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Data for Periphyton and Water Samples Collected from the South Florida Ecosystem, 1995 and 1996

By N.S. Simon, T. Cox and R. Spencer

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For additional information, write to:

Chief, Branch of Regional Research, Eastern Region
U.S. Geological Survey
432 National Center
Reston, VA 20192

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ABSTRACT

This report presents data for samples of periphyton and water collected in 1995 and 1996 from Water Conservation Areas, the Big Cypress National Preserve, and the Everglades National Park in south Florida. Periphyton samples were analyzed for concentrations of total mercury, methylmercury, nitrogen, phosphorus, organic carbon, and inorganic carbon. Water-column samples collected on the same dates as the periphyton samples were analyzed for concentrations of major ions.

INTRODUCTION

Periphyton is attached algae; it is ubiquitous in the south Florida ecosystem. Periphyton found in south Florida can be characterized as a plant assemblage, including microbial communities of algae and cyanobacteria, that live on submerged aquatic vegetation (Browder and others, 1997). Algae are known to concentrate heavy metals from surrounding waters (Huntsman and Sunda, 1980; Xue and others, 1988; Crist and others, 1994) and can be indicators of metals in the environment. Algal substrates can be the source of organometallic compounds (Simon and Morrison, 1991). Because of the sorption behavior of algae with respect to heavy metals, periphyton of the south Florida marshes was examined for mercury accumulation.

This report provides a compilation of data collected by the U.S. Geological Survey (USGS) from March 1995 through December 1996 in support of the Aquatic Cycling of Mercury in the Everglades Project of the USGS South Florida Ecosystem Program. The report includes water column chemistry for samples collected in March, July and December 1995 and June and December 1996. It also includes results of analyses of (1) whole periphyton samples representing grab samples, (2) whole periphyton samples with replicates to evaluate homogeneity, and (3) periphyton mat samples that were sectioned before analysis. More than 150 samples of periphyton were analyzed. Methods and techniques for sample analysis are discussed.

The study area is located in the area of Florida south of Lake Okeechobee (Figure 1). It includes Water Conservation Areas (WCA) 2A, 2B, 3A, and 3B. Also included are sites in the Big Cypress National Preserve and Everglades National Park

The South Florida Ecosystem Program provides funding for the Aquatic Cycling of Mercury in the Everglades Project. The assistance of Benjamin McPherson and Kim Haag, South Florida National Water Quality Assessment Program, USGS, Tampa, FL, and Peter S. Rawlik, South Florida Water Management District, West Palm Beach, FL, in the collection of samples is greatly appreciated.

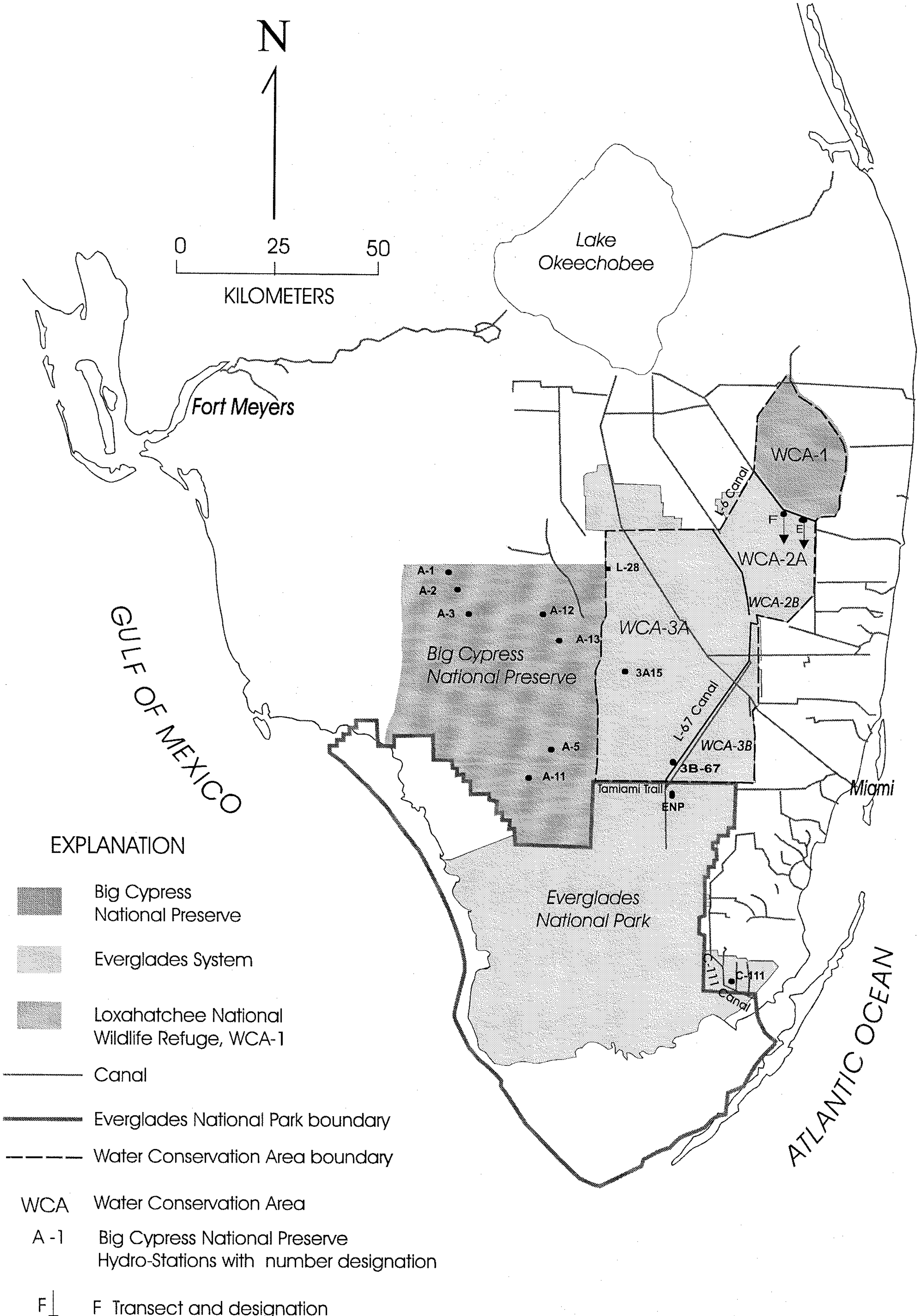

Figure 1. Location of study area and sampling sites for periphyton in South Florida.

STUDY METHODS

Details of the methods used for collection, preparation, and analysis of samples are included as an aid to the reader. Data are, in varying degrees, operationally defined. An example is the phosphate data in the water chemistry tables. The analyses were done using an ion chromatograph that determines only orthophosphate. Water samples were not analyzed for dissolved reactive phosphate.

Sample Collection and Processing

Sampling Sites

Sampling sites were located in Water Conservation Areas (WCA) 2A, 2B, 3A and 3B, the Big Cypress Preserve (BCNP), and in and near the Everglades National Park (ENP) (Figure 1). Within WCA-2A, samples were collected at sites established by the South Florida Water Management District (SFWMD) along two transects referred to as the F and E transects. These transects are approximately 14 kilometers in length and follow a general north-to-south direction and a nutrient gradient. The F transect includes sites F1, F2, F3, F4 and U3, and the E transect includes sites E1, E2, E4, and U1. Sites are approximately evenly spaced along the 14-kilometer gradients. Also, a set of samples was collected along the L-6 canal that forms the northwest boundary of WCA-2A. The sampling site in WCA-3A is referred to as 3A15 and the site in WCA-3B, located near the L-67 canal, is referred to as 3B67. The sites in the BCNP are permanent hydro-stations in the preserve. The hydro-stations in BCNP are sites at which samples are collected for long-term studies. The hydro-stations that were sampled, listed in a general north-to-south direction are: A-1 (located in the northwest corner of the preserve), A2, A3, A12, A13, A5, A11, and Canal 28 (L28) at Interstate 75 (located on the northeast boundary of the preserve). Samples from the Everglades National Park were collected near the Tamiami Canal. Samples also were collected from wetlands close to the boundary of the ENP near the C-111 canal. Table 1 lists the latitude and longitude of each sampling site. Table 2 lists all the sites and gives the month and year the samples were collected and the numbers of samples that were collected at each site.

Sample Collection

Water

In March and July 1995, plastic syringes were used to collect triplicate water samples with volumes of approximately 12 mL each from within the periphyton mats and from the water column adjacent to the mats. Replicate samples taken from the same place are labeled a, b, and C. In December 1995, June 1996 and December 1996, water samples were collected filling either a 12 mL borosilicate vials with Teflon-lined cap or 125 mL linear polyethylene bottles approximately 5 cm below the surface of the water column.

Periphyton

Floating mats were the dominant type of periphyton and were sampled if present. At sites E1 and F1 in WCA-2A, and A12 (a cypress dome) in BCNP, the periphyton was present as a felt-like growth attached to dead leaves. Periphyton mats were collected by supporting floating material with an open hand, drawing the material up from the water, and transferring it to either a) a zip-lock bag (whole mat sample) or (b) a water-tight polycarbonate box (sectioned mat

Table 1. Location of stations sampled for periphyton in south Florida, 1995-96. [WCA, Water Conservation Area; BCNP, Big Cypress National Preserve; ENP, Everglades National Park; C-111, near canal C-111.]

Site		Latitude	Longitude
WCA2A	E1	26° 21'	80° 21'
	E2	26° 20'	80° 21'
	E4	26° 19'	80° 21'
	U1	26° 14'	80° 21'
	F1	26° 22'	80° 22'
	F2	26° 21'	80° 22'
	F3	26° 20'	80° 23'
	F4	26° 19'	80° 23'
	F5	26° 18'	80° 24'
	U3	26° 17'	80° 25'
	711 - 720	26° 28' - 26° 22'	80° 27' - 80° 30'
WCA2B	North	26° 10'	80° 22'
	South	26° 12'	80° 22'
WCA3A	P15	25° 58'	80° 40'
WCA3B	L67	25° 45'	80° 40'
BCNP	A1	26° 14'	81° 19'
	A2	26° 11'	81° 17'
	A3	26° 05'	81° 03'
	A5	25° 58'	80° 55'
	A11	25° 47'	81° 06'
	A12	26° 11'	81° 05'
	A13	26° 09'	81° 13'
	L28	26° 13'	80° 75'
ENP		22° 88' - 25° 63'	79° 80' - 81° 27'
C-111	701 - 710	25° 21' - 25° 22'	80° 31' - 80° 32'

Table 2. Number of Periphyton Samples Analyzed from Each Site in the South Florida ecosystem

[*, water samples collected when periphyton samples collected; --, no samples, no data. WCA, Water Conservation Area; BCNP, Big Cypress National Preserve; ENP, Everglades National Park; C-111, area near Canal C-111.]

	1995												1996											
SITE	**J**	**F**	**M***	**A**	**M**	**J**	**J***	**A**	**S**	**O**	**N**	**D***	**J**	**F**	**M**	**A**	**M**	**J***	**J**	**A**	**S**	**O**	**N**	**D***
WCA2A E1	--	--	2*	--	--	--	--	1	--	--	--	2*	--	--	--	--	--	--	--	--	--	--	--	--
E2	--	--	2*	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
E4	--	--	2*	--	--	--	--	1	--	--	--	1*	--	--	--	--	--	6*	--	--	--	--	--	--
U1	--	--	1*	--	--	--	--	1	--	--	--	1*	--	--	--	--	--	* --	--	--	--	--	--	--
F1	--	--	--	--	--	--	--	--	--	--	--	1*	--	--	--	--	--	--	--	--	--	--	--	3*
F2	--	--	1*	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
F3	--	--	2*	--	--	--	--	1	--	--	--	--	--	--	--	--	--	6*	--	--	--	--	--	--
F4	--	--	--	--	--	--	--	--	--	--	--	1*	--	--	--	--	--	--	--	--	--	--	--	--
F5	--	--	1*	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
U3	--	--	--	--	--	--	--	--	--	--	--	1*	--	--	--	--	--	6*	--	--	--	--	--	22*
L6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10	--	--	--	--
WCA2B North	--	--	--	--	--	--	--	--	--	--	--	1*	--	--	--	--	--	6*	--	--	--	--	--	--
South	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8*
WCA3A 3A15	--	--	--	--	--	--	--	--	--	--	--	3*	--	--	--	--	--	6*	--	--	--	--	--	7*
WCA3B 3B67	--	--	--	--	--	--	1*	--	--	--	--	3*	--	--	--	--	--	--	--	--	--	--	--	--
BCNP A1	--	--	--	--	--	--	1*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
A2	--	--	--	--	--	--	1*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
A3	--	--	--	--	--	--	1*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
A5	--	--	--	--	--	--	1*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	22*
A11	--	--	--	--	--	--	1*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1
A12	--	--	--	--	--	--	1*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
A13	--	--	--	--	--	--	1*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AL28	--	--	--	--	--	--	1*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ENP	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	--	--	--	--
C-111	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10	--	--	--	--

sample). Samples in zip-lock bags were transported on ice to the laboratory. Whole periphyton samples that would be sectioned in the laboratory were frozen in polycarbonate boxes using solid carbon dioxide at the sampling site to preserve sample integrity. These samples were shipped frozen and kept frozen until they were sectioned.

Periphyton samples were collected by different techniques at site A5 in the Big Cypress National Preserve, and at site U3 in WCA-2A, to determine any differences in analytical results. Periphytic material was collected at 60° intervals on the circumference of a one-meter circle around a stake driven into the marsh sediment. Samples were collected using latex gloves or bare hands. At each location on the circle one sample (a) was collected using gloved hands and transferred to a Teflon container. Another sample (b) was collected using gloved hands and transferred to a zip-lock bag. A third sample (c) was collected with a bare hand and transferred to a zip-lock bag.

In December 1996, detritus samples were collected at 60° intervals on the circumference of the same one-meter circle that was used for periphyton collection. Detritus is made up of particles from disaggregated periphyton mats. It was collected by skimming an open-gloved hand along the interface between the water column and the bottom sediment.

Sample Preparation

Water

Water samples were filtered through 0.2µm polycarbonate filters within 6 hours of collection. Samples were stored at 4° C until analyzed.

Periphyton

If periphyton samples could be air-dried within a week to ten days of collection, they were refrigerated at 4° C before drying. Samples stored for longer periods were frozen before air-drying. Macrophytes (large plant parts) were removed from the mats. Periphyton attached to the surface of macrophyte leaves or stems was separated and saved; leaves or stems were discarded. The remaining periphytic material was air-dried in aluminum pans at room temperature in a laminar flow hood. When dry, the samples were ground with an agate mortar and pestle to a particle size of not more than 125µm. Samples were dried over calcium chloride in a desiccator before weighing. All concentrations are reported on a weight of analyte per gram of dry sample. In general, periphyton samples contained approximately 90-95 percent water.

A band saw was used to section frozen periphyton mats. The frozen whole blocks of periphyton had the approximate dimensions of 10 x 20 x 5 cm. Approximately 2-cm were removed from each of the long ends. Horizontal slabs of the top and bottom were removed from the remaining 10 x 16 x 5 cm block. The middle section of the block was cut into three horizontal sections. Each of the sections was approximately 1 cm thick. For mats that were not fully 5-cm thick, the number of horizontal sections was adjusted so each horizontal section had an approximate thickness of 1-cm.

Sample Analyses

Field Measurements

Measurements of water-column samples were made within 6 to 10 hours of sample collection. A portable pH meter (Hanna Instruments, HI 909025, microprocessor pH meter) was calibrated using standard buffers of pH 7.00 ($\pm$ 0.02 at 25° C) and pH 4.00 ($\pm$ 0.02 at 25° C) for samples with pH values $\leq$ 7, and using standard buffers of pH 7.00 ($\pm$ 0.02 at 25° C) and pH 10.00 ($\pm$ 0.02 at 25° C) for samples with pH values $\geq$ 7. The meter was recalibrated after each set of two water column samples. Readings were recorded when the meter reading drifted no more than 0.01 units per minute.

Laboratory analyses

Water

Alkalinity. Alkalinity was determined using a Radiometer ABU93 Autotitration System and Gran titration calculations (Gran, 1952). Samples were diluted 1:10 before titration. In aerobic waters, alkalinity concentrations determined by this method can include not only carbonate, but also ammonia, and some organic acids such as acetate and formate.

Anions. Anions were determined in water column samples using a Dionex Ion Chromatograph. The principle for the method used in Dionex IC equipment was published by Small and others (1975. The specific conductance of the analyte ions is maximized in the weak carbonic acid solution that carries the analytes through the conductivity detector. Representative means and standard deviations for Cl^-, SO_4^{-2},, and PO_4^{3-} were 7 $\pm$0.003 ppm (0.200 $\pm$ 0.001 meq L^{-1}), 9.6 $\pm$ 0.04 ppm (0.2000 $\pm$ 0.0008 meq L^{-1}) and 1.9 $\pm$ 0.07 ppm (0.0400 $\pm$ 0.0014 meq L^{-1}), respectively.

Cations. Calcium and other cation concentrations in samples acidified with nitric acid were determined using an American Research Laboratories SpectraspanV DCP and direct-coupled plasma atomic-emission spectrometry. Representative means and standard deviations for a mixed standard containing 5.0 ppm (0.25 meq L^{-1}) calcium and 6.0 ppm (0.261 meq L^{-1}) sodium were 5.0 $\pm$ 0.02 ppm (0.25 meq $L^{-1}$$\pm$ 0.005) for calcium and 6.0 $\pm$ 0.06 ppm (0.261 $\pm$ 0.003) meq L^{-1}) for sodium.

Periphyton

Microwave Digestion. In preparation for determination of total mercury and phosphorus in the periphyton, samples were digested with concentrated nitric and hydrofluoric acids using the Microwave Sample Preparation System, Model MDS-2100, manufactured by CEM Corporation. The method used is a modification of CEM application note AG-12 (CEM Corporation, 1994). Modifications included the use of approximately 820 watts of power to the magnetron, adding the nitric and hydrofluoric acids in two steps, and the use of boric acid at the end of the digestion to bind unused hydrofluoric acid in the digestion matrix. Certified reference materials, National Institute of Standards and Technology (NIST) SRM 8030 or SRM 8031, were included in each set of digestion samples. These aquatic plant (*Lagarosiphon major*) and aquatic moss (*Platihypnidium riparioides*) materials have certified mercury concentrations of 0.34 $\pm$ 0.04 μg g^{-1} and 0.23 $\pm$ 0.02 μg g^{-1}, respectively (National Institute of Standards and Technology, 1982). Sample data were used from digestion sets in which the analyzed values for the standards included in the set agreed with the certified values for the standards to within 5% of the reported value. Replicate analysis of (n=3) of SRM 8031 had an average concentration of mercury of 0.33 $\pm$ 0.02 μg g^{-1}.

Total Mercury. Total mercury concentrations were determined in microwave digests of periphyton samples using a ThermoSeparation cold vapor mercury analyzer and the instructions of the manufacturer (ThermoSeparation Products, 1994). Blank solutions of 10 percent nitric acid were run between samples.

Phosphorus. The microwave digestion procedure described above converts all forms of phosphorus in samples to orthophosphate. The molybdenum blue method of Murphy and Riley as described in Rand and others (1976) was used to determine orthophosphate concentrations in microwave digests of periphyton samples. Boric acid was added to the samples before the addition of the color reagent to complex any fluoride that was not completely removed by the addition of boric acid during the microwave digestion process. Certified reference material, National Institute of Standards and Technology 1571 (National Bureau of Standards, 1977), orchard leaves, has a certified phosphorus concentration of 2.1 $\pm$ 0.1 mg per gram dry weight. A mathematical transformation of phosphate to phosphorus concentrations in samples was used to provide phosphorus concentration data for standards and samples. Replicate microwave digests of this standard gave a concentration of 2.2 $\pm$ 0.1 mg phosphorus per gram dry weight (n=5).

Methylmercury. Methylmercury concentrations were determined using the method of Simon (1997). Methylmercury was extracted from samples using supercritical fluid carbon dioxide modified with 5 or 7.5 percent methanol. Certified samples Dolt-2, 0.69 $\pm$ 0.05 mg g^{-1} ethylmercury as mercury, and Dorm-1, 0.73 $\pm$ .06 mg g^{-1} methylmercury as mercury (National Research Council of Canada, 1993), were routinely run to ensure that the extraction procedure was consistently extracting methylmercury from samples. Average concentrations (n=3) of Dolt-2 and Dorm-1 (n=3) were 0.70 $\pm$ 0.02 mg g^{-1} methylmercury as mercury, and 0.72 $\pm$ 0.01 mg g^{-1} methylmercury as mercury, respectively. Methylmercury concentrations were quantified using liquid chromatographic separation and reductive electrochemistry.

Samples were packed in preweighed sample cartridges, reweighed, mixed with granular calcium chloride, and moistened with water approximately 2 hours before being inserted into the extraction system. After bringing the samples to a temperature of 50° C, the carbon dioxide - methanol fluid was added to the cartridge and a static step when no flow of the fluid occurred lasted for approximately 15 minutes. The exit valve from the sample was opened and approximately 20 milliliters of fluid was used to extract the sample. The extract was collected in approximately 3 milliliters of acetonitrile contained in a separatory funnel with a cold finger in place of a stopper.

A set of 18 spiked periphyton samples was extracted using supercritical carbon dioxide to determine the efficiency of this method for extraction of methylmercury from periphytic material. The spiked concentrations of methylmercury per gram dry weight of periphyton and the efficiency of the recovery of total methylmercury from periphyton samples from three sites, are listed in table 3. The samples were E1 and E4, collected from WCA-2A in August 1995, and A2, which was collected from Big Cypress National Preserve in July 1995. The total mercury concentrations in the periphyton were 0.67, 0.32, and 0.05 µg per gram dry weight of periphyton for samples E1, E4 and A2, respectively. The methylmercury concentrations in the unspiked periphytic material were 0.11, 0.05 and 0.04 µg as mercury per gram dry weight of periphyton.

Table 3. Recoveries of methlymercury chloride from spiked south Florida periphyton.

[Hg, mercury; MeHgCl, methylmercury chloride; WCA, Water Conservation Area; BCNP, Big Cypress National Preserve]

Sample	Concentration of Hg in unspiked periphyton	Total Hg, in micrograms per gram dry weight periphyton, original sample	MeHgCl as Hg in micrograms per gram dry weight periphyton, original sample	MeHgCl in micrograms per gram dry weight periphyton, extraction sample	Recovery of of MeHgCl, in percent
WCA2 E1	Large	0.67	0.11	1.00	.96
				1.28	1.06
				2.05	1.03
BCNP A2	Small	.05	.04	.79	.95
				.87	.98
				2.02	1.12
WCA2 E4	Intermediate	.32	.05	.55	.98
				.58	.95
				.68	1.02
				.68	.87
				.76	1.02
				.78	1.05
				.87	1.00
				.87	.95
				1.28	.98
				1.29	1.13
				1.46	1.03
				1.50	0.95

Carbon and Nitrogen. Carbon and nitrogen concentrations were determined for 0.2-g air-dried, ground samples by flash oxidation of the sample and separation of the gaseous products using either a Carla Erba or Perkin Elmer Instrument. Organic carbon concentrations were determined by analyzing 0.2-g air-dried, ground samples that had been weighed into silver cups and treated with hydrochloric acid fumes in a desiccator. The acid treatment removed carbonate from the samples. Inorganic carbon concentrations were determined by difference. In this scheme, nitrogen concentrations were determined during each run and the average of the two values was reported as the percent nitrogen in the sample.

A standard of plant material with certified concentrations of total carbon and/or organic carbon could not be found. The primary organic compound standard acetanilide has a composition of 71.05% of carbon and 10.36% of nitrogen. Replicate samples provided concentrations of 71.28 $\pm$ 0.20 % of carbon and 10.29 $\pm$ 0.13 % of nitrogen (n= 5).

National Institute of Science and Technology Standard Reference Material 1571, orchard leaves, is certified for a nitrogen concentration of 2.76 $\pm$ 0.05. Replicate samples of orchard leaves gave a concentration of nitrogen equal to 2.72 $\pm$ 0.06 % (n=5).

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ABBREVIATIONS USED IN TABLES 4-15

Sample identification

Sample identification includes date of sample collection, site, location, replicate, type and collection technique. Each category is separated by a hyphen.

DATE
Collection date includes the month, day, and year. For example, June 7, 1996, is written 060796.

SITE
This is a water conservation area or federally owned property gives the general geographic location of the site. The South Florida Water Management District (SFWMD) is responsible for water control in the containment areas and makes numerical designations for the water conservation areas (WCA). The abbreviation used in this report for the Big Cypress National Preserve is BC and the abbreviation used for the Everglades National Park is ENP.

LOCATION
Designations for sites in WCA2A correspond to the names assigned to the sites by the south Florida Water Management. Other designations for sites are arbitrary. Table 1 lists the latitude and longitude for each site. Other location abbreviations include:

Br	Bridge followed by the number of the bridge.
C	Canal
L	Canal identification assigned by SFWMD
TaCu	Taylor Culvert
Trans	Transect followed by number in the sequence of transect

REPLICATE
Periphyton sample replicates fall into one of three categories.

a	One sample was collected at the site on the collection date.
V	Multiple samples were collected at the site on the collection date. V is followed by one of the letters a – f indicating a point along the circumference of a circle 1-meter in diameter: a = 0°, b = 60°, c = 120°, d =180°, e = 240°, f = 300°.
S	One sample was collected at the site on the collection date, frozen, and sectioned. S is followed by one of the letters a – d: a = top section; b = center section; c = bottom section; d = side section. If a number follows the letters a – d it indicates that the section was subdivided: 1 = top of the section; 2 = middle of the section; 3 = bottom of the section.

If water column replicate samples were collected, they were labeled (1) a, b and c when collected at the same place in a periphyton mat or in the water column, or (2) 0°, 30°, 60°, 90°, 120°, 180°, 240°, or 300° when collected at evenly spaced positions on the circumference of a circle 1-meter in diameter.

TYPE

Solid sample type is indicated by the following abbreviations.

cap = aquatic plant coated with cyanobacteria.
dk = dark-colored coating
de = detritus, flocculent material at base of the water column
e = aquatic plant
g = grass
lt = light-colored coating
m = small fish
ma = macrophyte
p = periphyton
s = seeds
sh = amphipod
sn = snail
sw = sweater-like coating on plant
u = utricularia

Water sample type is indicated by the following abbreviations.

mat water = water collected from within a floating periphyton mat.
water column water = surface-water collected in an area of open water free of floating periphyton mats.

COLLECTION

The manner in which the samples were collected are indicated by the following:

h = bare-hand with the sample transferred to a zip-lock bag.
g = gloved-hand with the sample transferred to a zip-lock bag.
t = gloved-hand with sample transferred to a Teflon container.

Terms

Alkalinity	Milliequivalents per liter as bicarbonate (HCO_3^{2-}).
--	not analyzed.
n.d.	not detected, below the detection limit of the method of analysis. The detection limit for methylmercury was 0.01 µg/g dry weight of periphyton. A notation of n.d. indicates that a sample was analyzed and did not have a concentration of methylmercury $\geq$ 0.01 µg Hg /g dry weight of sample. Detection limits for other analytes are given in the METHODS section.
pH	The hydrogen-ion concentration.

Units of measurement

Units of measurement include mass, volume and concentration.

MASS

g	gram
mg	milligram, 10^{-3} gram
µg	microgram, 10^{-6} gram

VOLUME

L	liter
mL	milliliter, 10^{-3} liter

CONCENTRATION

mg/g milligrams per gram, parts per thousand

µg/g micrograms per gram, parts per million

mg/L milligrams per liter, parts per million

meq/L milliequivalents per liter. This unit is used in charge balance calculations. A milliequivalent is the weight of a substance that can provide one millimole (0.001 mole) of positive or negative ions. Milliequivalents of a monovalent (carries one unit of charge) element equals millimoles. Milliequivalents of a divalent element (carries two units of charge) in solution, is equal to the number of grams of that element present in one liter of solution divided by the atomic weight of the element multiplied by 2 (divalent charge) and 1000 (milliequivalent equals 1000 times equivalents).

Total C, percent - Total carbon, in grams per 100 grams of dry periphyton.

Organic C, percent - Organic carbon, in grams carbon per 100 grams of dry periphyton.

Inorganic C, percent.- Inorganic carbon, in grams per 100 grams of dry periphyton. Calculated as the difference between the percent total carbon and the percent organic carbon in the sample.

Total N, percent - Total nitrogen in grams nitrogen per 100 grams of dry periphyton.

Table 4 - Results of chemical analyses of water samples collected in South Florida, March 27, 1995

	ANIONS									CATIONS										
SAMPLE	Cl^- (mg/L)	Cl^- *(meq/L)*	PO_4^{3-} (mg/L)	NO_3^- (mg/L)	Br^- (mg/L)	SO_4^{2-} (mg/L)	SO_4^{2-} *(meq/L)*	Alkalinity *(meq/L)*	pH	Na^+ (mg/L)	K^+ (mg/L)	Ca^{2+} (mg/L)	Ca^{2+} *(meq/L)*	Mg^{2+} (mg/L)	Mg^{2+} *(meq/L)*	Sr^{2+} (mg/L)	Mn^{2+} (mg/L)	Fe^{3+} (mg/L)	Al^{3+} (mg/L	Si (mg/L)
<u>WCA2A</u>																				
E1-a mat water	88.0	*2.49*	n.d.	n.d.	n.d.	25.8	*0.54*	*3.75*	7.70	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
E1-b mat water	91.0	*2.57*	n.d.	n.d.	n.d.	26.7	*.56*	*3.45*	7.85	n.a.	3.0	53	*2.7*	16	*1.3*	n.a.	0.01	0.08	n.a.	n.a.
E1-c mat water	88.2	*2.49*	n.d.	n.d.	n.d.	27.1	*.56*	*3.60*	7.73	n.a.	3.0	58	*2.9*	17	*1.4*	n.a.	0.01	0.09	n.a.	n.a.
E1-a water colum	87.3	*2.47*	n.d.	n.d.	n.d.	25.7	*.54*	*3.56*	7.78	n.a.	3.0	56	*2.8*	17	*1.4*	n.a.	0.01	0.09	n.a.	n.a.
E1-b water colum	90.3	*2.55*	n.d.	n.d.	n.d.	29.2	*.61*	*3.57*	7.68	n.a.	2.0	57	*2.9*	17	*1.4*	n.a.	0.01	0.08	n.a.	n.a.
E1-c water colum	88.8	*2.51*	n.d.	n.d.	n.d.	25.9	*.54*	*3.43*	7.85	n.a.	3.0	52	*2.6*	16	*1.3*	n.a.	0.01	0.08	n.a.	n.a.
E2-a mat water	104	*2.93*	n.d.	n.d.	n.d.	35.2	*.73*	*3.17*	8.60	n.a.	5.0	58	*2.9*	22	*1.8*	n.a.	0.01	0.04	n.a.	n.a.
E2-b mat water	103	*2.92*	n.d.	n.d.	n.d.	35.2	*.73*	*3.14*	8.98	n.a.	6.0	61	*3.1*	23	*1.9*	n.a.	0.01	0.04	n.a.	n.a.
E2-c mat water	104	*2.94*	n.d.	n.d.	n.d.	34.3	*.72*	*4.41*	9.20	n.a.	5.0	48	*2.4*	21	*1.7*	n.a.	0.01	0.03	n.a.	n.a.
E2-a water colum	106	*2.99*	n.d.	n.d.	n.d.	36.5	*.76*	*3.55*	8.28	n.a.	5.0	68	*3.4*	23	*1.9*	n.a.	0.01	0.05	n.a.	n.a.
E2-b water colum	101	*2.85*	n.d.	n.d.	n.d.	34.0	*.71*	*3.61*	8.32	n.a.	5.0	72	*3.6*	23	*1.9*	n.a.	0.01	0.05	n.a.	n.a.
E2-c water colum	103	*2.90*	n.d.	n.d.	n.d.	34.2	*.71*	*2.64*	8.36	n.a.	5.0	68	*3.4*	22	*1.8*	n.a.	0.01	0.05	n.a.	n.a.
E4-a mat water	135	*3.81*	n.d.	n.d.	n.d.	47.3	*.98*	*4.80*	8.25	n.a.	6.0	91	*4.6*	31	*2.6*	n.a.	0.01	0.10	n.a.	n.a.
E4-b mat water	132	*3.73*	n.d.	n.d.	n.d.	46.5	*.97*	*5.02*	8.16	n.a.	7.0	95	*4.8*	31	*2.6*	n.a.	0.01	0.10	n.a.	n.a.
E4-c mat water	134	*3.79*	n.d.	n.d.	n.d.	50.5	*1.05*	*5.04*	8.14	n.a.	6.0	90	*4.5*	30	*2.5*	n.a.	0.02	0.09	n.a.	n.a.
E4-a water colum	131	*3.71*	n.d.	n.d.	n.d.	46.7	*.97*	*5.14*	7.77	n.a.	6.0	92	*4.6*	28	*2.3*	n.a.	0.05	0.10	n.a.	n.a.
E4-b water colum	131	*3.71*	n.d.	n.d.	n.d.	46.7	*.97*	*5.13*	8.04	n.a.	7.0	94	*4.7*	29	*2.4*	n.a.	0.01	0.10	n.a.	n.a.
E4-c water colum	132	*3.73*	n.d.	n.d.	n.d.	47.0	*.98*	*5.13*	8.05	n.a.	6.0	97	*4.9*	30	*2.5*	n.a.	0.02	0.08	n.a.	n.a.

Table 4 - Results of chemical analyses of water samples collected in South Florida, March 27, 1995 -- Continued

SAMPLE	ANIONS									CATIONS										
	Cl^- (mg/L	Cl^- *(meq/L*	PO_4^{3} mg/L	NO_3^- (mg/L)	Br^- mg/L	SO_4^{2-} (mg/L	SO_4^{2-} *(meq/L)*	Alkalinity *(meq/L)*	pH	Na^+ (mg/L	K^+ (mg/L)	Ca^{2+} mg/L	Ca^{2+} *meq/L*	Mg^{2+} (mg/L	Mg^{2+} *meq/L*	Sr^{2+} mg/L	Mn^{2+} (mg/L	Fe^{3+} mg/L	Al^{3+} mg/L	Si (mg/L)
WCA2A																				
U1-a mat water	149	*4.21*	n.d.	n.d.	n.d.	59.0	*1.23*	*5.23*	8.26	n.a.	7.0	98	*4.9*	35	*2.9*	n.a.	0.00	0.10	n.a.	n.a.
U1-b mat water	154	*4.35*	n.d.	n.d.	n.d.	59.4	*1.24*	*4.89*	8.21	n.a.	9.0	95	*4.8*	34	*2.8*	n.a.	0.01	0.10	n.a.	n.a.
U1-c mat water	148	*4.17*	n.d.	n.d.	n.d.	58.0	*1.21*	*4.96*	8.26	n.a.	8.0	90	*4.5*	33	*2.7*	n.a.	0.02	0.09	n.a.	n.a.
U1-a water column	153	*4.31*	n.d.	n.d.	n.d.	61.0	*1.27*	*5.22*	8.28	n.a.	8.0	96	*4.8*	34	*2.8*	n.a.	0.00	0.09	n.a.	n.a.
U1-b water column	149	*4.21*	n.d.	n.d.	n.d.	58.2	*1.21*	*4.98*	8.34	n.a.	8.0	99	*5.0*	35	*2.9*	n.a.	0.01	0.10	n.a.	n.a.
U1-c water column	153	*4.31*	n.d.	n.d.	n.d.	59.9	*1.25*	*5.00*	8.32	n.a.	8.0	95	*4.8*	34	*2.8*	n.a.	0.01	0.09	n.a.	n.a.
F2-a mat water	133	*3.75*	n.d.	n.d.	n.d.	41.4	*.86*	*4.56*	7.80	n.a.	5.0	75	*3.8*	26	*2.1*	n.a.	0.01	0.10	n.a.	n.a.
F2-b mat water	134	*3.78*	n.d.	n.d.	n.d.	40.4	*.84*	*4.49*	8.12	n.a.	5.0	72	*3.6*	26	*2.1*	n.a.	0.01	0.10	n.a.	n.a.
F2-c mat water	135	*3.79*	n.d.	n.d.	n.d.	40.6	*.85*	*4.49*	8.02	n.a.	4.0	63	*3.2*	22	*1.8*	n.a.	0.01	0.10	n.a.	n.a.
F2-a water column	135	*3.79*	n.d.	n.d.	n.d.	40.4	*.84*	*4.64*	7.98	n.a.	4.0	75	*3.8*	25	*2.1*	n.a.	0.01	0.10	n.a.	n.a.
F2-b water column	134	*3.78*	n.d.	n.d.	n.d.	40.7	*.85*	*4.67*	7.91	n.a.	5.0	74	*3.7*	25	*2.1*	n.a.	0.01	0.10	n.a.	n.a.
F2-c water column	136	*3.83*	n.d.	n.d.	n.d.	40.9	*.85*	*4.51*	8.11	n.a.	5.0	65	*3.3*	23	*1.9*	n.a.	0.01	0.09	n.a.	n.a.
F3-a mat water	129	*3.64*	n.d.	n.d.	n.d.	52.1	*1.09*	*4.72*	8.09	n.a.	5.0	71	*3.6*	26	*2.1*	n.a.	0.01	0.10	n.a.	n.a.
F3-b mat water	132	*3.73*	n.d.	n.d.	n.d.	53.8	*1.12*	*4.73*	8.12	n.a.	7.0	92	*4.6*	33	*2.7*	n.a.	0.02	0.10	n.a.	n.a.
F3-c mat water	143	*4.02*	n.d.	n.d.	n.d.	58.2	*1.21*	*4.61*	8.30	n.a.	7.0	83	*4.2*	32	*2.6*	n.a.	0.01	0.10	n.a.	n.a.
F3-a water column	132	*3.72*	n.d.	n.d.	n.d.	53.6	*1.12*	*4.84*	8.15	n.a.	6.0	89	*4.5*	31	*2.6*	n.a.	0.02	0.10	n.a.	n.a.
F3-b water column	136	*3.83*	n.d.	n.d.	n.d.	55.2	*1.15*	*4.76*	8.10	n.a.	7.0	91	*4.6*	32	*2.6*	n.a.	0.02	0.10	n.a.	n.a.
F3-c water column	137	*3.87*	n.d.	n.d.	n.d.	56.0	*1.17*	*4.78*	8.33	n.a.	7.0	91	*4.6*	33	*2.7*	n.a.	0.01	0.10	n.a.	n.a.
F5-a mat water	165	*4.66*	n.d.	n.d.	n.d.	58.0	*1.21*	*5.62*	7.74	n.a.	9.0	93	*4.7*	35	*2.9*	n.a.	0.01	0.10	n.a.	n.a.
F5-b mat water	165	*4.65*	n.d.	n.d.	n.d.	57.5	*1.20*	*5.60*	8.07	n.a.	9.0	99	*5.0*	37	*3.0*	n.a.	0.02	0.20	n.a.	n.a.
F5-c mat water	168	*4.72*	n.d.	n.d.	n.d.	58.8	*1.22*	*5.56*	8.22	n.a.	9.0	96	*4.8*	36	*3.0*	n.a.	0.01	0.10	n.a.	n.a.
F5-a water column	166	*4.67*	n.d.	n.d.	n.d.	57.6	*1.20*	*5.67*	8.20	n.a.	9.0	98	*4.9*	36	*3.0*	n.a.	0.02	0.10	n.a.	n.a.
F5-b water column	177	*4.99*	n.d.	n.d.	n.d.	62.0	*1.29*	*5.62*	8.32	n.a.	9.0	97	*4.9*	36	*3.0*	n.a.	0.02	0.10	n.a.	n.a.
F5-c water column	169	*4.75*	n.d.	n.d.	n.d.	58.3	*1.22*	*5.62*	8.32	n.a.	9.0	100	*5.0*	37	*3.0*	n.a.	0.02	0.10	n.a.	n.a.

Table 5 - Results of chemical analyses of water samples collected in South Florida, July 17, 1995

SAMPLE	ANIONS									CATIONS											
	Cl^- (mg/L)	Cl^- *meq/L*	PO_4^{3-} (mg/L)	NO_3^- (mg/L)	Br^- (mg/L)	SO_4^{2-} (mg/L)	SO_4^{2-} *meq/L*	Alkalinity *(meq/L)*	pH	Na^+ (mg/L	Na^+ *(meq/L)*	K^+ (mg/L)	Ca^{2+} (mg/L)	Ca^{2+} *(meq/L)*	Mg^{2+} (mg/L)	Mg^{2+} *meq/L*	Sr^{2+} (mg/L)	Mn^{2+} (mg/L)	Fe^{3+} (mg/L)	Al^{3+} (mg/L)	Si (mg/L)
WCA2A																					
F1 water column	159	*4.5*	0.1	n.d.	n.d.	55.0	*1.14*	*6.24*	7.90	103	*4.5*	9.8	92.0	*4.6*	31.8	*2.6*	3.3	0.0	0.2	0.2	11.5
F4 water column	111	*3.1*	.0	n.d.	n.d.	33.6	*0.70*	*3.90*	8.00	70.9	*3.1*	6.9	58.1	*2.9*	20.3	*1.7*	2.0	.0	0.1	0.1	9.9
U3 water column	124	*3.5*	.0	n.d.	n.d.	50.2	*1.05*	*3.98*	7.90	85.5	*3.7*	7.4	60.1	*3.0*	26.1	*2.1*	2.4	.0	0.1	0.1	8.6
WCA-3B																					
L67-a mat water	68.0	*1.9*	.0	0.3	n.d.	9.9	*0.21*	*3.98*	7.80	46.5	*2.0*	4.7	57.1	*2.9*	14.3	*1.2*	1.1	.0	0.1	0.1	6.7
L67-b mat water	68.9	*1.9*	.1	0.2	n.d.	11.4	*0.24*	*3.68*	7.90	47.7	*2.1*	4.0	62.0	*3.1*	14.2	*1.2*	1.2	.0	0.1	0.1	6.6
L67-c mat water	67.0	*1.9*	.0	0.0	n.d.	10.8	*0.23*	*3.88*	8.10	46.1	*2.0*	3.9	60.0	*3.0*	14.1	*1.2*	1.1	.0	0.1	0.1	6.6
L67 water column	n.a	*n.a.*	.1	0.2	n.d.	4.3	*0.09*	*1.62*	7.88	46.5	*2.0*	4.3	63.1	*3.1*	14.3	*1.2*	1.1	.0	0.1	0.1	6.6
BCNP																					
A 1-a mat water	52.6	*1.5*	.2	0.0	n.d.	0.3	*0.01*	*3.32*	7.70	30.3	*1.3*	2.1	59.5	*3.0*	8.4	*.7*	.3	.0	0.1	0.1	8.9
A1-b mat water	52.9	*1.5*	.0	0.0	n.d.	0.3	*0.01*	*3.23*	7.60	30.2	*1.3*	2.6	58.0	*2.9*	8.4	*.7*	.2	.0	0.1	0.1	14.2
A1-c mat water	50.9	*1.4*	.5	0.0	n.d.	0.2	*0.00*	*2.98*	7.50	29.5	*1.3*	2.1	54.4	*2.7*	8.0	*.7*	.2	.0	0.1	0.1	8.8
A1 water column	n.a.	*n.a.*	.1	0.2	n.d.	1.9	*0.04*	*1.41*	7.64	29.3	*1.3*	2.5	61.5	*3.1*	8.5	*.7*	.3	.0	0.2	0.1	9.0
A2-a mat water	29.4	*0.8*	.5	0.1	n.d.	0.3	*0.01*	*3.30*	8.10	18.8	*0.8*	3.1	58.7	*2.9*	6.7	*.5*	.2	.0	0.1	0.1	5.7
A2-b mat water	28.5	*0.8*	.7	0.0	n.d.	0.3	*0.01*	*3.40*	8.10	18.2	*0.8*	3.1	56.3	*2.8*	6.5	*.5*	.2	.0	0.1	0.1	5.6
A2-c mat water	28.2	*0.8*	.5	0.1	n.d.	0.3	*0.01*	*3.42*	8.00	18.7	*0.8*	3.0	55.3	*2.8*	6.4	*.5*	.2	.0	0.1	0.1	5.5
A2 water column	29.0	*0.8*	.2	0.7	n.d.	0.6	*0.01*	*3.36*	7.99	19.1	*0.8*	3.1	56.5	*2.8*	6.5	*.5*	.2	.0	0.1	0.1	5.5
A3-a mat water	21.4	*0.6*	.5	0.1	n.d.	0.4	*0.01*	*2.41*	8.00	15.7	*0.7*	1.2	40.5	*2.0*	4.7	*.4*	.1	.0	0.1	0.1	4.9
A3-b mat water	21.5	*0.6*	.4	0.0	n.d.	0.2	*0.00*	*2.41*	8.00	16.4	*0.7*	1.1	41.3	*2.1*	4.8	*.4*	.1	.0	0.0	0.1	5.1
A3-c mat water	21.2	*0.6*	.5	0.0	n.d.	0.2	*0.00*	*2.46*	8.00	16.9	*0.7*	1.2	40.7	*2.0*	4.7	*.4*	.1	.0	0.0	0.1	4.9
A3 water column	21.8	*0.6*	.2	0.0	n.d.	0.3	*0.01*	*2.33*	7.94	17.3	*0.8*	1.2	37.2	*1.9*	5.0	*.4*	.1	.0	0.0	0.1	5.0

Table 5 - Results of chemical analyses of water samples collected in South Florida, July 17, 1995 -- Continued

SAMPLE	ANIONS									CATIONS											
	Cl^- (mg/L	Cl^- *meq/L*	PO_4^{3-} (mg/L)	NO_3^- (mg/L	Br^- (mg/L)	SO_4^{2-} (mg/L	SO_4^{2-} *(meq/L)*	Alkalinity *(meq/L)*	pH	Na^+ (mg/L)	Na^+ *(meq/L)*	K^+ (mg/L)	Ca^{2+} (mg/L)	Ca^{2+} *(meq/L)*	Mg^{2+} (mg/L)	Mg^{2+} *meq/L*	Sr^{2+} (mg/L	Mn^{2+} (mg/L)	Fe^{3+} mg/L	Al^{3+} (mg/L)	Si (mg/L)
BCNP																					
A5-a mat water	8.3	*0.2*	.0	0.1	n.d.	0.4	*0.01*	*2.00*	8.00	7.1	*0.3*	1.7	39.4	*2.0*	1.3	*.1*	.1	.0	0.0	0.1	7.7
A5-b mat water	8.0	*0.2*	1.2	0.2	n.d.	0.6	*0.01*	*2.11*	8.10	7.6	*0.3*	1.4	41.3	*2.1*	1.3	*.1*	.1	.0	0.0	0.1	7.7
A5-c mat water	7.8	*0.2*	.0	0.0	n.d.	0.3	*0.01*	*2.21*	8.00	7.1	*0.3*	1.2	42.9	*2.1*	1.3	*.1*	.1	.0	0.0	0.0	6.0
A5 water column	8.2	*0.2*	.3	0.1	n.d.	0.8	*0.02*	*1.98*	7.89	3.9	*0.2*	0.4	38.4	*1.9*	1.3	*.1*	.1	.0	0.1	0.1	2.0
A11 water column	8.4	*0.2*	.1	0.4	n.d.	0.8	*0.02*	*1.87*	8.00	5.4	*0.2*	0.6	34.2	*1.7*	1.6	*.1*	.2	.0	0.0	0.0	2.2
A12-a mat water	9.2	*0.3*	.6	0.2	n.d.	1.1	*0.02*	*2.67*	7.70	3.0	*0.1*	1.5	47.7	*2.4*	3.2	*.3*	.2	.0	0.1	0.1	6.4
A12-b mat water	10.8	*0.3*	.4	0.1	n.d.	1.2	*0.03*	*2.70*	7.80	8.0	*0.3*	0.9	50.5	*2.5*	3.2	*.3*	.2	.0	0.1	0.1	1.3
A12-c mat water	9.2	*0.3*	.5	0.0	n.d.	1.0	*0.02*	*2.67*	7.90	2.7	*0.1*	0.9	47.8	*2.4*	3.2	*.3*	.2	.0	0.1	0.1	1.3
A12 water column	9.6	*0.3*	.2	0.0	n.d.	1.1	*0.02*	*2.58*	7.90	5.6	*0.2*	1.0	49.5	*2.5*	3.2	*.3*	.2	.0	0.1	0.1	1.3
A13-a mat water	10.1	*0.3*	.5	0.1	n.d.	0.4	*0.01*	*2.18*	7.80	7.3	*0.3*	0.3	38.7	*1.9*	2.5	*.2*	.1	.0	0.0	0.1	2.0
A13-b mat water	9.8	*0.3*	.4	0.1	n.d.	0.3	*0.01*	*2.11*	7.90	7.3	*0.3*	0.6	37.7	*1.9*	2.5	*.2*	.1	.0	0.0	0.1	2.1
A13-c mat water	9.8	*0.3*	.5	0.0	n.d.	0.2	*0.00*	*2.12*	7.80	6.2	*0.3*	0.3	39.4	*2.0*	2.6	*.2*	.1	.0	0.0	0.1	2.0
A13 water column	10.1	*0.3*	.1	0.0	n.d.	0.2	*0.01*	*2.19*	7.90	5.1	*0.2*	0.5	41.6	*2.1*	2.6	*.2*	.1	.0	0.0	0.1	2.0
L28-a mat water	39.2	*1.1*	.5	0.1	n.d.	7.8	*0.16*	*3.93*	8.20	30.3	*1.3*	2.7	66.5	*3.3*	7.2	*.6*	.4	.0	0.1	0.1	2.8
L28-b mat water	39.2	*1.1*	.4	0.1	n.d.	7.5	*0.16*	*3.61*	8.00	28.2	*1.2*	2.6	58.1	*2.9*	7.2	*.6*	.4	.0	0.1	0.1	2.8
L28-c mat water	39.6	*1.1*	.0	0.1	n.d.	7.8	*0.16*	*3.29*	8.40	30.0	*1.3*	2.4	60.4	*3.0*	7.1	*.6*	.4	.0	0.1	0.1	2.8
L28 water column	39.0	*1.1*	.3	0.9	n.d.	7.4	*0.15*	*4.02*	8.50	31.4	*1.4*	2.7	72.0	*3.6*	7.5	*.6*	.4	.0	0.1	0.1	2.7

Table 6 - Results of chemical analyses of water samples collected in South Florida, December 11, 1995

SAMPLE	ANIONS									CATIONS											
	Cl^- (mg/L	Cl^- *meq/L*	PO_4^{3-} (mg/L)	NO_3^- (mg/L)	Br^- (mg/L)	SO_4^{2-} (mg/L)	SO_4^{2-} *meq/L)*	Alkalinit *(meq/L)*	pH	Na^+ (mg/L)	Na^+ *(meq/L)*	K^+ (mg/L)	Ca^{2+} (mg/L)	Ca^{2+} *meq/L)*	Mg^{2+} (mg/L	Mg^{2+} *meq/L)*	Sr^{2+} (mg/L	Mn^{2+} (mg/L	Fe^{3+} (mg/L	Al^{3+} (mg/L)	Si (mg/L)
WCA2A																					
E1 water column	111	*3.12*	n.d.	1.1	2.7	47.1	*0.98*	*3.91*	7.4	70.8	*3.1*	6.6	71.1	*3.6*	21.7	*1.8*	2.1	0.01	0.07	0.11	7.6
E4 water column	110	*3.11*	n.d.	1.6	2.6	43.6	*0.91*	*4.77*	7.3	65.3	*2.8*	7.9	79.1	*4.0*	23.3	*1.9*	2.1	.02	.07	.11	7.6
U1 water column	90.3	*2.55*	n.d.	1.1	1.9	36.3	*0.76*	*4.51*	7.4	59.9	*2.6*	7.7	68.5	*3.4*	20.5	*1.7*	1.9	.03	.07	.10	6.8
F1 water column	139	*3.91*	n.d.	1.1	4.5	45.5	*0.95*	*6.24*	7.3	84.3	*3.7*	9.4	106.4	*5.3*	28.9	*2.4*	2.7	.03	.09	.14	10.6
F4 water column	118	*3.34*	n.d.	5.1	3.1	46.7	*0.97*	*4.89*	7.3	70.4	*3.1*	8.5	82.3	*4.1*	25.3	*2.1*	2.2	.01	.07	.12	7.3
U3 water column	120	*3.38*	n.d.	1.8	2.9	48.8	*1.02*	*4.69*	7.9	75.9	*3.3*	10.4	82.3	*4.1*	27.2	*2.2*	2.3	.01	.07	.10	6.6
WCA2B																					
2BS water column	39.3	*1.11*	n.d.	1.0	0.3	0.5	*0.01*	*3.57*	7.2	26.1	*1.1*	3.9	55.4	*2.8*	11.5	*0.9*	1.1	.00	.05	.07	7.4
WCA3A																					
P15-a water colum	49.4	*1.39*	n.d.	0.9	1.3	1.1	*0.02*	*3.33*	7.7	27.0	*1.2*	3.8	61.9	*3.1*	9.7	*0.8*	0.6	.00	.06	.07	4.7
P15-b water colum	49.4	*1.39*	n.d.	0.6	1.8	1.1	*0.02*	*3.33*	7.7	26.6	*1.2*	4.1	63.0	*3.1*	9.8	*0.8*	0.6	.00	.07	.07	4.7
WCA3B																					
L67 water column	80.6	*2.27*	n.d.	0.5	2.0	23.1	*0.48*	*3.98*	7.6	47.3	*2.1*	5.7	61.2	*3.1*	18.6	*1.5*	1.3	.01	.14	.09	6.2

Table 7 - Results of chemical analyses of water samples collected in South Florida, June 7, 1996

SAMPLE	ANIONS									CATIONS											
	Cl^- (mg/L)	Cl^- *(meq/L)*	PO_4^{3-} (mg/L)	NO_3^- (mg/L)	Br^- mg/L	SO_4^{2-} (mg/L	SO_4^{2-} *(meq/L)*	Alkalinity *(meq/L)*	pH	Na^+ (mg/L	Na^+ *(meq/L)*	K^+ (mg/L	Ca^{2+} (mg/L	Ca^{2+} *(meq/L)*	Mg^{2+} (mg/L	Mg^{2+} *meq/L*	Sr^{2+} mg/L	Mn^{2+} (mg/L	Fe^{3+} (mg/L	Al^{3+} mg/L	Si (mg/L)
WCA2A																					
E4 water column	123	*3.5*	n.d.	0.6	0.6	29.7	*0.6*	n.a.	7.8	89.5	*3.9*	9.2	102	*5.1*	33.6	*2.8*	2.7	n.d.	0.2	0.1	9.2
F3 water column	149	*4.2*	n.d.	0.0	0.5	75.2	*1.6*	n.a.	7.9	98.3	*4.3*	9.1	107	*5.4*	34.7	*2.9*	2.9	n.d.	.1	.1	9.3
U3 water column	52.6	*1.5*	n.d.	n.d.	0.1	3.0	*0.1*	n.a.	8.0	86.3	*3.8*	13.3	59.6	*3.0*	23.2	*1.9*	1.7	n.d.	.1	.1	5.2
WCA2B																					
2BN water column	162	*4.6*	n.d.	1.0	1.6	74.1	*1.5*	n.a.	7.9	81.9	*3.6*	16.3	56.9	*2.8*	19.4	*1.6*	1.3	n.d.	.1	.1	6.8
WCA3A																					
P15 water column	109	*3.1*	n.d.	0.8	0.7	13.6	*0.3*	n.a.	8.0	29.2	*1.3*	3.5	54.5	*2.7*	8.4	*0.7*	0.5	n.d.	.1	n.d.	6.5

Table 8 - Results of chemical analyses of water samples collected December 7, 1996

SAMPLE	Alkalinity	pH	CATIONS											
	Alkalinity *(meq/L)*	pH	Na^+ (mg/L)	Na^+ *(meq/L)*	K^+ (mg/L)	Ca^{2+} (mg/L)	Ca^{2+} *(meq/L)*	Mg^{2+} (mg/L)	Mg^{2+} *(meq/L)*	Sr^{2+} (mg/L)	Mn^{2+} (mg/L)	Fe^{3+} (mg/L)	Al^{3+} (mg/L)	Si (mg/L)
BCNP														
A5 0° water column	*2.52*	8.15	11.3	*0.49*	0.9	52.5	*2.62*	1.8	*0.15*	0.13	0.05	0.15	0.27	0.11
A5 60° water column	*2.49*	7.92	10.7	*.47*	.6	50.9	*2.54*	1.7	*.14*	.13	.05	.15	.22	.11
A5 120° water column	*2.36*	8.11	16.4	*.71*	.9	51.4	*2.57*	1.7	*.14*	.13	.05	.15	.17	.11
A5 180° water column	*2.30*	7.97	11.1	*.48*	.5	51.3	*2.56*	1.7	*.14*	.13	.05	.15	.16	.12
A5 240° water column	*2.42*	7.93	11.2	*.49*	.5	50.9	*2.54*	1.7	*.14*	.13	.05	.15	.16	.12
A5 300° water column	*3.96*	8.32	10.6	*.46*	.6	52.4	*2.62*	1.8	*.15*	.13	.05	.15	.16	.11

Table 9 - Results of chemical analyses of water samples collected in South Florida, December 9, 1996

SAMPLE	Alkalinity *(meq/L)*	pH	CATIONS Na^{+} (mg/L)	Na^{+} *(meq/L)*	K^{+} (mg/L)	Ca^{2+} (mg/L)	Ca^{2+} *(meq/L)*	Mg^{2+} (mg/L)	Mg^{2+} *(meq/L)*	Sr^{2+} (mg/L)	Mn^{2+} (mg/L)	Fe^{3+} (mg/L)	Al^{3+} (mg/L)	Si (mg/L)
WCA2A														
F1 water column	*7.77*	8.27	200	*8.70*	13.4	122	*6.10*	43.7	*3.64*	3.39	0.05	0.15	0.36	0.59
U3 0° water column	*5.39*	8.30	151	*6.57*	10.6	84.1	*4.21*	39.0	*3.25*	2.86	.05	.15	.28	.35
U3 60° water column	*5.39*	8.34	157	*6.81*	10.7	87.9	*4.39*	40.2	*3.35*	2.82	.05	.17	.29	.34
U3 120° water column	*5.49*	8.26	154	*6.69*	10.4	87.1	*4.35*	40.1	*3.34*	2.86	.05	.15	.26	.36
U3 180° water column	*5.51*	8.26	143	*6.21*	10.4	84.8	*4.24*	39.7	*3.31*	2.86	.05	.15	.35	.35
U3 240° water column	*5.30*	8.37	143	*6.23*	10.2	79.9	*4.00*	39.2	*3.27*	2.77	.05	.15	.28	.34
U3 300° water column	*5.28*	8.37	144	*6.28*	10.2	80.1	*4.01*	38.5	*3.21*	2.82	.05	.17	.31	.35

Table 10 - Results of chemical analyses of water samples collected in South Florida, December 12, 1996

SAMPLE	Alkalinity *(meq/L)*	pH	CATIONS Na^{+} (mg/L)	Na^{+} (meg/L)	K^{+} (mg/L)	Ca^{2+} (mg/L)	Ca^{2+} *(meq/L)*	Mg^{2+} (mg/L)	Mg^{2+} *(meq/L)*	Sr^{2+} (mg/L)	Mn^{2+} (mg/L)	Fe^{3+} (mg/L)	Al^{3+} (mg/L)	Si (mg/L)
WCA2BS														
2BS water column	*3.53*	7.76	74	*3.2*	3.3	62.2	*3.11*	13.7	*1.14*	1.19	0.05	0.15	0.23	0.29
WCA3A														
P15 water column	*2.71*	7.63	19	*0.83*	1.9	54.8	*2.74*	5.5	*0.46*	0.31	.05	.15	.16	.19

Table 11 - Results of chemical analyses of whole periphyton samples collected in South Florida in 1995

SAMPLE	Total Mercury (µg/g)	Methylmercury as Mercury (µg/g)	Phosphorus (mg/g)	Percent Carbon	Percent Organic Carbon	Percent Inorganic Carbon	Percent Nitrogen	Percent Nitrogen	Average Percent Nitrogen
WCA2A									
032795-WCA2AE1-a-p-h	0.45	n.d.	2.4	32.7	26.5	6.2	3.1	2.7	2.9
032795-WCA2AE1-b-p-h	.49	.07	2.7	38.5	37.5	0.9	3.1	3.1	3.1
032795-WCA2AE2-a-p-h	.45	n.d.	2.0	38.8	35.9	3.0	2.7	2.5	2.6
032795-WCA2AE2-b-p-h	.33	.03	1.6	33.3	29.4	3.8	2.2	2.1	2.2
032795-WCA2AE4-a-p-h	.38	n.d.	1.7	39.4	38.4	1.0	2.4	2.3	2.3
032795-WCA2AE4-b-p-h	.29	.11	1.2	34.2	30.2	4.0	2.5	2.3	2.4
032795-WCA2AF2-a-p-h	.17	.03	2.6	32.9	26.2	6.8	3.0	2.7	2.8
032795-WCA2AF3-a-p-h	.68	n.d.	2.5	30.2	29.2	1.1	2.3	2.3	2.3
032795-WCA2AF3-b-p-h	.42	.12	1.5	30.3	25.4	4.9	2.7	2.6	2.7
032795-WCA2AF5-a-p-h	.21	.08	1.7	26.4	21.0	5.3	1.6	1.4	1.5
032795-WCA2AU1-a-p-h	.22	.08	0.4	29.0	24.9	4.1	1.6	1.5	1.5
082395-WCA2AE1-a-p-h	.67	.06	1.4	37.4	35.0	2.3	3.1	3.0	3.1
082395-WCA2AE2-a-p-h	.50	.11	1.2	36.3	32.6	3.7	2.8	2.7	2.8
082795-WCA2AE4-a-p-h	.32	.07	0.6	37.5	31.1	6.5	2.0	1.9	1.9
082795-WCA2AF2-a-p-h	.27	.04	1.5	29.0	24.6	4.4	2.9	2.6	2.7
082795-WCA2AF3-a-p-h	.22	.24	0.5	30.1	26.7	3.4	2.0	1.9	2.0
090195-WCA2AF5-a-p-h	.17	.02	0.2	24.2	18.0	6.2	1.3	1.2	1.2
090195-WCA2AU1-a-p-h	.12	.02	0.2	30.4	26.9	3.5	1.6	1.5	1.6
121195-WCA2AE1-a-pdk-h	.47	.04	1.8	42.3	39.8	2.5	2.3	2.2	2.3
121195-WCA2AE1-a-plt-h	.15	n.d.	2.4	37.2	30.8	6.4	3.6	3.6	3.6
121195-WCA2AF1-a-p-h	.32	.03	1.8	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
121195-WCA2AE4-a-p-h	.29	.05	0.6	35.9	33.3	2.6	2.1	1.9	2.0
121195-WCA2AF4-a-p-h	.27	.01	0.7	37.4	32.5	4.9	2.3	2.1	2.2
121195-WCA2AU1-a-p-h	.48	.05	0.5	32.6	31.7	1.0	1.9	2.0	2.0
121195-WCA2AU3-a-p-h	.15	n.d.	0.1	23.8	16.4	7.4	1.2	1.2	1.2

Table 11 - Results of chemical analyses of whole periphyton samples collected in South Florida in 1995 -- Continued

SAMPLE	Total Mercury (µg/g)	Methylmercury as Mercury (µg/g)	Phosphorus (mg/g)	Percent Carbon	Percent Organic Carbon	Percent Inorganic Carbon	Percent Nitrogen	Percent Nitrogen	Average Percent Nitrogen
<u>WCA2B</u>									
121195-WCA2BN-a-p-h	0.01	0.05	0.2	33.4	32.3	1.1	1.9	1.9	1.9
<u>WCA3A</u>									
121195-WCA3A3A15-a-pdk-h	.24	n.d.	.6	38.1	34.5	3.7	2.1	1.9	2.0
121195-WCA3A3A15-b-plt-h	.09	.00	.7	35.8	44.2	n.d.	1.9	2.3	2.1
121195-WCA3A3A15-c-p-h	.24	.06	.2	32.2	27.9	4.3	1.9	1.8	1.9
<u>WCA3B</u>									
071795-WCA3B3B67-a-p-h	.19	.05	.3	25.7	20.8	4.9	1.6	1.6	1.6
121195-WCA3B3B67-a-plt-h	.09	.04	.1	26.0	20.2	5.8	1.7	1.4	1.5
121195-WCA3B3B67-b-pdk-h	.14	.07	.3	32.6	25.6	7.0	2.4	2.4	2.4
121195-WCA3BL67C-a-p-h	.19	.02	1.4	41.0	39.5	1.5	1.1	0.8	0.9
<u>BCNP</u>									
071795-BCA1-a-p-h	.23	.08	2.0	40.6	40.6	n.d.	3.6	3.5	3.6
071795-BCA2-a-p-h	.05	.07	.7	21.3	17.5	3.9	1.6	1.4	1.5
071795-BCA3-a-p-h	.37	.05	.3	25.0	19.9	5.1	1.6	1.5	1.6
071795-BCA5-a-p-h	.11	.04	.4	31.0	25.9	5.1	2.1	1.9	2.0
071795-BCA11-a-p-h	.14	.05	.4	30.9	26.2	4.7	2.1	1.9	2.0
071795-BCA12-a-p-h	.19	.05	.4	41.1	40.1	1.0	2.0	1.8	1.9
071795-BCA13-a-p-h	.15	.05	.2	38.8	38.0	0.8	1.9	1.9	1.9
071795-BCL28-a-p-h	.36	.07	1.2	18.4	13.1	5.3	1.1	1.1	1.1

Table 12 - Results of chemical analyses of whole periphyton samples collected in South Florida in 1996

SAMPLE	Total Mercury (µg/g)	Methylmercury as Mercury (µg/g)	Phosphorus (mg/g)	Percent Carbon	Percent Organic Carbon	Percent Inorganic Carbon	Percent Nitrogen	Percent Nitrogen
<u>WCA2A</u>								
082396-WCA2AL6Tran701-a-p-h	0.09	n.d.	0.2	21.9	16.4	5.5	0.9	1.1
082396-WCA2AL6Tran702-a-p-h	.11	0.06	.1	21.2	12.5	8.7	0.9	1.0
082396-WCA2AL6Tran703-a-p-h	.19	n.d.	.2	20.9	12.6	8.3	1.0	1.0
082396-WCA2AL6Tran704-a-p-h	.18	n.d.	.3	23.1	15.0	8.1	1.2	1.4
082396-WCA2AL6Tran705-a-p-h	.17	.03	.2	22.0	14.2	7.9	0.9	1.0
082396-WCA2AL6Tran706-a-p-h	.13	.03	.2	19.0	9.2	9.8	0.8	0.9
082396-WCA2AL6Tran707-a-p-h	.13	.10	.1	25.6	16.8	8.8	1.2	1.3
082396-WCA2AL6Tran708-a-p-h	.12	.02	.2	20.8	12.0	8.8	0.9	1.0
082396-WCA2AL6Tran709-a-p-h	.17	.06	.2	24.3	14.8	9.5	1.0	1.1
082396-WCA2AL6Tran710-a-p-h	.18	.04	.6	34.3	30.0	4.3	2.0	2.0
120996-WCA2AF1-a-p-h	.10	.00	2.7	36.9	30.6	6.4	2.6	2.4
120996-WCA2AF1-a-p-t	.25	.03		35.1	32.6	2.5	2.4	2.3
120996-WCA2AF1-a-p-g	.39	n.d.	2.8	37.0	34.5	2.6	2.5	2.3
<u>WCA2B</u>								
121196-WCA2BS-a-p-g	.17	n.d.	.2	29.4	26.4	3.1	1.5	1.5
121196-WCA2BS-a-p-t	.15	n.d.	.3	28.0	24.1	3.9	1.4	1.4
<u>WCA3A</u>								
121296-WCA3A3A15-a-p-h	.07	.02	.3	34.2	31.6	2.6	2.2	2.0
121296-WCA3A3A15-a-p-t	.07	n.d.	.2	28.8	24.2	4.5	1.5	1.4
121296-WCA3A3A15-a-p-g	.20	.01	.3	31.3	27.7	3.6	2.0	1.8
<u>BCNP</u>								
120896-BCA11-a-p-h	.09	.01	.4	23.6	20.5	3.1	1.7	1.7

Table 12 - Results of chemical analyses of whole periphyton samples collected in South Florida in 1996 - Continued

SAMPLE	Total Mercury (µg/g)	Methylmercury as Mercury (µg/g)	Phosphorus (mg/g)	Percent Carbon	Percent Organic Carbon	Percent Inorganic Carbon	Percent Nitrogen	Percent Nitrogen	Average Percent Nitrogen
<u>C-111</u>									
082396-WCA2AC111Tran711-a-p-h	0.25	0.10	2.5	29.4	23.8	5.6	2.7	3.0	2.9
082396-WCA2AC111Tran712-a-p-h	.35	.03	2.3	29.7	26.1	3.6	2.8	3.1	3.0
082396-WCA2AC111Tran713-a-p-h	.13	n.d.	1.4	29.6	24.3	5.3	2.2	2.1	2.2
082396-WCA2AC111Tran714-a-p-h	.17	n.d.	0.8	25.7	19.3	6.4	1.6	1.7	1.6
082396-WCA2AC111Tran715-a-p-h	.09	.08	.7	25.3	18.6	6.8	1.2	1.4	1.3
082396-WCA2AC111Tran716-b-p-h	.24	.15	.9	23.3	16.9	6.5	1.3	1.4	1.3
082396-WCA2AC111Tran717-a-p-h	.07	n.d.	.9	25.4	18.0	7.4	1.6	1.4	1.5
082396-WCA2AC111Tran717-b-p-h	.14	.11	.7	38.9	38.8	0.1	1.3	1.2	1.2
082396-WCA2AC111Tran718-a-p-h	.18	n.d.	.9	31.0	27.6	3.4	2.0	2.1	2.1
082396-WCA2AC111Tran719-a-p-h	.24	.16	.8	25.6	19.5	6.1	1.6	1.8	1.7
082396-WCA2AC111Tran720-a-p-h	.42	.08	1.6	38.6	36.3	2.3	3.0	3.4	3.2
082396-WCA2AC111Tran720-b-p-h	.39	.11	1.4	31.0	27.6	3.4	2.1	2.3	2.2
<u>ENP</u>									
0896-ENPTaCu-a-p-h	.17	n.d.	1.2	33.6	31.1	2.4	1.7	1.9	1.8
0896-ENPTaCu-b-p-h	.21	n.d.	.4	37.0	33.7	3.3	0.8	0.9	0.9
0896-ENPBr105-a-p-h	.35	n.d.	2.5	35.9	36.6	n.d.	3.7	3.8	3.7
0896-ENPBr105-b-p-h	.19	n.d.	.8	40.6	38.7	1.9	1.7	1.7	1.7
0896-ENPBr030114-b-p-h	.61	n.d.	1.8	34.5	32.6	1.8	1.6	1.7	1.6
0896-ENPBr030114-c-p-h	.53	n.d.	1.9	33.7	30.1	3.7	2.5	2.6	2.5
0896-ENPP35-a-p-h	.41	n.d.	.4	41.7	35.8	5.9	1.7	1.5	1.6
0896-ENPP36-a-p-h	.18	n.d.	.2	27.4	20.0	7.4	1.6	1.9	1.7
0896-ENPBr030064-a-p-h	.26	n.d.	1.2	26.7	23.9	2.8	2.1	1.7	1.9

Table 13 - Results of chemical analyses of sectioned periphton mats collected in South Florida in 1996

SAMPLE	Total Mercury (µg/g)	Methyl Mercury as Mercury (µg/g)	Phosphorus (mg/g)	Percent Carbon	Percent Organic Carbon	Percent Inorganic Carbon	Percent Nitrogen	Percent Nitrogen	Average Percent Nitrogen
WCA2A									
060796-WCA2AE4-Sa-p-h	0.60	0.01	0.5	36.1	33.5	2.7	1.4	1.5	1.4
060796-WCA2AE4-Sb1-p-h	0.27	n.d.	0.4	37.9	37.5	0.5	1.4	1.7	1.5
060796-WCA2AE4-Sb2-p-h	0.52	n.d.	0.5	38.7	37.3	1.3	1.7	1.8	1.7
060796-WCA2AE4-Sb3-p-h	0.39	0.01	0.5	38.8	37.4	1.4	1.8	1.7	1.7
060796-WCA2AE4-Sc-p-h	0.74	0.12	0.7	40.5	37.0	3.5	2.1	2.0	2.0
060796-WCA2AE4-Sd-p-h	0.41	n.d.	0.6	38.5	37.2	1.3	1.7	1.7	1.7
060796-WCA2AF3-Sa-p-h	0.42	0.06	1.1	26.2	26.0	0.2	1.9	2.0	1.9
060796-WCA2AF3-Sb1-p-h	0.15	0.04	1.1	33.4	23.4	10.0	2.6	2.1	2.3
060796-WCA2AF3-Sb2-p-h	0.15	0.05	1.1	26.8	27.4	0.0	1.8	2.5	2.2
060796-WCA2AF3-Sb3-p-h	0.22	0.17	1.4	31.9	26.2	5.7	2.6	2.6	2.6
060796-WCA2AF3-Sc-p-h	0.41	0.24	1.6	33.0	30.1	3.0	2.6	2.8	2.7
060796-WCA2AF3-Sd-p-h	0.24	0.13	1.2	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
060796-WCA2AU3-Sa-p-h	0.23	n.d.	0.2	27.6	21.8	5.8	1.8	1.8	1.8
060796-WCA2AU3-Sb1-p-h	0.40	0.01	0.2	28.6	23.8	4.8	2.0	2.1	2.1
060796-WCA2AU3-Sb2-p-h	0.40	0.00	0.2	28.0	22.9	5.1	2.0	2.0	2.0
060796-WCA2AU3-Sb3-p-h	0.31	0.01	0.3	28.6	24.6	4.0	2.2	2.3	2.2
060796-WCA2AU3-Sc-p-h	0.31	0.04	0.3	28.3	23.4	4.9	2.1	2.1	2.1
060796-WCA2AU3-Sd-p-h	0.31	0.00	0.2	29.4	25.1	4.3	2.0	2.2	2.1
120996-WCA2AU3-Sa-p-g	0.07	n.d	0.2	20.6	13.8	6.9	0.9	0.9	0.9
120996-WCA2AU3-Sb-p-g	0.07	n.d	0.2	20.7	13.2	7.4	1.0	0.9	0.9
120996-WCA2AU3-Sc-p-g	0.10	n.d	0.2	21.3	14.6	6.7	1.0	1.0	1.0
120996-WCA2AU3-Sd-p-g	0.04	n.d	0.2	21.1	14.1	7.0	1.0	0.9	0.9

Table 13 - Results of chemical analyses of sectioned periphton mats collected in South Florida in 1996 -- Continued

SAMPLE	Total Mercury (μg/g)	Methylmercury as Mercury (μg/g)	Phosphorus (mg/g)	Percent Carbon	Percent Organic Carbon	Percent Inorganic Carbon	Percent Nitrogen	Percent Nitrogen	Average Percent Nitrogen
<u>WCA2B</u>									
060796-WCA2BN-Sa-p-h	0.60	n.d.	0.1	30.0	26.7	3.3	1.7	1.7	1.7
060796-WCA2BN-Sb1-p-h	0.37	0.06	0.2	31.2	28.0	3.3	1.9	1.9	1.9
060796-WCA2BN-Sb2-p-h	0.36	0.10	0.2	30.4	27.6	2.9	1.8	2.0	1.9
060796-WCA2BN-Sb3-p-h	0.31	0.08	0.2	31.4	28.0	3.4	2.2	2.1	2.2
060796-WCA2BN-Sc-p-h	0.65	0.02	0.2	31.3	28.5	2.8	2.0	2.1	2.1
060796-WCA2BN-Sd-p-h	0.27	n.d	0.2	30.5	27.8	2.7	2.0	2.0	2.0
121196-WCA2BS-Sa-p-g	no sample	n.d	no sample	29.5	26.9	2.6	1.7	1.6	1.6
121196-WCA2BS-Sb1-p-g	0.15	n.d	0.2	29.4	23.6	5.7	1.7	1.6	1.6
121196-WCA2BS-Sb2-p-g	0.16	n.d	0.2	29.2	26.4	2.8	1.6	1.5	1.6
121196-WCA2BS-Sb3-p-g	0.09	n.d	0.2	29.4	26.6	2.8	1.6	1.6	1.6
121196-WCA2BS-Sc-p-g	0.13	n.d	0.2	28.6	26.7	1.9	1.6	1.5	1.5
121196-WCA2BS-Sd-p-g	0.05	n.d	0.2	28.1	24.4	3.7	1.4	1.4	1.4
<u>WCA3A</u>									
060796-WCA3A3A15-Sa-p-h	0.63	0.02	0.1	29.9	25.2	4.6	1.2	1.2	1.2
060796-WCA3A3A15-Sb1-p-h	0.32	n.d.	0.1	27.8	21.7	6.1	1.2	1.3	1.2
060796-WCA3A3A15-Sb2-p-h	0.20	0.03	0.1	27.2	21.0	6.1	1.2	1.2	1.2
060796-WCA3A3A15-Sb3-p-h	0.27	0.06	0.1	26.5	20.2	6.4	1.2	1.2	1.2
060796-WCA3A3A15-Sc-p-h	0.18	0.08	0.1	27.8	21.9	5.8	1.2	1.3	1.2
060796-WCA3A3A15-Sd-p-h	0.17	0.01	0.1	26.0	22.4	3.6	1.1	1.2	1.2
121296-WCA3A3A15-Sa-p-g	0.15	n.d	0.2	30.9	27.5	3.4	1.6	1.6	1.6
121296-WCA3A3A15-Sb-p-g	0.23	n.d.	0.2	30.9	28.3	2.6	1.7	1.6	1.6
121296-WCA3A3A15-Sc-p-g	0.29	0.06	0.2	33.0	30.4	2.6	1.9	1.8	1.9
121296-WCA3A3A15-Sd-p-g	0.11	0.03	0.3	32.2	28.9	3.3	1.9	1.8	1.9
<u>BCNP</u>									
120896-BCA5-Sa-p-g	0.09	n.d.	0.4	27.8	21.7	6.0	1.6	1.6	1.6
120896-BCA5-Sb-p-g	0.15	n.d.	0.4	28.4	22.7	5.7	1.8	1.7	1.7
120896-BCA5-Sc-p-g	0.30	0.03	0.6	28.9	23.9	5.0	1.9	2.0	1.9
120896-BCA5-Sd-p-g	0.07	n.d.	0.3	27.1	20.9	6.2	1.6	1.6	1.6

Table 14 - Results of chemical analyses of periphyton variation samples collected in South Florida in December 1996

SAMPLE	Total Mercury (µg/g)	Methylmercury as Mercury (µg/g)	Phosphorus (mg/g)	Percent Carbon	Percent Organic Carbon	Percent Inorganic Carbon	Percent Nitrogen	Percent Nitrogen	Average Percent Nitrogen
WCA2A									
120996-WCA2AU3-Va-p-h	0.06	0.02	0.2	21.9	14.8	7.1	0.9	0.9	0.9
120996-WCA2AU3-Vb-p-h	.04	n.d.	.2	21.1	14.3	6.8	.9	.8	.8
120996-WCA2AU3-Vc-p-h	.02	n.d.	.2	21.0	14.0	7.0	1.0	.9	.9
120996-WCA2AU3-Vd-p-h	.02	n.d.	.2	21.4	14.4	7.0	.9	.9	.9
120996-WCA2AU3-Ve-p-h	.16	.01	.2	21.1	14.5	6.7	1.0	.8	.9
120996-WCA2AU3-Vf-p-h	.04	n.d.	.2	20.7	13.4	7.3	1.0	.9	.9
120996-WCA2AU3-Va-p-t	.13	n.d.	.2	21.9	14.8	7.1	1.0	.9	.9
120996-WCA2AU3-Vb-p-t	.12	n.d.	.1	20.9	13.4	7.4	.9	.8	.9
120996-WCA2AU3-Vc-p-t	.08	.03	.2	21.0	13.8	7.2	.9	.9	.9
120996-WCA2AU3-Vd-p-t	.10	n.d.	.2	20.8	13.6	7.2	.9	.8	.9
120996-WCA2AU3-Ve-p-t	.11	.01	.2	20.8	13.5	7.3	.9	.8	.8
120996-WCA2AU3-Vf-p-t	.08	.03	.2	20.6	13.2	7.4	.8	.8	.8
120996-WCA2AU3-Va-p-g	n.a.	n.d.	.2	21.8	14.7	7.1	1.0	.9	.9
120996-WCA2AU3-Vb-p-g	.07	n.d.	.2	20.5	13.8	6.7	.9	.9	.9
120996-WCA2AU3-Vc-p-g	.05	n.d.	.2	21.1	13.6	7.4	.9	.8	.9
120996-WCA2AU3-Vd-p-g	.07	n.d.	.2	21.1	13.7	7.3	1.0	.8	.9
120996-WCA2AU3-Ve-p-g	.06	n.d.	.2	22.1	15.2	6.9	1.2	1.1	1.2
120996-WCA2AU3-Vf-p-g	.08	.03	.2	21.4	14.3	7.1	1.0	.8	.9

Table 14 - Results of chemical analyses of periphyton variation samples collected in South Florida in December 1994 - Continued

SAMPLE	Total Mercury (µg/g)	Methylmercury as Mercury (µg/g)	Phosphorus (mg/g)	Percent Carbon	Percent Organic Carbon	Percent Inorganic Carbon	Percent Nitrogen	Percent Nitrogen	Average Percent Nitrogen
BCNP									
120796-BCA5-Va-p-h	0.08	nd	.3	29.0	24.0	5.0	1.8	1.8	1.8
120796-BCA5-Vb-p-h	.10	nd	.3	29.1	24.6	4.5	1.8	1.9	1.8
120796-BCA5-Vc-p-h	.07	0.01	.3	29.4	23.7	5.8	1.8	1.8	1.8
120796-BCA5-Vd-p-h	.07	.05	.3	30.1	24.7	5.4	2.0	1.9	1.9
120796-BCA5-Ve-p-h	.06	nd	.3	29.5	23.5	6.0	1.8	1.8	1.8
120796-BCA5-Vf-p-h	.06	.01	.3	29.6	24.7	4.9	1.9	1.9	1.9
120796-BCA5-Va-p-t	.09	.04	.3	28.9	22.9	6.0	1.7	1.7	1.7
120796-BCA5-Vb-p-t	.07	nd	.3	29.3	23.7	5.5	1.8	1.8	1.8
120796-BCA5-Vc-p-t	.05	nd	.2	29.2	23.6	5.7	1.7	1.6	1.7
120796-BCA5-Vd-p-t	.06	nd	.3	29.6	23.4	6.2	1.7	1.7	1.7
120796-BCA5-Ve-p-t	.07	nd	.3	30.0	24.6	5.4	1.9	1.8	1.8
120796-BCA5-Vf-p-t	.12	.05	.3	30.1	24.7	5.4	1.9	1.9	1.9
120796-BCA5-Va-p-g	n.a.	n.a.	.8	29.1	24.1	5.0	1.9	1.7	1.8
120796-BCA5-Vb-p-g	.12	nd	.3	28.9	24.0	4.9	1.8	1.7	1.8
120796-BCA5-Vc-p-g	.14	.08	.4	30.7	26.3	4.4	2.0	1.9	2.0
120796-BCA5-Vd-p-g	.12	nd	.3	30.2	25.1	5.1	1.8	1.8	1.8
120796-BCA5-Ve-p-g	.07	nd	.3	29.4	25.0	4.4	1.8	1.8	1.8
120796-BCA5-Vf-p-g	.07	nd	.3	29.0	24.3	4.7	1.8	1.8	1.8

Table 15 - Results of chemical analyses of miscellaneous samples including biota and detritus collected in South Florida in 1995 and 1996

SAMPLE	Total Mercury (μg/g)	Methylmercury as Mercury (μg/g)	Phosphorus (mg/g)	Percent Carbon	Percent Organic Carbon	Percent Inorganic Carbon	Percent Nitrogen	Percent Nitrogen	Average Percent Nitrogen
<u>WCA2A</u>									
121195-WCA2AE4-a-s-h	0.18	n.d.	0.5	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
060796-WCA2AF3-a-sw-h	.32	n.d.	1.3	28.1	22.2	5.9	2.4	2.4	2.4
060796-WCA2AF3-a-sh-h	15.19	n.a.	15.7	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
082396-WCA2ATran13-b-sn-h	.08	n.a.	.2	29.6	24.3	5.3	2.2	2.1	2.2
120996-WCA2AU3-Va-de-g	.11	.02	.3	18.4	16.1	2.3	1.4	1.6	1.5
120996-WCA2AU3-Vb-de-g	.10	n.d.	.3	22.3	15.2	7.1	1.5	1.3	1.4
120996-WCA2AU3-Vc-de-g	.05	n.d.	.3	22.4	15.5	6.8	1.5	1.3	1.4
120996-WCA2AU3-Vd-de-g	.11	n.d.	.3	21.4	14.7	6.7	1.3	1.3	1.3
120996-WCA2AU3-Ve-de-g	.07	.01	.2	21.8	14.3	7.5	1.4	1.3	1.4
120996-WCA2AU3-Vf-de-g	.07	n.d.	.3	22.0	14.8	7.2	1.4	1.3	1.4
120996-WCA2AU3-a-sh-g	.17	n.d.	16.4	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
121096-WCA2BL67C-a-e-h	.09	n.d.	1.1	31.3	29.7	1.6	1.9	1.8	1.8
<u>WCA3A</u>									
121296-WCA3A3A15-a-cap-g	.09	n.d.	.5	38.0	37.5	0.6	1.7	1.6	1.7
121296-WCA3A3A15-a-u-g	.08	n.d.	.8	41.8	41.0	0.8	1.8	1.8	1.8
<u>BCNP</u>									
120796-BCA5-Va-de-g	.17	.14	.5	34.7	32.5	2.1	3.3	3.2	3.2
120796-BCA5-Vb-de-g	.19	n.d.	.5	32.1	33.8	n.d.	3.6	3.5	3.6
120796-BCA5-Vc-de-g	.19	.10	.7	36.5	36.2	0.3	3.6	3.4	3.5
120796-BCA5-Vd-de-g	.23	.02	.7	32.1	33.6	n.d.	3.3	3.3	3.3
120796-BCA5-Ve-de-g	.16	.01	.5	37.1	36.6	0.4	3.5	3.3	3.4
120796-BCA5-Vf-de-g	.21	n.d.	.5	34.4	33.5	0.9	3.4	3.3	3.3
1296-BCA11-a-m-g	.60	n.a.	9.1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1296-BCA11-a-m-h	.31	n.a.	12.1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1296-BCA11-a-de-h	.13	.09	.5	29.4	25.7	3.7	2.1	1.9	2.0
<u>ENP</u>									
0896-ENPBr114-a-g-h	.16	n.d.	.6	34.7	36.0	n.d.	0.9	0.8	0.8