CATALOG DOCUMENTATION
EMAP-ESTUARIES PROVINCE LEVEL DATABASE
CAROLINIAN PROVINCE 1994-1997
SEDIMENT CHEMISTRY DATA

TABLE OF CONTENTS

1. DATA SET IDENTIFICATION

1.1 Title of Catalog Document

EMAP-Estuaries Province Level Database
Carolinian Province
Sediment Chemistry Data

1.2 Authors of the Catalog entry

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Dr. Jeffrey L. Hyland

1.3 Catalog Revision Date

September 10, 1998

1.4 Data Set Name

CP_CHM_D.DAT, CP_CHM_A.TXT

1.5 Task Group

Estuaries

1.6 Data set identification codes

5, 6

1.7 Version

001

1.8 Requested Acknowledgment

If you plan to publish these data in any way, EPA requires a standard statement for work it has supported:

"Although the data described in this article have been funded wholly or in part by the U. S. Environmental Protection Agency through its EMAP-Estuaries Program, it has not been subjected to Agency review, and therefore does not necessarily reflect the views of the Agency and no official endorsement should be inferred."

2. INVESTIGATOR INFORMATION

2.1 Principal Investigator

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A. Ringwood (SCDNR) - Lead P.I. for SC/GA region team
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3. DATA SET ABSTRACT

3.1 Abstract of the Data set

The CP_CHM_D.DAT data set reports a suite of chemical concentrations from analyses of a surface sediment sample (upper 2-3 cm) composited from multiple grabs at each sampling station in the Carolinian Province from 1994-1997. Individual and analyte group summary concentrations are reported. A total of 17 inorganic trace elements, 4 butyltins, 27 aliphatic hydrocarbons, 44 polynuclear aromatic hydrocarbons (PAHs), 20 polychlorinated biphenyls (PCBs), 23 pesticides, Total Organic Carbon (TOC), and several summary (totals) concentrations are reported for each station.

The CP_CHM_A.TXT data set reports full descriptive analyte names for each of the ANAL codes used to represent analytes in the CP_CHM_D.DAT data set.

The following reports are products of these and other data collected during the 1994-1997 Sampling period in the Carolinian Province. These reports may contain additional information and summary statistics that are not contained in this data set catalog or its respective data sets. We therefore recommend referring to them when using these data.

Hyland, J.L., T.J. Herrlinger, T.R. Snoots, A.H. Ringwood, R.F. Van Dolah, C.T. Hackney, G.A. Nelson, J.S. Rosen, and S.A. Kokkinakis. 1996. Environmental quality of estuaries of the Carolinian Province: 1994. Annual

statistical summary for the 1994 EMAP-Estuaries Demonstration Project in the Carolinian Province. NOAA Technical Memorandum NOS ORCA 97. NOAA/NOS, Office of Ocean Resources Conservation and Assessment, Silver Spring, MD. 102 p.

Hyland, J.L., L. Balthis, C.T. Hackney, G. McRae, A.H. Ringwood, T.R. Snoots, R.F. Van Dolah, and T.L. Wade. 1998. Environmental quality of estuaries of the Carolinian Province: 1995. Annual statistical summary for the 1995 EMAP-Estuaries Demonstration Project in the Carolinian Province. NOAA Technical Memorandum NOS ORCA 123 NOAA/NOS, Office of Ocean Resources Conservation and Assessment, Silver Spring, MD. 143 p.

Balthis, W.L., J.L. Hyland, and T.R. Snoots. 1998. Compendium of environmental data for estuaries sampled in the North Carolina portion of the EMAP Carolinian Province during summer 1994-1996. Unpublished report, May 1998. 62 p.

See Also: GERG (1995a), GERG (1995b), GERG (1996), GERG (1997a), GERG (1997b), GERG (1998).

3.2 Keywords for the Data Set

CP_CHM_D.DAT

Sediment contaminants, sediment chemistry, DDT, inorganic analytes, organic analytes, PAH, PCB, pesticides, TOC, trace metals, butyltin, EMAP Carolinian Province

CP_CHM_A.TXT

Sediment contaminants, analyte codes, analyte names, EMAP Carolinian Province

4. OBJECTIVES AND INTRODUCTION

4.1 Program Objective

EMAP has three primary objectives:

1. To estimate the current status, extent, changes, and trends in indicators of the Nation's ecological resources on a regional basis;

2. To monitor indicators of pollutant exposure and habitat condition, and to seek correlative relationships between human-induced stresses and ecological condition that identify possible causes of adverse effects; and

3. To provide periodic statistical summaries and interpretive reports on ecological status and trends to the EPA Administrator and to the public.

4.2 Data Set Objective

The objective of the CP_CHM_D.DAT data set is to report the results of sediment contaminant analyses at each of the stations sampled in the Carolinian Province from 1994-1997.

4.3 Data Set Background Information

Contaminant and TOC concentrations were measured at each station from subsamples of composited surface sediment (upper 2-3 cm) collected with a 0.04-m2 Young grab sampler. Subsamples were taken from the same sediment composite used for toxicity testing and the analysis of other physical/chemical characteristics. Multiple grabs were taken at each station to produce enough composited surface sediment to support all of the various kinds of sediment analyses. Stations were represented usually by unreplicated samples, with the exception of duplicates that were run for ~ 10% of the stations as part of the quality control program.

All contaminant analyses were performed at Texas A&M University. A total of 17 inorganic metals, 4 butyltins, 27 aliphatic hydrocarbons, 44 polynuclear aromatic hydrocarbons (PAHs), 20 polychlorinated biphenyls (PCBs), and 23 pesticides, total organic carbon (TOC), and several summary (totals) concentrations were measured at each of the stations sampled in the Carolinian Province from 1994-1997. The table that follows summarizes the measurement units, target detection limits, analytical methods, and protocol references for each of these analyte groups.

Summary of analytical methods for the analyses of contaminants in sediments.

Analyte	Target DL	Units	Method	Reference
Si	10,000	ug/g	FAA	Taylor and Presley 1993
Al	1500	ug/g	FAA	Taylor and Presley 1993
Fe	500	ug/g	INAA	Taylor and Presley 1993
Cr	5.0	ug/g	INAA	Taylor and Presley 1993
Zn ('94-'96)	2.0	ug/g	FAA	Taylor and Presley 1993
Zn (in 1997)	2.0	ug/g	INAA	Taylor and Presley 1993
Mn	1.0	ug/g	FAA	Taylor and Presley 1993
Cu	5.0	ug/g	GFAA	Taylor and Presley 1993
As	1.5	ug/g	INAA	Taylor and Presley 1993
Ni	1.0	ug/g	GFAA	Taylor and Presley 1993
Pb	1.0	ug/g	GFAA	Taylor and Presley 1993
Sb	0.2	ug/g	INAA	Taylor and Presley 1993
Se (in 1994)	0.1	ug/g	INAA	Taylor and Presley 1993
Se ('95-'97)	0.1	ug/g	GFAA	Taylor and Presley 1993
Sn	0.1	ug/g	GFAA	Taylor and Presley 1993
Cd	0.05	ug/g	GFAA	Taylor and Presley 1993
Ag	0.01	ug/g	GFAA	Taylor and Presley 1993
Hg	0.01	ug/g	CVAA	Taylor and Presley 1993
Butyltins	1.0	ng Sn/g	GC/FPD	Wade et al. 1990
PAHs	5.0	ng/g	GC/MS-SIM	Wade et al. 1993
Aliphatics	25	ng/g	GC/FID	Wade et al. 1994
Pesticides	0.1	ng/g	GC/ECD	Wade et al. 1993
PCBs	0.1	ng/g	GC/ECD	Wade et al. 1993

Notes:
* Units are based on dry wt.
* target DL = Minimum allowable detection limits (based on sample size of 0.2 g for metals and 15 g for organics).
* GC/ECD = Gas Chromatography/Electron Capture Detection
* GC/MS-SIM = GC/Mass Spectroscopy - Selective Ion Monitoring Mode
* GC/FID = GC/Flame Ionization Detection
* CVAA = Cold Vapor Atomic Absorption
* GFAA = Graphite Furnace Atomic Absorption
* INAA = Instrumental Neutron Activation Analysis
* FAA = Flame Atomic Absorption
* GC/FPD = GC/Flame Photometric Detection.
* Butyltins: mono-, di-, tri-, tetra-
* PAHs: 44 parent compounds & alkylated homologues, Tot. PAHs
* Aliphatics: C10ûC34 alkanes, Tot. Alk., pristane, phytane
* Pesticides: DDD (2,4'& 4,4'), DDE (2,4' & 4,4'), DDT (2,4' & 4,4'), Total DDD/DDE/DDT, aldrin, chlordane (alpha-, gamma-, oxy-), dieldrin, heptachlor, heptachlor epoxide, hexachlorobenzene, BHC (alpha-, beta-, gamma-, delta-), mirex, trans- & cis-nonachlor, endrin, endosulfan, toxaphene
* PCBs: Congener Nos. 8, 18, 28, 44, 52, 66, 77/110, 101, 105, 188/108/149, 126, 128, 138, 153, 170, 180, 187/182/159, 195, 206, 209, Tot. PCBs

Measurements of TOC were obtained from ~ 5 to 10 mg samples of dried sediment that were acidified (with 1M H3PO4) to remove carbonates, sonicated, and filtered. Filters containing the sediment were dried and combusted (Salonen 1979) on either a CHN or elemental analyzer to determine TOC concentration (expressed as percent TOC per gram of dried sediment). TOC analyses were performed by different labs depending on year and station location. In 1994, each cooperator analyzed samples from their respective regions (i.e., UNC-W analyzed all stations from NC, SCDNR analyzed all stations from SC and GA, and FLDEP analyzed all stations from FL). In 1995, SCDNR analyzed all stations from NC, SC and GA, and FLDEP analyzed all stations from FL. In 1996 and 1997, all TOC analyses were performed by GERG, with the exception of Chowan River samples (CP97345-CP97354) which were analyzed by EPA.

4.4 Summary of Data Set Parameters

A code for each compound is given under the variable ANAL. Concentrations are reported in dry weight, in the variable CONC. The units of the results reported in CONC are reported in the variable called UNIT. Quality Assurance/Quality Control issues are coded and reported in the variable called QA. QA code descriptions are given in section 5.2.4 (Sample Processing Quality Control) of this file. Method detection limits for each analysis are reported in the variable DETLMT.

4.5 Year-Specific Information about Data

5. DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition

5.1.1 Sampling Objective

Collect sediment samples suitable for the analysis of organic and inorganic compounds, and TOC. One composite sediment sample was expected to be collected at each station.

5.1.2 Sample Collection Method Summary

A 1/25 m2, Kynar-coated stainless steel, Young Grab sampler was used to collect sediments. This grab sampled an area of 440 cm2 and a maximum depth of penetration in the sediment of 10 cm. Stainless steel utensils were used to remove the top two cm of sediment from a grab. The sediment was removed to a stainless steel bowl and placed in a cooler of ice to remain cold, but unfrozen. The grab sampler was rinsed and re-deployed. This procedure was repeated until the volume of sediment required for all contaminant, toxicity, and sediment characteristics analyses had been collected.. The sediment was mixed by hand until thoroughly homogenized, and aliquots were placed immediately into pre-cleaned glass jars (for organics) or plastic containers (for inorganics). The samples were immediately stored on ice following collection.

5.1.3 Beginning Sampling Dates

30 June 1994
05 July 1995
09 July 1996
07 July 1997

5.1.4 Ending Sampling Dates

31 August 1994
14 September 1995
19 September 1996
25 August 1997

5.1.5 Platform

Samples were collected from various gasoline or diesel powered boats equipped with at least the following equipment: "A" frame boom or davit, winch, LORAN-C or GPS for location, and a depth finder.

5.1.6 Sampling Equipment

A 1/25 m2, Kynar-coated stainless steel, Young Grab sampler. This grab sampled an area of 440 cm2 and a maximum depth of penetration in the sediment of 10 cm.

5.1.7 Manufacturer of Sampling Equipment

Ted Young
Falmouth, MA

5.1.8 Key Variables

5.1.9 Sample Collection Method Calibration

The sampling gear does not require any calibration. It required inspection for deformities incurred due to mishandling or impact on rocky substrates.

5.1.10 Sample Collection Quality Control

Field technicians were trained to follow Standard Operating Procedures to insure the collection of representative, uncontaminated and high quality samples. QA/QC measures were taken in the field to avoid or reduce contamination and insure the collection of representative samples. These included: use of stainless steel instruments, thorough cleaning of the sampler between grabs, use of pre-cleaned containers for sediment storage and ensuring that engines were shut down when a sample was exposed to the air. A successful grab had relatively level, intact sediment over the entire area of the grab and a sediment depth of 7-10 centimeters. Unacceptable grabs included those: containing no sediments, which were partially filled or had shelly substrates or grossly slumped surfaces. Grabs completely filled to the top, where the sediment was oozing out of the hinged top, were also unacceptable.

See: Kokkinakis et al. (1994a)

5.1.11 Sample Collection Method References

See: Hyland et al. (1996),
Hyland et al. (1998),
Kokkinakis et al. (1994b)

5.1.12 Sample Collection Method Deviations

None

5.2 Data Preparation and Sample Processing

5.2.1 Sample Processing Objective

Process sediment samples for characterization of contaminants and TOC.

5.2.2 Sample Processing Methods Summary

5.2.2.1 Field Summary

NA

5.2.2.2 Laboratory Summary

See section 4.3 (Data Set Background Information), GERG (1995a, 1995b, 1996, 1997a, 1997b, 1998)

5.2.3 Sample Processing Method Calibration

See: GERG (1995a, 1995b, 1996, 1997a, 1997b, 1998)

5.2.4 Sample Processing Quality Control

Quality control procedures for the analysis of sediment contaminants consisted of: (1) participation in a series of intercalibration exercises (minimum of two intercalibrations per year for metals and three intercalibrations per year for organics); (2) continuous checks on analytical precision and accuracy from the analysis of Standard Reference Materials (SRMs) with each batch of samples; (3) initial and ongoing instrument calibration checks (ongoing checks performed minimally at the middle and end of each sample batch); (4) analysis of laboratory reagent blanks (one with each sample batch); (5) analysis of laboratory fortified sample matrix spikes and laboratory fortified sample matrix duplicates; (6) analysis of sample duplicates in ~10% of the samples; and (7) analysis of internal surrogate and injection standards with each sample. With respect to the analysis of SRMs, if analytical results deviated by more than (20% from the certified values for metals, or by more than (30% for the organics in the SRM, then a re-analysis of those samples was required. These procedures are consistent with the general quality control requirements of both EMAP-E (Heitmuller and Valente 1993, see Table 5-4 therein) and the NOAA National Status and Trends Program (Lauenstein and Cantillo 1993).

Portions of the TOC samples, one for each batch of 25 or fewer samples, were run in duplicate as tests of analytical precision. Measurement differences could not exceed 20%. Quality control procedures for TOC also included the analysis of acetanilide standards and certified reference sediments.

The following QA codes, stored under the variable QA, flag QA issues in the sediment and tissue chemistry data sets. Note that all values reported in the CP_CHM_D.DAT data set that do not have any QA codes assigned, met all QA/QC guidelines and are acceptable without further qualification.

QA	Description
ND	Non Detect - Indicates that the concentration of an analyte was too low to detect. In these cases, the QA code of ND is used, and the concentration is reported as 0. Although the actual concentration is unknown (but likely very low to none), reporting a concentration of 0 serves as a place holder.
J	Just Detected - Indicates that an analyte was detected in the sample, but at a concentration below the method detection limit for the sample. In these cases, you can be confident that the analyte is present in the sample, but there is a high degree of uncertainty in the reported concentration. Therefore, values flagged with the J

QA code should be considered estimates only, and used with discretion.

SC-B Just Detected - Indicates that an analyte was detected in the sample, but at a concentration below the method detection limit for the sample. In these cases, you can be confident that the analyte is present in the sample, but there is a high degree of uncertainty in the reported concentration. Therefore, values flagged with the J QA code should be considered estimates only, and used with discretion.

M Matrix Interference - Indicates that the reported concentration is questionable due to interference from other compounds in the sample. Therefore, values flagged with the M QA code should be used with discretion.

Q QA problem - Indicates cases where required quality assurance guidelines were not met by the lab. If no concentration is reported, then the QC problem was judged to be severe enough to invalidate the result for that analyte. If however a concentration is reported for an analyte with a Q code, then the overall data quality was judged to be reliable enough to be used with discretion.

D or d Dilution Required - Indicates the sample required dilution prior to analysis. This has no effect on reported concentrations and is not a problem. Values with this code can be used with no further qualification.

AL-P Algae Present - Indicates that the presence of algae in the sample prevented accurate measurement of TOC. Samples with the AL-P code will have a missing value for TOC.

B Blank Interference - Indicates that there was an interference detected in the blank which would interfere with the accurate determination of an analytes concentration. Results for observations with the B code should be considered questionable and used with discretion.

See: Hyland et al. (1996),
Hyland et al. (1998),
Kokkinakis et al. (1994a),
GERG (1995A, 1995B, 1996, 1997A, 1997B, 1998)

5.2.5 Sample Processing Method Reference

See: Hyland et al. (1996),
Hyland et al. (1998),
Kokkinakis et al. (1994b),
Section 4.3 (Data Set Background Information)
Standard Operating Procedures of the Geochemical and Environmental Research Group of Texas A&M University,
GERG (1995A, 1995B, 1996, 1997A, 1997B, 1998)

5.2.6 Sample Processing Method Deviations

See: GERG (1995A, 1995B, 1996, 1997A, 1997B, 1998)

6. DATA ANALYSIS AND MANIPULATIONS

6.1 Name of New or Modified Value

The following analytes (ANAL codes) were not measured directly. These values are summary values calculated from the concentrations of several individually measured analytes:
TOT_PAH, CHLORDAN, TOT_ALKA, TOT_BHC, TOT_PCB, TOT_DDT

6.2 Data Manipulation Description

TOT_PAH = Total PAHs

Sum of 38 PAHs (not including perylene)
[ACENTHE, ACENTHY, ANTHRA, BENANTH, BENAPY, BENEPY, BENZOBFL, BENZOKFL, BGHIPERY, BIPHENYL, C1CHRYSN, C1DIBENZ, C1FLUORA, C1FLUORE, C1NAPH, C1PHENAN, C2CHRYSN, C2DIBENZ, C2FLUORE, C2NAPH, C2PHENAN, C3CHRYSN, C3DIBENZ, C3FLUORE, C3NAPH, C3PHENAN, C4CHRYSN, C4NAPH, C4PHENAN, CHRYSENE, DIBENZAH, DIBENZO, FLUORANT, FLUORENE, INDENO, NAPH, PHENANTH, PYRENE]

CHLORDAN = Total Chlordane

Sum of Alpha-, Gamma-, and Oxy- chlordane
[ALPHACHL, GAMMACHL, OXYCHL]

TOT_ALKA = Total Alkanes

Sum of 27 Aliphatic Hydrocarbons
[C10_ALKA, C11_ALKA, C12_ALKA, C13_ALKA, C14_ALKA, C15_ALKA, C16_ALKA, C17_ALKA, C18_ALKA, C19_ALKA, C20_ALKA, C21_ALKA, C22_ALKA, C23_ALKA, C24_ALKA, C25_ALKA, C26_ALKA, C27_ALKA, C28_ALKA, C29_ALKA, C30_ALKA, C31_ALKA, C32_ALKA, C33_ALKA, C34_ALKA, PHYTANE, PRISTANE]

TOT_BHC = Total BHC

Sum of Alpha BHC, Beta BHC, Delta BHC, and Gamma BHC (lindane)
[ALPHABHC, BETABHC, DELTABHC, LINDANE]

TOT_DDT = Total DDTs

Sum of 2,4'DDD, 4,4'DDD, 2,4'DDE, 4,4'DDE,
2,4'DDT, and 4,4'DDT
[DDD_24, DDD_44, DDE_24, DDE_44, DDT_24, DDT_44]

TOT_PCB = Total PCBs

(Sum of (18 PCB congeners - any interferences) * 2.19) + 2.19
[PCB8, PCB18, PCB28, PCB44, PCB52, PCB66, PCB101,
PCB105, PCB118, PCB128, PCB138, PCB153, PCB170, PCB180,
PCB187, PCB195, PCB206, PCB209]

6.3 Data Manipulation Examples

7. DATA DESCRIPTION

7.1 Description of Parameters

Variable	Type	Format	Label
STA_NAME	Char	7.	Carolinian Province Office Station Name
DATE	Num	YYMMDD6.	Sample collection date (YYMMDD)
ANAL	Char	8.	Carolinian Province Office analyte code
CONC	Num	12.3	Analyte concentration (dry wt.)
UNIT	Char	8.	CONC units
QA	Char	4.	Quality assurance code
DETLMT	Num	12.3	Method detection limit

Note the conventions used in the Format column above:

For character (Char) variables, the number given is the maximum width (number of characters) for that variable.

For numeric (Num) variables, the format is given in W.D format, where W = maximum width (number of characters) for the number (including all digits and the decimal point), and D = number of digits to the right of the decimal point.

7.1.6 Precision to which values are reported

Variables CONC, and DETLMT are reported to 0.001 units. However, the precision of the values reported are analyte dependent as follows:

Analyte Type	Precision
TOC	0.01
Aromatic HCs	0.1
Aliphatic HCs	0.1
Pesticides	0.01
PCBs	0.01
Butyltins	0.01

7.1.6 Precision to which values are reported, continued

Analyte Type	Precision
Trace Metals	
Ag	0.01
Al	1
Cd	0.001
Cu	0.01
Mn	0.1
Ni	0.1
Pb	0.1
Se	0.01
Si	1
Sn	0.01
Zn	0.1
As	0.01
Cr	1
Fe	1
Sb	0.01
Tl	0.01
Hg	0.001

Also note that the following QA codes associated with some observations may effect precision:

ND (Non Detect) - Indicates that the concentration of an analyte was too low to detect. In these cases the concentration is reported as 0. Although the actual concentration is unknown (but likely very low to none), reporting a concentration of 0 serves as a place holder.

J (Just Detected) - Indicates that an analyte was detected in the sample, but at a concentration below the method detection limit for the sample. In these cases, you can be confident that the analyte is present in the sample, but there is a high degree of uncertainty in the reported concentration. Therefore, values flagged with the J QA code should be considered estimates only, and used with discretion.

7.1.7 Minimum Value in Data Set

Variable	Minimum
CONC	0.000
DETLMT	0.000

7.1.8 Maximum Value in Data Set

Variable	Maximum
CONC	536950.040
DETLMT	10000.000

7.2 Data Record Example

7.2.1 Column Names for Example Records

CP_CHM_D.DAT

STA_NAME;DATE;ANAL;CONC;UNIT;QA;DETLMT

CP_CHM_A.DAT

ANAL;A_NAME

CP_CHM_Q_DAT

Contains descriptive text not formatted as a data set.

7.2.2 Example Data Records

CP_CHM_D.DAT

```
CP94001;940815;ACENTHE;0.070;ng/g;J;5.000
CP94001;940815;ACENTHY;0.210;ng/g;J;5.000
CP94001;940815;AG;0.030;ug/g; ;0.010
CP94001;940815;AL;9843.901;ug/g; ;355.000
CP94001;940815;ALDRIN;0.039;ng/g;J;0.100
CP94001;940815;ALPHABHC;0.000;ng/g;ND;.
CP94001;940815;ALPHACHL;0.000;ng/g;ND;0.100
```

CP_CHM_A.DAT

```
ACENTHE;Acenaphthene
ACENTHY;Acenaphthylene
AG;Silver
AL;Aluminum
ALDRIN;Aldrin
ALPHABHC;Alpha HCH (Alpha BHC)
```

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude

-81 Degrees, 43.83 Minutes West Longitude

8.2 Maximum Longitude

-75 Degrees, 33.82 Minutes West Longitude

8.3 Minimum Latitude

27 Degrees, 12.07 Minutes North Latitude

8.4 Maximum Latitude

36 Degrees, 43.43 Minutes North Latitude

8.5 Name of area or region

Coastal distribution of sampling is along the southeastern US from Cape Henry, VA, through St. Lucie Inlet, FL. States represented: Virginia, North Carolina, South Carolina, Georgia, and Florida.

9. QUALITY CONTROL/QUALITY ASSURANCE

9.1 Measurement Quality Objectives

See: Hyland et al. (1996),
Hyland et al. (1998),
Kokkinakis et al. (1994a)

9.2 Quality Assurance/Control Methods

See section 5.2.4 (Sample Processing Quality Control) above,
GERG (1995A, 1995B, 1996, 1997A, 1997B, 1998)

9.3 Quality Assessment Results

Unless flagged by one of the QA codes defined in section 5.2.4 (Sample Processing Quality Control), or specifically mentioned in GERG (1995A, 1995B, 1996, 1997A, 1997B, 1998), all data reported in the CP_CHM_D.DAT data set met the QA/QC guidelines given above and are acceptable without further qualification.

10. DATA ACCESS

10.1 Data Access Procedures

Data can be downloaded from the WWW site.

10.2 Data Access Restrictions

Data can only be accessed from the WWW site.

10.3 Data Access Contact Persons

For programmatic/policy matters, contact:
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(401) 782-3030 (FAX)
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10.4 Data file Format

Delimited ASCII Text

10.5 Information Concerning Anonymous FTP

Not accessible

10.6 Information Concerning Gopher and WWW

Data can be downloaded from the WWW.

10.7 EMAP CD-ROM Containing the Data file

Data not available on CD-ROM.

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12. TABLE OF ACRONYMS

C	Degrees Celsius
cc	Cubic centimeters
cm2	Square centimeters
CMBAD	Coastal Monitoring and Bioeffects Assessment Division
CU	Clemson University
EMAP	Environmental Monitoring and Assessment Program
EPA	U.S. Environmental Protection Agency
EPA-AED	EPA-Atlantic Ecology Division
EPA-GED	EPA-Gulf Ecology Division
EPA-RTP	EPA-Research Triangle Park, NC
FLDEP	Florida Dept. of Environmental Protection
FMRI	Florida Marine Research Institute
FTP	File Transfer Protocol
GIS	Geographical Information System
JCWS	Johnson Controls Word Services
km2	Square kilometers
m2	Square meters
mg/L	Milligrams per liter
mS/cm	MilliSiemens per centimeter (equiv. to milliohms/cm)
MRRI	Marine Resources Research Institute
NCNERR	North Carolina National Estuarine Research Reserve
NCSU	North Carolina State University, NC
NA	Not Applicable
ng/g	Nanograms per gram
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
ORCA	Office of Ocean Resources Conservation and Assessment
QA/QC	Quality Assurance/Quality Control
ppb	Parts per billion (equiv. to ng/g)
ppm	Parts per million (equiv. to ug/g)

ppt	Parts per thousand
SAIC	Science Applications International Corporation
SCDNR	South Carolina Dept. of Natural Resources
TOC	Total Organic Carbon
TAMU/GERG	Texas A&M University, Geochemical and Environmental Research Group
TPMC	Technology Planning and Management Corporation
ug/g	Micrograms per gram
um	Micrometers
UC	University of Charleston, SC
UGA	University of Georgia, GA
UNC-W	University of North Carolina - Wilmington, NC
USGS-GB	US Geological Survey - Gulf Breeze, FL
wt.	Weight
WWW	World Wide Web -Internet

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