mg N/L

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L - Actual value is known to be greater than value given
N - Not analyzed for this compound
T - Value reported is less than the practice quantiation limit
U - Material was analyzed for but not detected; The value reported is the minimum detection limit
N/A - Not applicable NR - Not requested

Sample Number: 90-SEP-12-12-02 Sample Status: Authorized by Yuh-Hsu Pan
Sample Location: City Of Everglades STO/Collier Co. Matrix: Fresh Surf Water
Field ID: B091190-10N Test Site Storet Station Number:
Date/Time Collected: 11-SEP-1990 10:30:02.69
Comments:

Sample Number: 90-SEP-12-12-02 Test status: Authorized by Yuh-Hsu Pan
Analysis Id: W-TP Analysis Description: Analysis for total phosphorus in water

Storet Number	Analyte	Result	Units
00665	Total Phosphorus	0.11	mg P/L

Sample Number: 90-SEP-12-12-02 Test status: Authorized by Yuh-Hsu Pan
Analysis Id: W-TKN Analysis Description: TKN for water sample

Storet Number	Analyte	Result	Units
00625	N KJEL TOT	0.67	mg N/L

Sample Number: 90-SEP-12-12-02 Test status: Authorized by Yuh-Hsu Pan
Analysis Id: W-NO2NO3 Analysis Description: Analysis for nitrite+nitrate in water

Storet Number	Analyte	Result	Units
00630	NO2NO3-N	0.020 U	mg N/L

Sample Number: 90-SEP-12-12-02 Test status: Authorized by Yuh-Hsu Pan
Analysis Id: W-NH3 Analysis Description: Analysis for ammonia in water

Storet Number	Analyte	Result	Units
00610	Ammonia-N	0.076 A	mg N/L

End of Report

A - Value reported is the mean of two or more determinations
E - Scientific notation
J - Estimated value
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L - Actual value is known to be greater than value given
N - Not analyzed for this compound
T - Value reported is less than the practice quantiation limit
U - Material was analyzed for but not detected; The value reported is the minimum detection limit
N/A - Not applicable NR - Not requested

Sample Number: 90-SEP-12-11-01 Sample Status: Authorized by Yuh-Hsu Pan
Sample Location: City Of Everglades STP/Collier Co. Matrix: Fresh Surf Water
Field ID: B091190-9N Storet Station Number:
Date/Time Collected: 11-SEP-1990 10:15:09.65
Comments: Reference Site

Sample Number: 90-SEP-12-11-01 Test status: Authorized by Yuh-Hsu Pan
Analysis Id: W-PO4 Analysis Description: Orthophosphate analysis for water samples

Storet Number	Analyte	Result	Units
70507	Orthophosphate-P	0.050 U	mg P/L

Sample Number: 90-SEP-12-11-02 Sample Status: Authorized by Yuh-Hsu Pan
Sample Location: City Of Everglades STP/Collier Co. Matrix: Fresh Surf Water
Field ID: B091190-11N Storet Station Number:
Date/Time Collected: 11-SEP-1990 10:30:09.65
Comments: Test Site

Sample Number: 90-SEP-12-11-02 Test status: Authorized by Yuh-Hsu Pan
Analysis Id: W-PO4 Analysis Description: Orthophosphate analysis for water samples

Storet Number	Analyte	Result	Units
70507	Orthophosphate-P	0.050 U	mg P/L

End of Report

A - Value reported is the mean of two or more determinations
E - Scientific notation
J - Estimated value
K - Actual value is known to be less than value given
L - Actual value is known to be greater than value given
N - Not analyzed for this compound
T - Value reported is less than the practice quantiation limit
U - Material was analyzed for but not detected; The value reported is the mimimum detection limit
N/A - Not applicable NR - Not requested

DEPARTMENT OF ENVIRONMENTAL REGULATION

CHEMICAL ANALYSIS REPORT FORM

LAB ID B091190-12B

SAMPLE TYPE: WATER – FRESH ____ SALINE ✓

AGENCY CODE	STORET STATION NUMBER	DATE (M/D/Y)	TIME A – GRAB SAMPLE	DEPTH, FEE
	28030058	9/11/90	1015	1
			TIME B COMPOSITE SAMPLE	
			COMP BEGIN	
			COMP END	

REMARKS: Upstream

LOCATION: City of Everglades STP / Collier Co.

SAMPLE SOURCE:
GROUNDWATER
MONITORING WELL: ☐
DRINKING WATER WELL: ☐
SURFACE WATER
RIVER/STREAM: ☐
LAKE/POND: ☐
ESTUARY/BAY: ☑
EFFLUENT: ☐
FIELD BLANK: ☐
FIELD DUPLICATE: ☐
OTHER: ____

TAS #	FIELD/LAB ID #	PRESERVATION	WELL #

SAMPLED BY: Chamnoski

FIELD REPORT PREPARED BY: Chamnoski

	UNIT	CODE△	VALU
SPECIFIC CONDUCTANCE	µMHOS/CM	94	11,90
pH	STD UNIT	400	6.7
TEMPERATURE	°C	10	29.8

MEASURED BY: Chamnoski

PARAMETER	UNIT	CODE*	VALUE
Bact' MF Fecal		31616	120

PARAMETER	UNIT	CODE*	VALU
Lab In	9/11/90	Date	
Out	9/13/90	Date	
STORET LAB ID		84028	
STORET FIELD SAMPLE #		29	
AGENCY COLLECTING		27	
AGENCY ANALYZING		28	

J – Estimated Value
K – Actual value is known to be less than value given.
L – Actual value is known to be greater than value given.
U – Material was analyzed for but not detected. The number is th Minimum Detection Limit.

ANALYST	QA VERIFIED BY	LAB REPORT VERIFIED BY	DATE
		Rim	9/12/90

*STORET CODES APPLY TO ONLY SURFACE WATER SAMPLES

△STORET CODES APPLY TO FIELD MEASUREMENTS

ER Form PERM 21-10 (Rev. 4/81)

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

CHEMICAL ANALYSIS REPORT FORM

LAB ID B091190-13B

SAMPLE TYPE: WATER – FRESH ____ SALINE ✓

AGENCY CODE	STORET STATION NUMBER	DATE (M/D/Y)	TIME A – GRAB SAMPLE	DEPTH, FEE
	28030058	9/11/90	1015.	
			TIME B COMPOSITE SAMPLE	
			COMP BEGIN	1
			END	

REMARKS: Upstream

LOCATION: City of Everglades STP / Collier Co

SAMPLE SOURCE:
GROUNDWATER
MONITORING WELL: ☐
DRINKING WATER WELL: ☐

SURFACE WATER
RIVER/STREAM: ☐
LAKE/POND: ☐
ESTUARY/BAY: ☑

EFFLUENT: ☐
FIELD BLANK: ☐
FIELD DUPLICATE: ☐
OTHER:

TAS #	FIELD/LAB ID #	PRESERVATION	WELL #

SAMPLED BY: Chamnecki

FIELD REPORT PREPARED BY: Chamnecki

	UNIT	CODE△	VALU
SPECIFIC CONDUCTANCE	µMHOS/CM	94	11,900
pH	STD UNIT	400	6.7
TEMPERATURE	°C	10	29.8

MEASURED BY: Chamnecki

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*	VALU
Bacti MF Fecal		31616	125				
				Log In	9/11/90	Dave	
				Out	9/13/90	Dave	
				STORET LAB ID		84028	
				STORET FIELD SAMPLE #		29	
				AGENCY COLLECTING		27	
				AGENCY ANALYZING		28	

J – Estimated Value
K – Actual value is known to be less than value given.
L – Actual value is known to be greater than value given.
U – Material was analyzed for but not detected. The number is the Minimum Detection Limit.

ANALYST	QA VERIFIED BY	LAB REPORT VERIFIED BY	DATE
		RLM	9/19/90

*STORET CODES APPLY TO ONLY SURFACE WATER SAMPL

△STORET CODES APPLY TO FIELD MEASUREMENTS

ER Form PERM 21-10 (Rev. 4/81)

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

CHEMICAL ANALYSIS REPORT FORM

LAB ID B091190-14B

SAMPLE TYPE: WATER – FRESH ____ SALINE ✓

AGENCY CODE	STORET STATION NUMBER	DATE (M/D/Y)	TIME A – GRAB SAMPLE	DEPTH, FEET
	28030058	9/11/90	10.30	1
			TIME B COMPOSITE SAMPLE	
			COMP BEGIN	
			END	

REMARKS: Downstream

LOCATION: City of Everglades STP / Collier Co.

SAMPLE SOURCE: GROUNDWATER — MONITORING WELL: ☐ DRINKING WATER WELL: ☐
SURFACE WATER — RIVER/STREAM: ☐ LAKE/POND: ☐ ESTUARY/BAY: ☑
EFFLUENT: ☐ FIELD BLANK: ☐ FIELD DUPLICATE: ☐ OTHER: ____

TAS #	FIELD/LAB ID #	PRESERVATION	WELL #

SAMPLED BY: Chmielecki

FIELD REPORT PREPARED BY: Chmielecki

	UNIT	CODE△	VALUE
SPECIFIC CONDUCTANCE	µMHOS/CM	94	15 000
pH	STD UNIT	400	6.8
TEMPERATURE	°C	10	30.1

MEASURED BY: Chmielecki

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*	VALUE
Brecti MF Fecal		31616	30 13				
				Log In	9/11/90	MEW	
				out	9/13/90	MEW	
				STORET LAB ID		84028	
				STORET FIELD SAMPLE #		29	
				AGENCY COLLECTING		27	
				AGENCY ANALYZING		28	

J – Estimated Value
K – Actual value is known to be less than value given.
L – Actual value is known to be greater than value given.
U – Material was analyzed for but not detected. The number is the Minimum Detection Limit.

ANALYST	QA VERIFIED BY	LAB REPORT VERIFIED BY	DATE
		RLM	9/14/90

*STORET CODES APPLY TO ONLY SURFACE WATER SAMPLES

△STORET CODES APPLY TO FIELD MEASUREMENTS

ER Form PERM 21-10 (Rev. 4/81)

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

LAB ID B091190-15B

CHEMICAL ANALYSIS REPORT FORM

SAMPLE TYPE: WATER – FRESH ____ SALINE ✓

AGENCY CODE	STORET STATION NUMBER	DATE (M/D/Y)	TIME A – GRAB SAMPLE	DEPTH, FEET
	28030058	9/11/90	1030.	
			TIME B COMPOSITE SAMPLE	
			COMP BEGIN	
			END	1

REMARKS: Downstream

LOCATION: City of Everglades STP / Collier Co.

SAMPLE SOURCE:
GROUNDWATER
MONITORING WELL: ☐
DRINKING WATER WELL: ☐

SURFACE WATER
RIVER/STREAM: ☐
LAKE/POND: ☐
ESTUARY/BAY: ☑

EFFLUENT: ☐
FIELD BLANK: ☐
FIELD DUPLICATE: ☐
OTHER: ____

TAS #	FIELD/LAB ID #	PRESERVATION	WELL #

SAMPLED BY: Charneski

FIELD REPORT PREPARED BY: Charneski

	UNIT	CODE△	VALUE
SPECIFIC CONDUCTANCE	µMHOS/CM	94	1500
pH	STD UNIT	400	6.6
TEMPERATURE	°C	10	30.1

MEASURED BY: Charneski

PARAMETER	UNIT	CODE*	VALUE	PARAMETER	UNIT	CODE*	VALUE
Bacti MF Fecal		31616	40 B				
				Log Ton	9/11/90	BAG2	
				out	9/13/90	DTW	
				STORET LAB ID		84028	
				STORET FIELD SAMPLE #		29	
				AGENCY COLLECTING		27	
				AGENCY ANALYZING		28	

J – Estimated Value
K – Actual value is known to be less than value given.
L – Actual value is known to be greater than value given.
U – Material was analyzed for but not detected. The number is the Minimum Detection Limit.

ANALYST	QA VERIFIED BY	LAB REPORT VERIFIED BY	DATE
		RM	9/11/90

*STORET CODES APPLY TO ONLY SURFACE WATER SAMPLES

△STORET CODES APPLY TO FIELD MEASUREMENTS

ER Form PERM 21-10 (Rev. 4/81)

Benthic macroinvertebrate taxa list for City of Everglades WWTP, Collier County, Florida, collected at a reference site and downstream of the discharge on September 11, 1990.

	Reference Site	Test site
Cnidaria		
Unidentified anemone	–	+
Decapoda		
Automate evermani	–	+
Petrolishes armatus	+	–
Gastropoda		
Crepidula plana	+	–
Malacostraca		
Ampelisca abdita	–	+
Grandidierella bonnieroides	+	+
Melita dentata	+	–
Melita longisetosa	–	+
Oligochaeta		
Undetermined tubificidae	–	+
Pelycepoda		
Anomalocardia aberiana	–	+
Bankia sp.	–	+
Crassostrea virginica	+	–
Ischadium recurvum	+	–
Polychaeta		
Capitella capitata	–	+
Scoloplos fragilis	–	+
Undetermined polychaete sp.	–	+
Thoracica		
Balanus sp.	+	–
Total	**7**	**11**

Department of Environmental Regulation

Results of Fifth Year Inspections

Discharger: **City of Everglades STP**
County: **Collier**
NPDES Number: **FL0027618**
State Permit Expiration Date:

Toxics Sampling Inspection (XSI)

Date Sampled: 11 September 1990
Results: Copper 20 µg/l, Zinc 18 µg/l, Mercury <0.2 µg/l, Phenol <15 µg/l,

Compliance Biomonitoring Inspection (CBI)

Date Sampled: 11 September 1990
Results: No toxicity to *Notropis leedsi*

Impact Bioassessment Inspection (IBI)

Date Sampled: 11 September 1990
Results: Algal growth potential slightly elevated; macroinvertebrate community was healthy in the receiving waters.

Water Quality Inspection (WQI)

Date Sampled:
Results:

These fifth year inspections provide the necessary information to evaluate the facility's impact on its receiving waters and to provide specific condition recommendations for renewal to resolve any concerns.