CATALOG DOCUMENTATION
EMAP-ESTUARIES PROVINCE LEVEL DATABASE
CAROLINIAN PROVINCE 1993-1997
STATION LOCATION AND INFORMATION DATA

TABLE OF CONTENTS

1. DATA SET IDENTIFICATION
2. INVESTIGATOR INFORMATION
3. DATA SET ABSTRACT
4. OBJECTIVES AND INTRODUCTION
5. DATA ACQUISITION AND PROCESSING METHODS
6. DATA MANIPULATIONS
7. DATA DESCRIPTION
8. GEOGRAPHICAL AND SPATIAL INFORMATION
9. QUALITY CONTROL/QUALITY ASSURANCE
10. DATA ACCESS
11. REFERENCES
12. TABLE OF ACRONYMS
13. PERSONNEL INFORMATION

1. DATA SET IDENTIFICATION

1.1 Title of Catalog Document

EMAP-Estuaries Province Level Database
Carolinian Province
Station Location and Information Data

1.2 Authors of the Catalog entry

Timothy R. Snoots,
Dr. Jeffrey L. Hyland

1.3 Catalog Revision Date

February 20, 1998

1.4 Data Set Name

CP_STAT.DAT
1.5 Task Group

Estuaries

1.6 Data set identification codes

1

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

J. Hyland (NOAA/NOS/NCCOS/CCMA) - Carolinian Province Manager
A. Ringwood (SCDNR) - Lead P.I. for SC/GA region team
C. Hackney (UNC-W) - Lead P.I. for NC region team
G. McRae, G. Nelson, J. McKenna, J. Landsberg (FLDEP) - Lead P.I.s for FL region team (depending on year)

2.2 Investigation Participant - Sample Collection

Field Sample Collection

T. Alphin, S. Bowen, C. Byrum, D. Dye, A. Gospodarek, J. Grace, J. Grimley, C. Hackney, C. Powell, C. Preziosi,
H. Riley, S. Roberts, M. Smith, K. Stokesbury, D. Tremain, T. Wheeler (UNC-W); S. Ross (NCNERR);
M. Armstrong-Taylor, J. Jones, M. Levinson, P. Powers, A. Ringwood, T. Snoots, G. Steele (SCDNR); L. Balthis,
T. Herrlinger, C. Keppler, M. Wert (UC); D. Adams, K. Amendola, D. Cook, C. Harnden, B. Heagey, J. McKenna,
G. Nelson, C. Nowicki, R. Paperno, B. Rosenblatt, M. Wessel (FLDEP); J. Hyland, S. Kokkinakis
(NOAA/NOS/ORCA)

Field Training and Coordination

S. Kokkinakis (NOAA/NOS/ORCA); J. Macauley (EPA-GED); T. Heitmuller (USGS-GB); D. Keith (EPA-AED)
2.3 Sampling Processing - Principal Investigator

Program Management and Coordination

J. Hyland, A. Robertson (NOAA/NOS/NCCOS/CCMA); K. Summers (EPA); F. Holland, A. Ringwood (SCDNR); C. Hackney, T. Wheeler (UNC-W); S. Ross (NCNERR); J. Landsberg, J. McKenna, G. McRae, G. Nelson, R. Paperno (FLDEP)

Contaminant Analyses

P. Boothe, J. Brooks, G. Denoux, B. Presley, T. Wade (TAMU/GERG)

Benthic Analyses

D. Goldman, M. Levisen, R. VanDolah (SCDNR); D. Camp, B. Lyons, T. Perkins (FLDEP); M. Posey, M. Smith (UNC-W); C. Way, M. Whitehurst (BVA)

Demersal Analyses

S. Ross (NCNERR); K. Stokesbury (UNC-W); P. Powers, G. Steele (SCDNR); C. Keppler, M. Wert (UC); J. Landsberg, J. McKenna, G. McRae, G. Nelson, R. Paperno (FLDEP)

Demersal Pathology Confirmation

J. Fournie (EPA-GED); E. Noga (NCSU); M. Rodon-Naveira (EPA-RTF)

Toxicity Testing

M. DeLorenzo (CU); J. Grimley (UNC-W); J. Jones, C. Keppler, P. Maier, A. Ringwood, R. Van Dolah (SCDNR); P. Ross (Citadel); C. Mueller, J. Scott, G. Thursby (SAIC)

QA/QC

T. Heitmuller (USGS-GB), S. Kokkinakis (NOAA/NOS/ORCA)

Data Management and Statistical Support

T. Snoots, F. Holland, R. VanDolah (SCDNR); L. Balthis, T. Herrlinger (UC); J. Rosen, L. Zimmerman (TPMC); S. Rathbun (UGA); M. Adams, L. Harwell (JCWS); V. Engle (EPA-GED); Z. Malaeb (USGS-GB); S. Hale (EPA-AED); K. Summers (EPA); T. Wilson (CU)
3. DATA SET ABSTRACT

3.1 Abstract of the Data set

The CP_STAT.DAT data set contains station names, geographic location, surface area, and other information about all stations sampled in the EMAP Carolinian Province from 1993-1997.

Although stations data are available for 1993, these stations were not part of the core EMAP sampling design for the Carolinian Province from 1994-1997. Data were collected in 1993 as part of a preliminary "Pilot Study". Station information for 1993 are provided because a few Carolinian Province data sets (available at a later date) may contain data from stations sampled in 1993.

The following reports are products of these and other data collected during the 1993-1997 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.


3.2 Keywords for the Data Set

sampling sites, station location, estuary, latitude, longitude, state, station, area, 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 CP_STAT.DAT data set contains station names, geographic location, surface area, and other information about all stations sampled in the EMAP Carolinian Province from 1993-1997.

4.3 Data Set Background Information

An overall goal of EMAP is to make statistically unbiased estimates of ecological condition with known confidence. To approach this goal, a probabilistic sampling framework was established among the overall population of estuaries comprising the Carolinian Province. Under this design, each sampling point is a statistically valid probability sample. Thus, percentages of estuarine area with values of selected indicators above or below suggested environmental guidelines can be estimated based on the conditions observed at individual sampling points. Statistical confidence intervals around these estimates also can be calculated. Moreover, these estimates can be combined with those for other regions that were sampled in a consistent manner to yield national estimates of estuarine condition.

As in other EMAP-E provinces (Strobel et al. 1994, Summers et al. 1993), the sampling design for base sites in the Carolinian Province was stratified based foremost on physical dimensions of an estuary. Estuaries were divided into three classes: large estuaries (area > 260 km2 and length/width aspect ratio < 20), small estuaries (area 2.6-260 km2), and large tidal rivers (tidally influenced portion of a river with detectable tides > 2.5 cm, area > 260 km2 and length/width aspect ratio > 20). The estuary class for each station is reported in the variable STRATA as LR (Large Estuary), SR (Small Estuary), SP (Replicate of Small Estuary), RR (Large Tidal River), and RP (Replicate of Large Tidal River). This classification scheme resulted in the identification of 200 estuaries with an overall surface area of 11,622 km2. The total is composed of three large estuaries,
three large tidal rivers, and 194 small estuaries with corresponding subpopulation areas of 5,581 km², 1,134 km², and 4,907 km², respectively. Currituck, Albemarle, and Pamlico Sounds—all in North Carolina—are the three large estuaries. The three large tidal rivers are the Neuse and Pamlico Rivers in North Carolina and the Indian River in Florida.

Stratification of the overall sampling area into classes of estuaries with similar attributes is necessary in order to minimize within-class sampling variability. Also, it is not feasible to sample all of the different types of estuaries that exist within a broad geographic region at the same spatial scale. Stratification by physical dimensions of an estuary was adopted because: (1) such attributes usually show minimal change over extended periods; (2) alternative classification variables such as salinity, sediment type, depth, and extent of pollutant loadings would result in the definition of classes for which areal extents could vary widely from year to year; (3) data for physically based classes can be aggregated into geographic units that are meaningful from a regulatory or general-interest perspective; and (4) estuarine boundaries can be delineated more readily and accurately from maps or charts of the physical dimensions of coastal areas than from maps of sediment or water-column characteristics.

Base sites in large estuaries were selected at random using a sampling grid approach similar to the one used in the EMAP Louisianian Province (Summers et al. 1993). A triangular lattice was placed initially over the study region and the resulting grid shifted randomly. A tessellation of the grid cells was performed next to partition the province into a series of contiguous hexagonal quadrats each with a surface area of 280 km². A station was then selected randomly from each of the hexagons coinciding with large estuaries.

Base sites in large tidal rivers were selected randomly using a "spine and rib" approach, also similar to the one used in the EMAP Louisianian Province (Summers et al. 1993). The design is basically a linear analog of the sampling grid for large estuaries. Segments of equal length (25 km) were established within the tidally influenced estuarine portions of the rivers (river mouths inland to salinities of ~ 0.5 ppt). Because the Indian River (a bar-built estuary with several inlets along its axis) is tidally influenced throughout its length, ten segments were established along this 250-km large tidal river. For the Neuse and Pamlico Rivers, two segments were established between the mouth of each river and the inland boundary of saltwater influence. A minimum of one sampling station was then selected randomly within each segment of each river.

Base sites in small estuaries were selected using a random list-frame approach. Prior to the first year of sampling, a list frame of all 194 small estuaries was constructed with the individual estuaries ordered from north to south. A random
starting point among the estuaries was selected. Beginning with that point, the estuaries were partitioned into spatial strata each composed of four neighboring small estuaries. This process continued until all estuaries on the list frame were partitioned. According to the design, each year over a four-year cycle, a new small estuary is chosen at random from the remaining unsampled estuaries comprising each group of four. An individual sampling site is then selected randomly for each estuary in a given year. A similar list-frame approach was used in the EMAP Louisianian Province (Summers et al. 1993), except that in the latter case the starting position for grouping estuaries was not randomized.

Under the sampling design, a new set of random stations in each of the estuarine classes should be selected and sampled each year over a four-year cycle. The same stations sampled in any given year also are intended to be resampled every four years to facilitate unbiased estimates of temporal trends.

Four types of stations are included in the CP_STAT data set. The variable CLASCODE can be used to distinguish between the following stations types:

Randomly Selected Base stations (CLASCODE = Random-Base) were randomly selected sites that made up the probability-based EMAP monitoring design as described above. Data collected from these sites were used to produce unbiased estimates of estuarine condition throughout the province based on the various synoptically measured indicators of environmental quality.

Supplemental stations (CLASCODE = Supplement) were sites selected non-randomly in areas for which there was some prior knowledge of the ambient environmental conditions. These sites, which represented pristine areas and places with histories of anthropogenic disturbance, were used to test the discriminatory power of various ecological indicators included in the program. NOTE: Because these stations were not randomly selected, they must not be used in any probability-based statistical analyses that require data from a random sample of Carolinian Province estuaries (e.g., these stations cannot be used in Cumulative Distribution Function [CDF] calculations of percent estuarine area).

Revisited sites (CLASCODE = Revisit) were former random base stations (sampled in previous years) representative of degraded and undegraded conditions in key types of habitat throughout the province. This re-sampling of former sites was conducted to confirm the existence of prior anthropogenic impacts in these specific systems, examine the degree to which the conditions have changed with time, and to provide a basis for understanding and predicting levels of impacts in different types of southeastern estuarine habitats.
Site-intensive stations (CLASCODE = Intensive) were sites selected to assess conditions within a specific estuary. NOTE: Because these stations were not randomly selected, they must not be used in any probability-based statistical analyses that require data from a random sample of Carolinian Province estuaries (e.g., these stations cannot be used in Cumulative Distribution Function [CDF] calculations of percent estuarine area).

4.4 Summary of Data Set Parameters

The CP_STAT.DAT data set contains the name, latitude, longitude, depth, state, statistical strata information, and statistical area of all stations sampled in the Carolinian Province from 1993-1997.

4.5 Year-Specific Information about Data

In 1993, sampling took place at a limited number of nonrandom stations as part of a preliminary Carolinian Province Pilot Study. This data was used to evaluate and select techniques to be used over the next 4 years of EMAP sampling in the Carolinian Province. Although station information for these sites is given in the CP_STAT.DAT data set, most other data sets do not contain data from 1993. Station location data was included for these stations because data from 1993 is reported in a few data sets that were used for the development and application of indicators of estuarine health such as the Index of Biotic Integrity for the Carolinian Province.

In 1994 and 1995, province-wide random sampling was completed in the Carolinian Province. Many supplemental stations of interest were sampled as well.

In 1996 and 1997, random sampling was completed in the North Carolina portion of the Carolinian Province only, due to funding constraints. In addition, in 1997 several stations of interest in the Carolinian Province that had been sampled in prior years were re-visited to confirm the existence of anthropogenic impacts, examine the degree to which the conditions have changed with time, and provide a basis for comparing impacts in different environmental regimes. Also in 1997, 10 stations in the Chowan River were sampled as an intensive assessment of the conditions within that estuary.

The following tables summarize station sampling efforts in the Carolinian Province from 1993-1997.
## Random Base Stations - Entire 4 year EMAP Statistical Design

<table>
<thead>
<tr>
<th></th>
<th>Large</th>
<th>Small</th>
<th>Tidal R.</th>
<th>Province</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ALL YEARS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Estuaries</td>
<td>3</td>
<td>194</td>
<td>3</td>
<td>200</td>
</tr>
<tr>
<td>Actual Area (km²)</td>
<td>5,581.1</td>
<td>4,907</td>
<td>1,134</td>
<td>11,622.1</td>
</tr>
</tbody>
</table>

## Random Base Stations - Actually Sampled in Carolinian Province

<table>
<thead>
<tr>
<th></th>
<th>Large</th>
<th>Small</th>
<th>Tidal R.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1994</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Stations</td>
<td>20</td>
<td>47</td>
<td>14</td>
<td>81</td>
</tr>
<tr>
<td>Number of Replicates</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Total Stations Sampled</td>
<td>20</td>
<td>47</td>
<td>17</td>
<td>84</td>
</tr>
<tr>
<td>Statistical Area (km²)</td>
<td>5,600</td>
<td>1,243.4</td>
<td>1,134</td>
<td>6,857.4</td>
</tr>
</tbody>
</table>

| **1995**             |       |       |          |       |
| Number of Stations   | 16    | 49    | 14       | 79    |
| Number of Replicates | 0     | 6     | 3        | 9     |
| Total Stations Sampled | 16  | 55    | 17       | 88    |
| Statistical Area (km²)| 4,480| 1,377.8 | 1,134 | 6,991.8 |

| **1996**             |       |       |          |       |
| Number of Stations   | 17    | 21    | 4        | 42    |
| Number of Replicates | 0     | 0     | 0        | 0     |
| Total Stations Sampled | 17  | 21    | 4        | 42    |
| Statistical Area (km²)| 4,760| 625.4  | 771.2   | 6,156.6 |

| **1997**             |       |       |          |       |
| Number of Stations   | 18    | 22    | 4        | 44    |
| Number of Replicates | 0     | 0     | 0        | 0     |
| Total Stations Sampled | 18  | 22    | 4        | 44    |
| Statistical Area (km²)| 5,040| 533.7  | 771.2   | 6,344.9 |

| **Four Year Totals** |       |       |          |       |
| Number of Stations   | 71    | 139   | 36       | 246   |
| Number of Replicates | 0     | 6     | 6        | 12    |
| Total Stations Sampled | 71  | 145   | 42       | 258   |

**Note:**
1. The full Carolinian Province statistical sampling design was sampled in 1994 and 1995. However, in 1996 and 1997 base station sampling was limited to stations in NC only.
2. Statistical area reported for Large estuaries is 280 km² per hexagon.
3. Statistical areas of replicated stations are only included once in totals.
Total Sampling Effort (Number of Stations Sampled)

<table>
<thead>
<tr>
<th>Station Type</th>
<th>1993</th>
<th>1994</th>
<th>1995</th>
<th>1996</th>
<th>1997</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Random-Base</td>
<td>0</td>
<td>81</td>
<td>79</td>
<td>42</td>
<td>44</td>
<td>246</td>
</tr>
<tr>
<td>Replicate</td>
<td>0</td>
<td>3</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Supplemental</td>
<td>24</td>
<td>13</td>
<td>21</td>
<td>0</td>
<td>0</td>
<td>58</td>
</tr>
<tr>
<td>Revisited</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Intensive</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>97</td>
<td>109</td>
<td>42</td>
<td>70</td>
<td>342</td>
</tr>
</tbody>
</table>

5. DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition

5.1.1 Sampling Objective

See section 4.3 (Data Set Background Information)

5.1.2 Sample Collection Method Summary

See section 4.3 (Data Set Background Information)

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

GPS and LORAN-C receivers for determining location and distance from planned station coordinates.
5.1.7 Manufacturer of Sampling Equipment

Differed by sampling vessel.

5.1.8 Key Variables

5.1.9 Sample Collection Method Calibration

Crews were expected to periodically validate navigational readings by comparing instrument readings against a fixed point with a known latitude and longitude.

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

5.1.10 Sample Collection Quality Control

A 0.05 nautical mile proximity standard was used to ensure that samples were collected as close as possible to the planned station location. If for certain reasons sampling could not take place within 0.05 nautical miles of the planned location (e.g., due to inadequate depth or safety concerns), an attempt was made to move the station to the nearest sampleable point in a random direction within the estuary. When a station was moved in this manner, the Carolinian Province Manager was notified of the new station location and the reason for its relocation. If a new station location could not be found, then the estuary was classified as unsampleable.

GPS and LORAN-C coordinates recorded in the field were compared to proposed station coordinates to assure that sample collection occurred within an acceptable distance of the proposed station location.

Field site audits were conducted during sampling seasons by the QA Officer to determine compliance with the Quality Assurance Plan and Field Operations Manual.

See: Hyland et al. (1996),
     Hyland et al. (1998),
     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

NA

5.2.2 Sample Processing Methods Summary

5.2.2.1 Field Summary

NA

5.2.2.2 Laboratory Summary

NA

5.2.3 Sample Processing Method Calibration

NA

5.2.4 Sample Processing Quality Control

NA

5.2.5 Sample Processing Method Reference

NA

5.2.6 Sample Processing Method Deviations

NA

6. DATA ANALYSIS AND MANIPULATIONS

6.1 Name of New or Modified Value

STA_AREA

6.2 Data Manipulation Description

STA_AREA is the statistical area of a station. Stations located in large estuaries each represent a fixed area of 280 km² (the area of the hexagon that the station represents in the sampling design for large estuaries). Stations in large tidal rivers represent the actual area of the river segment that they represent. Stations in small estuaries represent the actual area of the entire small estuary. Actual area of tidal river segments and small estuaries were determined using GIS analysis.

6.3 Data Manipulation Examples

NA
7. DATA DESCRIPTION

7.1 Description of Parameters

<table>
<thead>
<tr>
<th>Variable Type</th>
<th>Format</th>
<th>Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>STA_NAME</td>
<td>Char</td>
<td>7</td>
</tr>
<tr>
<td>CLASCODE</td>
<td>Char</td>
<td>11</td>
</tr>
<tr>
<td>STRATA</td>
<td>Char</td>
<td>2</td>
</tr>
<tr>
<td>STA_AREA</td>
<td>Num</td>
<td>5.1</td>
</tr>
<tr>
<td>ESTUARY</td>
<td>Char</td>
<td>30</td>
</tr>
<tr>
<td>LATDEG</td>
<td>Num</td>
<td>7.4</td>
</tr>
<tr>
<td>LNGDEG</td>
<td>Num</td>
<td>9.4</td>
</tr>
<tr>
<td>DEPTH</td>
<td>Num</td>
<td>4.1</td>
</tr>
<tr>
<td>STATE</td>
<td>Char</td>
<td>2</td>
</tr>
<tr>
<td>EMAPSTAT</td>
<td>Char</td>
<td>8</td>
</tr>
<tr>
<td>SEGMENT</td>
<td>Char</td>
<td>3</td>
</tr>
<tr>
<td>MAIASTAT</td>
<td>Char</td>
<td>10</td>
</tr>
</tbody>
</table>

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 STA_AREA and DEPTH are reported to, and are valid to 0.1 units. Variables LATDEG and LNGDEG are reported to, and are valid to 0.0001 units.

7.1.7 Minimum Value in Data Set

<table>
<thead>
<tr>
<th>Variable</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>STA_AREA</td>
<td>2.7</td>
</tr>
<tr>
<td>DEPTH</td>
<td>0.1</td>
</tr>
<tr>
<td>LATDEG</td>
<td>27.2012</td>
</tr>
<tr>
<td>LNGDEG</td>
<td>-81.7305</td>
</tr>
</tbody>
</table>
7.1.8 Maximum Value in Data Set

<table>
<thead>
<tr>
<th>Variable</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>STA_AREA</td>
<td>280.0</td>
</tr>
<tr>
<td>DEPTH</td>
<td>13.0</td>
</tr>
<tr>
<td>LATDEG</td>
<td>36.7238</td>
</tr>
<tr>
<td>LNGDEG</td>
<td>-75.5637</td>
</tr>
</tbody>
</table>

7.2 Data Record Example

7.2.1 Column Names for Example Records

STA_NAME;CLASCODE;STRATA;STA_AREA;ESTUARY;LATDEG;LNGDEG;DEPTH;STATE;EMAPSTAT;SEGMENT;MAIASTAT

7.2.2 Example Data Records

CP93BKY;Supplement; ;.;Brickyard Creek;32.8348;-80.0035;.; SC; ;
CP93BRU;Supplement; ;.;Brunswick River;31.1893;-81.5218;.; GA; ;
CP93WKY;Supplement; ;.;Whiskey Creek;34.1567;-77.8500;.; NC; ;
CP94015;Random-Base;SR;5.7;Guana River;30.0362;-81.3317;.; FL;CA94SR47; ;
CP94017;Random-Base;SR;6.2;Trout River;30.3975;-81.6453;1.0; FL;CA94SR45; ;
CP94018;Random-Base;SR;9.3;Nassau Sound;30.5155;-81.4435; 7.0;FL;CA94SR44; ;

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

Sampling occurred 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 section 5.1.9 (Sample Collection Method Calibration) and section 5.1.10 (Sample Collection Quality Control) above.

9.2 Quality Assurance/Control Methods

See section 5.1.9 (Sample Collection Method Calibration) and section 5.1.10 (Sample Collection Quality Control) above.

9.3 Quality Assessment Results

NA

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:
Dr. Jeffrey L. Hyland
NOAA/NOS National Centers for Coastal Ocean Science
Center for Coastal Monitoring and Assessment – Charleston Lab
217 Fort Johnson Rd. (P.O. Box 12559)
Charleston, SC 29422-2559
(843)762-5415 (Tel.)
(843)762-5110 (FAX)
jeff.hyland@noaa.gov (e-mail)

For data-related questions, contact:
Dr. W. Leonard Balthis
NOAA/NOS National Centers for Coastal Ocean Science
Center for Coastal Monitoring and Assessment – Charleston Lab
217 Fort Johnson Rd. (P.O. Box 12559)
Charleston, SC 29422-2559
(843)762-5652 (Tel.)
(843)762-5110 (FAX)
len.balthis@noaa.gov (e-mail)
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.

11. REFERENCES


12. **TABLE OF ACRONYMS**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Degrees Celsius</td>
</tr>
<tr>
<td>cm&lt;sup&gt;2&lt;/sup&gt;</td>
<td>Square centimeters</td>
</tr>
<tr>
<td>CMBAD</td>
<td>Coastal Monitoring and Bioeffects Assessment Division</td>
</tr>
<tr>
<td>CU</td>
<td>Clemson University</td>
</tr>
<tr>
<td>EMAP</td>
<td>Environmental Monitoring and Assessment Program</td>
</tr>
<tr>
<td>EPA</td>
<td>U.S. Environmental Protection Agency</td>
</tr>
<tr>
<td>EPA-AED</td>
<td>EPA-Atlantic Ecology Division</td>
</tr>
<tr>
<td>EPA-GED</td>
<td>EPA-Gulf Ecology Division</td>
</tr>
<tr>
<td>EPA-RTP</td>
<td>EPA-Research Triangle Park, NC</td>
</tr>
<tr>
<td>FLDEP</td>
<td>Florida Dept. of Environmental Protection</td>
</tr>
<tr>
<td>FMRI</td>
<td>Florida Marine Research Institute</td>
</tr>
<tr>
<td>FTP</td>
<td>File Transfer Protocol</td>
</tr>
<tr>
<td>GIS</td>
<td>Geographical Information System</td>
</tr>
<tr>
<td>JCWS</td>
<td>Johnson Controls Word Services</td>
</tr>
<tr>
<td>km&lt;sup&gt;2&lt;/sup&gt;</td>
<td>Square kilometers</td>
</tr>
<tr>
<td>m&lt;sup&gt;2&lt;/sup&gt;</td>
<td>Square meters</td>
</tr>
<tr>
<td>mg/L</td>
<td>Milligrams per liter</td>
</tr>
<tr>
<td>mS/cm</td>
<td>MilliSiemens per centimeter (equiv. to millimhos/cm)</td>
</tr>
<tr>
<td>MRRI</td>
<td>Marine Resources Research Institute</td>
</tr>
<tr>
<td>NCNERR</td>
<td>North Carolina National Estuarine Research Reserve</td>
</tr>
<tr>
<td>NCSU</td>
<td>North Carolina State University, NC</td>
</tr>
<tr>
<td>NA</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>ng/g</td>
<td>Nanograms per gram</td>
</tr>
<tr>
<td>NOAA</td>
<td>National Oceanic and Atmospheric Administration</td>
</tr>
<tr>
<td>NOS</td>
<td>National Ocean Service</td>
</tr>
<tr>
<td>ORCA</td>
<td>Office of Ocean Resources Conservation and Assessment</td>
</tr>
<tr>
<td>QA/QC</td>
<td>Quality Assurance/Quality Control</td>
</tr>
<tr>
<td>ppb</td>
<td>Parts per billion (equiv. to ng/g)</td>
</tr>
<tr>
<td>ppm</td>
<td>Parts per million (equiv. to ug/g)</td>
</tr>
<tr>
<td>ppt</td>
<td>Parts per thousand</td>
</tr>
<tr>
<td>SAIC</td>
<td>Science Applications International Corporation</td>
</tr>
<tr>
<td>SCDNR</td>
<td>South Carolina Dept. of Natural Resources</td>
</tr>
<tr>
<td>TOC</td>
<td>Total Organic Carbon</td>
</tr>
</tbody>
</table>
13. PERSONNEL INFORMATION

Dr. Courtney T. Hackney
University of North Carolina - Wilmington,
Wilmington, NC

Melissa M. Hughes
Data Librarian, EMAP-Estuaries
OAO Corporation
U.S. EPA NHEERL-AED
27 Tarzwell Drive
Narragansett, RI 02882-1197
(401) 782-3184 (Tel.)
(401) 782-3030 (FAX)
hughes.melissa@epamail.epa.gov (e-mail)

For programmatic/policy matters, contact:
Dr. Jeffrey L. Hyland
NOAA/NOS National Centers for Coastal Ocean Science
Center for Coastal Monitoring and Assessment - Charleston Lab
217 Fort Johnson Rd. (P.O. Box 12559)
Charleston, SC 29422-2559
(843) 762-5415 (Tel.)
(843) 762-5110 (FAX)
jeff.hyland@noaa.gov (e-mail)

For data-related questions, contact:
Dr. W. Leonard Balthis
NOAA/NOS National Centers for Coastal Ocean Science
Center for Coastal Monitoring and Assessment - Charleston Lab
217 Fort Johnson Rd. (P.O. Box 12559)
Charleston, SC 29422-2559
(843) 762-5652 (Tel.)
(843) 762-5110 (FAX)
len.balthis@noaa.gov (e-mail)

Jan Landsberg
Florida Dept. of Environmental Protection
Florida Marine Research Institute
St. Petersburg, FL

James McKenna
Florida Dept. of Environmental Protection
Florida Marine Research Institute
St. Petersburg, FL

Dr. Gil McRae
Florida Dept. of Environmental Protection
Florida Marine Research Institute
St. Petersburg, FL

Gary A. Nelson
Florida Dept. of Environmental Protection
Florida Marine Research Institute
St. Petersburg, FL

Dr. Amy H. Ringwood
South Carolina Dept. of Natural Resources,
Marine Resources Research Institute
Charleston, SC