TABLE OF CONTENTS

Execut	tive Sun	nmary .	i
List of	Acrony	ms	xxiv
Ackno	wledgm	ents	xxvi
1.0	INTRO	ODUCT	TON
	1.1	Change	e in the Everglades Ecosystem
	1.2	Evergl	ades Restoration Efforts and Scientific Studies 1-1
	1.3	South	Florida Ecosystem Assessment Project
	1.4	Purpos	se and Organization of This Report
	1.5	Key E	verglades Restoration Issues
		1.5.1	Hydropattern Modification 1-5
		1.5.2	Florida Mercury Problem 1-6
		1.5.3	Eutrophication
		1.5.4	Habitat Alteration and Loss
		1.5.5	Endangered and Exotic Species
		1.5.6	Interaction Among Issues
2.0	STUD	Y DES	IGN
	2.1	Design	Rationale
		2.1.1	Sampling Method
		2.1.2	Sample Points
		2.1.3	Design-Based Estimation
		2.1.4	Variable Probability Estimation
	2.2	Indicat	tors
	2.3	Design	Summary
3.0	MATERIALS AND METHODS		
	3.1	Field .	3-1
		3.1.1	Logistical Rationale and Needs
		3.1.2	Apparatus

		3.1.3	Schedule
		3.1.4	Sampling Routine
	3.2	Labora	atory Analyses
	3.3	QA/Q	C
	3.4	Data A	Analysis
		3.4.1	Data Verification and Validation
		3.4.2	Descriptive Statistics
		3.4.3	Exploratory Analyses 3-16
		3.4.4	Inferential Statistics
		3.4.5	Spatial Statistics
		3.4.6	Mass Estimates
4.0	GENE	ERAL C	HARACTERISTICS OF THE WATER REGIME 4-1
	4.1	Precip	itation
	4.2	Canals	3 4-3
		4.2.1	Discharge
		4.2.2	Water Depth
		4.2.3	Temperature
		4.2.4	Conductivity
		4.2.5	Dissolved Oxygen
		4.2.6	Turbidity
		4.2.7	pH 4-6
	4.3	Marsh	4-6
		4.3.1	Water Depth
		4.3.2	Conductivity and General Flow Paths
		4.3.3	Temperature
		4.3.4	Dissolved Oxygen
		4.3.5	Turbidity

		4.3.6	pH 4	1-11	
	4.4	Synthe	esis	1-11	
5.0	HABI	ГАТ		5-1	
	5.1	Introd	uction	5-1	
	5.2	Result	s	5-3	
		5.2.1	Spatial Distribution of Dominant Plant Communities	5-3	
		5.2.2	Presence and Distribution of Cattails and Floating Periphyton Mats	5-4	
	5.3	Synthe	esis	5-6	
6.0	SOILS	S		6-1	
	6.1	Introd	uction	6-1	
	6.2	Marsh	Grid	6-2	
		6.2.1	Soil Thickness and Subsidence	6-2	
		6.2.2	Percent Organic Matter	6-4	
		6.2.3	Bulk Density	6-5	
		6.2.4	Soil Redox	6-6	
	6.3	Transe	ects	6-6	
		6.3.1	Soil Thickness	6-6	
		6.3.2	Soil Organic Matter	6-7	
		6.3.3	Soil pH	6-7	
		6.3.4	Soil Redox	6-7	
7.0	NUTR	NUTRIENT CONDITIONS			
	7.1	Introd	uction	7-1	
	7.2	Result	s	7-3	
		7.2.1	Canals	7-3	
		7.2.2	Transects	7-6	
		7.2.3	Marsh	7-7	

		7.2.4	Vegetation and Periphyton Relationships	0	
	7.3	Synthe	sis 7-1	0	
8.0	MERO	MERCURY			
	8.1	Introdu	action	-1	
	8.2	Initial Conceptual Mercury Cycling Model			
	8.3	Results	s	-8	
		8.3.1	Mercury Loading 8-	-8	
		8.3.2	Water Quality Patterns 8-	-9	
		8.3.3	Transect Gradients	3	
		8.3.4	Marsh Characteristics	6	
		8.3.5	Eastern Mosquitofish 8-2	22	
	8.4	Synthesis		23	
9.0	MERO	CURY N	MASS ESTIMATES 9-	-1	
10.0	SYNT	SYNTHESIS AND INTEGRATION			
	10.1	Critical Factors			
	10.2	Mercu	ry Bioaccumulation and Environmental Conditions 10-	-1	
		10.2.1	Vegetation Responses	-2	
		10.2.2	Water Quality	-3	
		10.2.3	Food Habits	-7	
	10.3	Conce	ptual Models	-8	
		10.3.1	North of Alligator Alley	-9	
		10.3.2	Alligator Alley to Tamiami Trail	-9	
		10.3.3	South of Tamiami Trail	0	
	10.4	Testab	le Hypotheses	0	
11.0	MAN	AGEME	ENT IMPLICATIONS	-1	
	11.1	Policy-	-Relevant Questions	-1	

	11.1.1 Magnitude - What is the magnitude of the problem(s) in the Everglades?
	11.1.2 Extent - What is the extent of the problem(s)?
	11.1.3 Trend - Is the problem(s) getting better, worse, or staying the same? . 11-4
	11.1.4 Cause - What factors are associated with or causing the problem(s)? . 11-4
	11.1.5 Source - What are the sources contributing to the causes and what is
	the importance of different sources to the problem(s)?
	11.1.6 Risk - What are the risks to different ecological systems and species
	from the stressors or factors causing the problem(s)? 11-5
	11.1.7 Solutions - What management alternatives are available to
	ameliorate or eliminate the problem(s)?
11.2	Potential Considerations
11.3	Relevance
FUTU	URE DIRECTION
12.1	Introduction
12.2	Objectives
12.3	Approach
	12.3.1 Revised Monitoring Design
	12.3.2 Aerial Photo Vegetation Assessment
	12.3.3 Plant Biomass Estimation
	12.3.4 Food Habits Analysis
12.4	Monitoring & Assessment Indicators
12.5	Statistical Analyses
12.6	QA/QC Requirements
	12.6.1 Data Quality Requirements and Validation
	12.6.2 Specific Data Package Requirements
12.8	Mercury Modeling
	11.3 FUTU 12.1 12.2 12.3 12.4 12.5 12.6

12.9	Compa	rative Ecological Risk Assessment
	12.10	Ecosystem Restoration Modeling and Assessment
13.0	REFER	RENCES
		APPENDICES
APPE	NDIX A	Sampling Apparatus
APPE	NDIX B	Data Quality Objectives
APPE	NDIX C	Summary of Data Review Findings
APPE	NDIX D	Eastern Mosquitofish Studies
APPE	NDIX E	Response to Peer Review Comments

LIST OF TABLES

Table 2.1	Water and soil/sediment chemical measurements to be taken at each site
	with the general rationale for measurement
Table 2.2	Physical and biotic measurements taken at each site with the general
	rationale for the measurement
Table 2.3	Analytical parameters for marsh and canal samples 2-13
Table 3.1	Distribution of parameter analyses for multiple laboratory design 3-11
Table 3.2	Statistical analyses performed on data
Table 4.1	Precipitation summaries for the 9 stations used to establish the long-term
	norm and baseline precipitation conditions
Table 4.2	Average annual flow (cms) through selected structures (Water years ending
	September 30)
Table 4.3	Median values for selected canal constituents
Table 4.4	Median values for selected constituents in marsh
Table 5.1	Proportion of marsh habitat sampled dominated by the major plant
	community classes within the six latitudinal subdivision along a north to
	south gradient
Table 5.2	Proportion of marsh area sampled in each latitudinal subdivision where
	cattail (<i>Typha domingensis</i>) and floating periphyton mats were present 5-7
Table 6.1	Summary statistics for soil parameters by subarea. Mean plus or
	minus standard deviation is presented 6-3

LIST OF TABLES (Continued)

Table 6.2	Everglades soil volumes by subarea reported for 1946 and 1995 through
	1996
Table 7.1	Annual comparison of TP concentrations in water (μ g/L) in Everglades
	canals and marsh
Table 7.2	Comparison of geometric mean of TP, APA, and chlorophyll a
	concentrations in canal water by subarea during May 1995 sampling cycle 7-5
Table 7.3	Geometric mean of TP concentrations (μ g/kg) in canal sediments by four
	geographic subarea within the Everglades
Table 7.4	Seasonal comparison of canal and marsh TP geometric mean concentrations (μ g/L)
	in water by latitudinal subarea
Table 7.5	Geometric mean TN (mg/L) in water in the Marsh
Table 8.1	Initial Hg hypotheses developed in the Interagency Scope of Study
	(Stober et al. 1992)
Table 8.2	Comparison of canal constituent geometric means concentrations in water
	by latitude
Table 8.3	Comparison of canal constituent geometric mean concentration, by latitude
	and by season
Table 8.4	Comparison of geometric means of marsh constituents by latitude 8-19
Table 8.5	Comparison of marsh geometric mean constituents by latitude and season 8-20
Table 9.1	Mercury mass estimate models
Table 9.2	South Florida THg mass estimates (kg) 9-2
Table 9.3	South Florida MeHg mass estimates (kg)

LIST OF TABLES (Continued)

Table 10.1	Latitudinal divisions used to characterize canal and marsh constituent	gradib 0 t3
Table 10.2	Latitudinal gradients for canal constituent medians, and confidence	
	intervals from north to south	10-4
Table 10.3	Latitudinal gradients for marsh constituent medians, and confidence inter-	rvals from
	north to south	10-5
Table 10.4	Testable Hypotheses	10-12
Table 12.1	Everglades Jan '99 Pilot Study and Laboratory Intercalibration	
	(triplicate analysis)	12-9
Table 12.2	Proposed REMAP Phase II parameters by cycle	12-11

LIST OF FIGURES

Figure 1.1	South Florida study area
Figure 1.2	Ecological risk assessment framework
Figure 2.1	Location of four marsh transects sampled in April 1994 and canal water
	control structures sampled on a biweekly basis from February 1994
	through February 1997
Figure 2.2	General schematic for clipping canal segments from the individual hexals and then
	randomly arranging them in a linear order so a systematic sample of 50 sites/cycle
	could be selected to sample
Figure 2.3	200 sampling sites are located on over 1,200 km of canals 2-18
Figure 2.4	500 sampling sites are located on over 7,800 km ² of marsh 2-19
Figure 3.1	Methods development timeline
Figure 4.1	Location of precipitation stations from which period of record data
	were collected to establish long-term norm and baseline period precipitation
	conditions
Figure 4.2	Comparison of monthly precipitation during the 5-year study period to
	normal monthly precipitation over the period of record at precipitation
	Station S5A, with marsh and canal sampling periods indicated 4-14
Figure 4.3	Comparison of monthly precipitation during the 5-year study period to
	normal monthly precipitation over the period of record at precipitation
	Station S6, with marsh and canal sampling periods indicated 4-14
Figure 4.4	Comparison of monthly precipitation during the 5-year study period to
	normal monthly precipitation over the period of record at Belle Glade
	precipitation station with marsh and canal sampling periods indicated 4-15

Figure 4.5	Comparison of monthly precipitation during the 5-year study period to
	normal monthly precipitation over the period of record at Royal Palm
	precipitation station, with marsh and canal sampling periods indicated 4-15
Figure 4.6	Comparison of monthly precipitation during the 5-year study period to
	normal monthly precipitation over the period of record at Devil's Garden
	precipitation station, with marsh and canal sampling periods indicated 4-16
Figure 4.7	Comparison of monthly precipitation during the 5-year study period to
	normal monthly precipitation over the period of record at precipitation
	Station S39, with marsh and canal sampling periods indicated 4-16
Figure 4.8	Comparison of monthly precipitation during the 5-year study period to normal
	monthly precipitation over the period of record at Tamiami Trail
	precipitation station, with marsh and canal sampling periods indicated 4-17
Figure 4.9	Comparison of monthly precipitation during the 5-year study period to
	normal monthly precipitation over the period of record at precipitation
	Station S9, with marsh and canal sampling periods indicated 4-17
Figure 4.10	Comparison of monthly precipitation during the 5-year study period to
	normal monthly precipitation over the period of record at precipitation
	Station S8, with marsh and canal sampling periods indicated 4-18
Figure 4.11	Daily discharge through selected SFWMD structures during the study
	period
Figure 4.12	Notched box and whisker plots comparing water depths in canals by
	subareas with all of the sampling data, and data grouped into dry and wet
	season measurements
Figure 4.13	Notched box and whisker plots comparing canal surface water temperature
	in subareas during dry and wet seasons
Figure 4.14	Notched box and whisker plots comparing canal bottom water temperature
	in subareas during dry and wet seasons

Figure 4.15	Canal conductivity reflects dilution of EAA discharge by precipitation 4-23
Figure 4.16	Notched box and whisker plots comparing canal conductivity in subareas
	during dry and wet seasons
Figure 4.17	Notched box and whisker plots comparing canal bottom DO in subareas
	during dry and wet seasons
Figure 4.18	Notched box and whisker plots comparing canal surface DO in subareas
	during dry and wet seasons
Figure 4.19	Notched box and whisker plots comparing canal turbidity in subareas
	during dry and wet seasons
Figure 4.20	Plots of the medians of the canal turbidity measurements for each of the
	subareas with a vertical line indicating the 95% confidence interval about
	each median
Figure 4.21	Notched box and whisker plots comparing canal pH measurements in
	subareas during dry and wet seasons
Figure 4.22	Locations of SFWMD water depth gaging stations used for exceedance
	frequency analysis
Figure 4.23	Exceedance frequency curves for SFWMD gaging stations with water
	depths measured during each of the sampling cycles at nearby marsh
	sampling sites
Figure 4.24	Kriged surface showing water depths in marsh during each sampling cycle 4-32
Figure 4.25	Kriged surface showing marsh water conductivity illustrates flow patterns
	during each of the sampling cycles 4-33
Figure 4.26	Notched box and whisker plots comparing marsh water temperature in
	subareas during dry and wet seasons
Figure 4.27	Notched box and whisker plots comparing marsh DO in subareas during
	dry and wet seasons

Figure 4.28	Notched box and whisker plots comparing marsh turbidity in subareas
	during dry and wet seasons
Figure 4.29	Notched box and whisker plots comparing marsh pH in subareas during
	dry and wet seasons
Figure 5.1	The number of marsh sampling stations occurring within each of the
	dominant plant communities
Figure 5.2	Distribution of dominant plant community classes, cattails and floating
	periphyton by latitude
Figure 5.3	Percent relative frequency of selected plant communities, cattails, and
	floating periphyton in six broad latitudinal subdivisions 5-10
Figure 5.4	Six latitudinal subdivisions within the Everglades marsh with locations of sampling
	points contained in each
Figure 5.5	Marsh sampling sites where wet prairie was classified as the dominant plant
	community
Figure 5.6	Marsh sampling stations where cattails were noted to be present
	during sampling
Figure 5.7	Marsh sampling stations where floating periphyton mat was present
	during sampling
Figure 5.8	Marsh sampling stations where sawgrass was classified as the dominant
	plant community
Figure 6.1	Comparison of 1946 peat thickness (Davis, 1946) and 1995-1996 soil
	thickness from the present study 6-8
Figure 6.2	Water conservation areas created in early 1960s: LNWR, WCA-2A,
	WCA-2B, WCA-3A, and WCA-3B

Figure 6.3	Notched box and whisker plots of marsh soil thickness, bulk density and	
	organic matter by subarea	
Figure 6.4	Maximum and minimum difference in peat thickness 1946 to 1996 6-11	
Figure 6.5	Percent organic matter observed for all cycles 6-12	
Figure 6.6	Bulk density for all cycles	
Figure 6.7	Linear relationship between Log (bulk density) and percent organic matter 6-1	
Figure 6.8	Mean corrected soil Eh vs. marsh subarea 6-1	
Figure 6.9	Average soil Eh for all cycles 6-1	
Figure 6.10	Average soil Eh for each cycle 6-16	
Figure 6.11	Soil thickness along each transect	
Figure 6.12	Percent organic matter along each transect	
Figure 6.13	Soil pH along each transect	
Figure 6.14	Soil Eh along each transect	
Figure 7.1	TP concentrations in surface water in the Everglades marsh were lower in	
	1996 than 1995 and during the wet season	
Figure 7.2	TP concentrations in canals are highest in canals north of Alligator Alley 7-14	
Figure 7.3	Cumulative distributions of canal TP in subareas	
Figure 7.4	Notched box and whisker plots of canal TP in each of the subareas 7-16	
Figure 7.5	Plot of selected constituents showing latitudinal gradients in canals 7-17	
Figure 7.6	APA in canals is highest in areas where TP concentrations are lowest 7-18	
Figure 7.7	TP concentrations in canal sediments by geographic subarea show no	
	spatial patterns	
Figure 7.8	TP concentrations in canal sediments by latitudinal subarea show no	
	spatial patterns	
Figure 7.9	TP concentrations in canal sediments by cycle show no temporal patterns 7-21	
Figure 7.10	TP concentrations in canal sediments by longitude for all cycles combined 7-21	

Figure 7.11	Location of four April 1994 marsh transects and canal water control	
	structures sampled on a biweekly basis	
Figure 7.12	TP in water along transects decreases with distance from the canals 7-23	
Figure 7.13	TP in soil along transects decreases with distance from the canals 7-2	
Figure 7.14	Kriged surfaces showing TP in the marsh for each sampling cycle based	
	on sampling data	
Figure 7.15	Cumulative distributions of TP concentrations in the marsh for selected cyle125	
Figure 7.16	Cumulative distributions of TP concentrations in the marsh subareas 7-2	
Figure 7.17	Kriged surfaces showing TP concentrations in the marsh using dry and	
	wet season data	
Figure 7.18	Notched box and whisker plots comparing marsh TP in subareas during	
	dry and wet seasons	
Figure 7.19	Plots of the medians of marsh TP measurements in each of the subareas	
	with a vertical line indicating the 95% confidence interval about each medial each each each each each each each each	
Figure 7.20	Kriged surfaces showing patterns of TP and APA in the marsh 7-30	
Figure 7.21	Kriged surfaces showing APA in the marsh for each sampling cycle 7-31	
Figure 7.22	Notched box and whisker plots comparing marsh TN in subareas during	
	dry and wet seasons	
Figure 7.23	Kriged surface showing marsh TN concentrations in water during the	
	May and September 1996 cycles	
Figure 7.24	Kriged surface showing marsh soil TP concentrations over the study period . 7-34	
Figure 7.25	Notched box and whisker plots comparing marsh soil TP in latitudinal	
	subareas during dry and wet seasons	
Figure 7.26	Notched box and whisker plots comparing marsh soil TP in geographic	
	subareas during dry and wet seasons	
	LIST OF FIGURES (Continued)	

Figure 7.27	Kriged surfaces showing TP concentrations in marsh water and soil during
	study period
Figure 7.28	Kriged surface of TP in marsh soils with sampling stations where cattails
	were present
Figure 8.1	Schematic figure depicting atmospheric deposition of Hg 8-5
Figure 8.2	Biogeochemical cycling of Hg in the Everglades ecosystem 8-24
Figure 8.3	Notched box and whisker plots comparing canal TOC in subareas during dry
	and wet seasons
Figure 8.4	TSO ₄ concentrations in canals during the study period 8-26
Figure 8.5	Notched box and whisker plots comparing canal TSO ₄ in subareas during dry
	and wet seasons
Figure 8.6	Notched box and whisker plots of canal TP in subareas during dry and wet
	seasons
Figure 8.7	Plots of median canal TP for subareas with vertical lines indicating 95%
	confidence interval of each median 8-29
Figure 8.8	Notched box and whisker plots comparing canal THg in water by subareas
	during dry and wet seasons
Figure 8.9	Plots of median canal THg in water for subareas with vertical lines indicating
_	the 95% confidence interval for each median 8-31
Figure 8.10	Notched box and whisker plots comparing canal MeHg in water for subareas
	during dry and wet seasons
Figure 8.11	Box and whisker plots comparing canal THg in mosquitofish by subareas
	during dry and wet seasons
Figure 8.12	Medians of THg in mosquitofish in canals for subareas with vertical lines
C	indicating the 95% confidence interval for each median 8-34
Figure 8.13	Plot of selected constituents showing latitudinal gradients in canals 8-35

Figure 8.14	Location of four marsh transects sampled in April 1994 and canal water	
	control structures sampled on a biweekly basis from February 1994 through	
	February 1997	
Figure 8.15	Measurements of TP in water along marsh transects 8-37	
Figure 8.16	TOC concentrations along marsh transects 8-37	
Figure 8.17	TSO ₄ concentrations along marsh transects 8-38	
Figure 8.18	Measurements of THg in water along marsh transects 8-38	
Figure 8.19	MeHg concentrations along marsh transects 8-39	
Figure 8.20	Ratio of MeHg to THg in water along marsh transects 8-39	
Figure 8.21	THg in mosquitofish collected along marsh transects 8-40	
Figure 8.22	Sulfide in soils along marsh transects 8-40	
Figure 8.23	TP in soils along marsh transects 8-41	
Figure 8.24	THg in soils along marsh transects 8-41	
Figure 8.25	MeHg in soils along marsh transects 8-42	
Figure 8.26	Bioaccumulation along marsh transects 8-42	
Figure 8.27	Notched box and whisker plots comparing marsh TOC in subareas during	
	dry and wet seasons	
Figure 8.28	Notched box and whisker plots comparing marsh TSO ₄ in subareas during	
	dry and wet seasons	
Figure 8.29	Median marsh TSO ₄ values for subareas with a vertical line indicating the	
	95% confidence interval for each median	
Figure 8.30	Notched box and whisker plots comparing marsh TP in subareas during	
	dry and wet seasons	
Figure 8.31	Median marsh TP values for subareas with vertical line indicating 95%	
	confidence interval for each median 8-47	
Figure 8.32	Notched box and whisker plots of marsh comparing TN in water during	
	dry and wet seasons	

Figure 8.33	Notched box and whisker plots comparing marsh THg in subareas during
	dry and wet seasons
Figure 8.34	Median values of marsh THg for subareas with a vertical line indicating the
	95% confidence interval for each median 8-50
Figure 8.35	Notched box and whisker plots comparing marsh MeHg in subareas during
	dry and wet seasons
Figure 8.36	Median values of marsh MeHg for subareas with vertical lines indicating the
	95% confidence interval for each median
Figure 8.37	Notched box and whisker plots comparing THg in fish in marsh in subareas
	during dry and wet seasons
Figure 8.38	Notched box and whisker plots comparing marsh BAF factor in subareas
	during dry and wet seasons
Figure 8.39	Notched box and whisker plots comparing THg in floating periphyton in
	subareas during dry and wet seasons 8-55
Figure 8.40	Median values of THg in floating periphyton for subareas with a vertical line
	indicating the 95% confidence interval for each median 8-56
Figure 8.41	Notched box and whisker plots comparing MeHg in floating periphyton in
	subareas during dry and wet seasons 8-57
Figure 8.42	Notched box and whisker plots comparing THg in soil periphyton in
	subareas during dry and wet seasons 8-58
Figure 8.43	Notched box and whisker plots comparing MeHg in soil periphyton in
	subareas during dry and wet seasons 8-59
Figure 8.44	Notched box and whisker plots comparing marsh soil THg in subareas
	during dry and wet seasons
Figure 8.45	Notched box and whisker plots comparing marsh soil MeHg in subareas
	during dry and wet seasons
Figure 8.46	Selected marsh parameters shown by latitude

Figure 8.47	Kriged surfaces indicating marsh TOC concentrations during each	
	sampling cycle	
Figure 8.48	Kriged surfaces indicating marsh TSO ₄ concentrations during each	
	sampling cycle	
Figure 8.49	Kriged surfaces showing TP in the marsh for each sampling cycle based on	
	sampling data	
Figure 8.50	Kriged surfaces indicating marsh MeHg concentrations during each of the	
	sampling cycles	
Figure 8.51	Locations of floating periphyton samples with kriged surfaces indicating	
	concentrations of MeHg in floating periphyton 8-67	
Figure 8.52	Locations of soil periphyton samples with kriged surface indicating	
	concentrations of MeHg in soil periphyton 8-68	
Figure 8.53	Kriged surfaces indicating concentrations of MeHg in marsh soils during	
	study period 8-69	
Figure 8.54	Kriged surfaces indicating concentrations of THg in mosquitofish collected	
	in the marsh during each sampling cycle 8-70	
Figure 8.55	Hg concentrations in Great Egret chick feathers and mosquitofish indicate	
	spatial distribution of Hg bioaccumulation 8-71	
Figure 9.1	Marsh data THg in water (top) and soil (bottom) 9-5	
Figure 9.2	Marsh data MeHg in water (top) and soil (bottom)	
Figure 10.1	Six canal compartments with locations of sampling points contained in	
	each	
Figure 10.2	Six marsh compartments with locations of sampling points contained inlead!	
Figure 10.3	Median values of selected parameters in canal subareas 10-15	

Figure 10.4	Median values of selected parameters in marsh subareas 10-16
Figure 10.5	Median marsh TP and BAFs in subareas
Figure 10.1	Six canal compartments with locations of sampling points contained in
	each
Figure 10.2	Six marsh compartments with locations of sampling points contained in Bach4
Figure 10.3	Median values of selected parameters in canal subareas 10-15
Figure 10.4	Median values of selected parameters in marsh subareas 10-16
Figure 10.5	Median marsh TP and BAFs in subareas
Figure 12.1	Potential monitoring network configurations combining probability,
	compliance and fixed sites

LIST OF ACRONYMS

AA Alligator Alley
AA-N Alligator Alley north

AFS atomic fluorescence spectrometer

ANOVA Analysis of Variance
APA alkaline phosphatase activity
BAF bioaccumulation factor
BCNP Big Cypress National Preserve
BMPs Best Management Practices
cdf cumulative distribution function

CRMS Center for Remote Sensing and Mapping Science

°C degree Celsius
DO Dissolved oxygen
DQO data quality objective
EAA Everglades Agricultural Area
EAB Ecological Assessment Branch

ESAT Environmental Services Assistance Team

Eh redox

EMAP Environmental Monitoring and Assessment Program

ENP Everglades National Park
ENR Everglades Nutrient Removal
EPA Environmental Protection Agency
ESD Environmental Sciences Division

EtHg ethylmercury

FAMS Florida Atmospheric Mercury Study

FDEP Florida Department of Environmental Protection FGFWFC Florida Game and Fresh Water Fish Commission

FIU Florida International University

FIU-SERP FIU-Southeast Environmental Research Program

FTN Associates, Ltd.

GC/AFS gas chromatography/atomic fluorescence spectrometry

GF/F glass fiber filter

GIS geographic information system

GPRA Government Performance and Review Act

GPS global positioning system

Hg mercury

LNWR Loxahatchee National Wildlife Refuge

MDL minimum detection limit

MeHg methylmercury

MSL Battelle Marine Sciences Laboratory

NAD North Atlantic Datum

NAPP USGS National Aerial Photography Program
NERL National Exposure Research Laboratory

NOAA National Oceanic and Atmospheric Administration

N PS US National Park Service
NTU nephelometric turbidity unit
ORD Office of Research and Development

OQA Office of Quality Assurance QA/QC quality assurance/quality control

ppt part per trillion

RTS random tessellation stratified

SESD Science and Ecosystem Support Division
SFMSP South Florida Mercury Science Program
SFWMD South Florida Water Management District

(SoFAMMS) South Florida Atmospheric Mercury Monitoring Study

SOP standard operating procedure

LIST OF ACRONYMS

STA stormwater treatment area

THg total mercury
THgF total mercury in fish
TOC total organic carbon
TN total nitrogen
TP total phosphorus
TSO₄ total sulfate
TT Tamiami Trail

USACE US Army Corps of Engineers
USEPA US Environmental Protection Agency

USGS US Geological Survey

UTM Universal Transverse Mercator WCA water conservation area

WY water year

ACKNOWLEDGMENTS

PARTICIPANTS IN US EPA REGION 4 EVERGLADES ASSESSMENT PROJECT

US EPA Region 4	US EPA-Office of Research	Florida Department of	
Program Offices	and Development	Environmental Protection	
		T. Atkeson	
APTMD	EMAP		
L. Anderson-Carnahan	R. Linthurst	South Florida Water	
D. Dubose	K. Summers	Management District	
L. Page	T. Olsen	L. Fink	
S. Gent-Howard			
	NERL-RTP	Contractors	
ORC	R. Stevens	J. Maudsley, Mantech	
P. Mancusi-Ungaro	R. Bullock	B. Lewis, Mantech	
	J. Pinto	M. Weirich, Mantech	
SESD		D. Stevens, Mantech	
D. France	NERL-ATHENS	M. McDowell, Mantech	
B. Berrang	R. Ambrose	C. Laurin, FTN Associates, Ltd.	
P. Meyer	R. Araujo	D. Lincicome, FTN Associates, Ltd.	
C. Halbrook	C. Barber	J. Benton, FTN Associates, Ltd.	
M. Parsons	N. Loux	R. Remington, FTN Associates, Ltd.	
D. Smith	L. Burns	T. Schmidt, FTN Associates, Ltd.	
W. McDaniel		S. Ponder, Integrated Laboratory Systems	
M. Wasko	NERL-LAS VEGAS	K. Simmons, Integrated Laboratory Systems	
J. Scifres	D. Chaloud	S. Pilcher, Integrated Laboratory Systems	
M. Birch	E. Heitmier	D. Winters, Integrated Laboratory Systems	
P. Mann		J. Chandler, Integrated Laboratory Systems	
T. Slagle	FIU-SERP	S. Allen, Integrated Laboratory Systems	
T. Stiber	R. Jaffe	C. Appleby, Integrated Laboratory Systems	
J. Davee	Y. Cai	E. Crecelius, Battelle Marine Sciences	
D. Colquitt	A. Alli	B. Lasorsa, Battelle Marine Sciences	
D. Kamens	N. Black		
R. Howes	I. MacFarlane		
G. Collins	W. Loftus		
J. Bricker	J. Thomas		
B. Noakes			