1. Identification Information
1.1Citation Information
8.1 Originator: Richard Dame
8.1 Originator: Leah Gregory
8.1 Originator: Department of Marine Science, Coastal Carolina University
8.1 Originator: University of South Carolina, Belle W. Baruch Institute for Marine and Coastal Sciences
8.2 Publication Date: 20000701
8.4 Title: CREEK Project's Water Chemistry, Chlorophyll *a*, and Suspended Sediment Weekly Monitoring Database for Eight Creeks in the North Inlet Estuary, South Carolina: 1997-2000.
8.6 Geospatial Data Presentation Form: comma delimited digital data and spreadsheet
8.8 Publication Information:
8.8.1 Publication Place: Baruch Marine Field Laboratory, Georgetown, SC USA
8.8.2 Publisher: Belle W. Baruch Institute for Marine and Coastal Sciences, University of South Carolina
8.10 Online linkage: http://links.baruch.sc.edu/data/
8.11 Larger work citation
8. Citation Information
8.1 Originator: Richard Dame
8.1 Originator: Dave Bushek
8.1 Originator: Dennis Allen
8.1 Originator: Don Edwards
8.1 Originator: Alan Lewitus
8.1 Originator: Eric Koepfler
8.1 Originator: Bjorn Kjerfve
8.1 Originator: Leah Gregory
8.1 Originator: Department of Marine Science, Coastal Carolina University
8.1 Originator: Belle W. Baruch Institute for Marine and Coastal Sciences, Department of Marine Science, and Department of Statistics of the University of South Carolina
8.2 Publication Date: 20000730
8.4 Title: CREEK Project: RUI: the Role of Oyster Reefs in the Structure and Function of Tidal Creeks. A Project Overview.
8.6 Geospatial Data Presentation Form: NSF Proposal
8.8 Publication Information:
8.8.1 Publication Place: Baruch Marine Field Laboratory, Georgetown, SC
8.8.2 Publisher: Belle W. Baruch Institute for Marine and Coastal Sciences, University of South Carolina
8.9 Other Citation Details: This is a large 5 year monitoring program which contains multiple subprojects involving the study of the role of other estuarine subcomponents such as nekton, microzooplankton, phytoplankton, oyster diseases, and water chemistry. See cross reference section - this metadata file.

1.2 Description
1.2.1 Abstract:
A group of eight tidal creeks dominated by oysters, *Crassostrea virginica,* in North Inlet Estuary, South Carolina, USA were studied using a replicated BACI (Before - After Control - Incident) design in which all creeks are sampled simultaneously. The study known as the CREEK Project began in January 1996. Based on detailed geomorphological observations from North Inlet creeks, by fall of 1996, eight small intertidal creeks had been selected based on similarities in size and configuration. Nutrients and chlorophyll *a* were measured weekly in each creek and exhibited seasonal and inter-annual influences. Triplicate 1000-ml (one Liter) water samples were collected weekly from March 1997 to February 2000 at a depth of 1.0 meter below the water's surface three hours after high tide from each of the eight experimental creeks. Water temperature was recorded at the time of collection; time was recorded in DST. The water samples were analyzed for chlorophyll a, nitrogen [total nitrogen filtered (TNF), ammonia (NH4), and nitrate (NO3)], phosphorus [total phosphorus filtered (TPF), and orthophosphate (PO4)], organic carbon [dissolved (DOC)], and suspended sediment [Total Suspended Sediment (SusSol), Organic Suspended Sediment (OSS), Inorganic Suspended Sediment (ISS)]. Salinity was measured when the samples were brought into the laboratory for processing.

1.2.2 Purpose:
The CREEK Project water chemistry program was initiated in March 1997 to monitor nutrient cycling in the eight experimental creeks. A larger purpose of this monitoring program was to combine the water chemistry, chlorophyll a, and suspended sediment monitoring data with other aspects of the CREEK Project (i.e. nekton, oyster and phytoplankton) ecological monitoring data to provide ecosystem level information and understanding about the role of oyster reefs.

1.2.3. Supplemental Information:
In the original raw weekly Microsoft Excel spreadsheets; the Organic Solids and Ashfree Dry Weight (AFDW) were labeled together in the same column within the Suspended Solids worksheet. This was incorrect because AFDW by definition represents inorganic suspended solids (ISS), not organic suspended solids (OSS). However, the formula within the column calculated the organic suspended solids (OSS). Therefore, AshfreeSS actually represented the OSS values within all of the raw worksheets. In February of 2004 the Rescue Data Manager corrected the problem by renaming the column as OSS and by calculating and creating an ISS variable and file. The term, ISS, was used to replace the term, AshfreeSS, which is used in the original raw spreadsheets. No changes were made to the original raw files, but copies and changes were made to these files. These new corrected files were placed in the DATA directory in the "RESCUE2003.PROCESS" directory and were also carried forward into the RESCUE2003.FINAL directory. See the section called "**Resource Description"** for Directory and Files listings.

Several other datasets were collected over varying periods during the four years. Oyster biomass data was collected to determine the natural average biomass of oysters within intertidal creeks so that all creeks could be adjusted to that average level and subsequently to monitor changes in oyster biomass since elucidating the role of oysters was the primary purpose of the overall study. Intensive planktonic - microbial loop sampling and experiments were conducted in selected creeks at various times. Collections of all nekton in creeks during bankfull neap tides were conducted seasonally during three years of the project, one pre-manipulation year and two post-manipulation years. Oyster growth was measured monthly during the same period of nekton collections. Infection intensities of the oyster parasite, *Perkinsus marinus*, were made in fall of the pre-manipulation year and once following the manipulation. See the Creek Project Overview documentation for information on publications, presentations, and other undergraduate and graduate research project topics.

Summary of important results:
Although covering 25-70% (avg.40%) of intertidal creek bottoms, oysters do not dominate faunal biomass or the remineralization of nutrients.
Totally unexpected was the finding that summer nekton (fishes, shrimps, crabs) biomass is higher than oyster biomass.
Nekton prefer certain creeks to others and these distributions are related to creek shape, mean depth, flooding and discharge rate, and distance to upland ridge, but not creek size (volume, area, or length).
A tag/recapture study by a student found that pinfish migrated into flooding creeks but did not move among creeks.
El Niño, a global environmental event, was clearly evident from the analysis of three years of weekly chlorophyll and nutrient data (1997-2000).
Utilizing limited literature values and preliminary experiments, a simple budget for ammonium indicated that nekton inputs were considerably greater than oyster excretion as a source to intertidal creeks.

Map of the eight creek sites can be found at http://links.baruch.sc.edu/data/CREEK/CreekOysterBiomass/OysterBio.htm or in the printed version of the Creek Project Overview documentation that is in a Project notebook at the BFML.

1.3 Time Period of Content:
9.3 Range of Dates/Times
9.3.1 Beginning Date: 19970319
9.3.3 Ending Date: 20000223

1.3.1 Currentness Reference: Ground condition; however, data values were determined by autoanaylzer (technicon) a few days to a few weeks after water samples were collected, depending upon which variable was being analyzed.

1.4 Status:
1.4.1 Progress: Complete
1.4.2 Maintenance and update frequency: As needed

99.1.5.1 Description of Geographic Extent:
All eight creeks reside in North Inlet estuary, four off of Clambank Creek, and four off of Town Creek. The North Inlet Estuary (33.20'N, 79.10'W) lies east of the uplands of Hobcaw Barony (also known as the Belle W. Baruch Property). The Estuary is located in Georgetown County, South Carolina.

1.5.1.1 West Bounding Coordinate: -79.192
1.5.1.2 East Bounding Coordinate: -79.167
1.5.1.3 North Bounding Coordinate: 33.350
1.5.1.4 South Bounding Coordinate: 33.327

1.6 Keywords

1.6.1 Theme

1.6.1.1 Theme Keyword Thesaurus:	None
1.6.1.2 Theme Keyword:	AMMONIA
1.6.1.2 Theme Keyword:	CHLOROPHYLL A
1.6.1.2 Theme Keyword:	COASTAL
1.6.1.2 Theme Keyword:	CREEK PROJECT
1.6.1.2 Theme Keyword:	CARBON
1.6.1.2 Theme Keyword:	DISSOLVED ORGANIC CARBON
1.6.1.2 Theme Keyword:	ECOSYSTEMS
1.6.1.2 Theme Keyword:	ESTUARINE COMMUNITIES
1.6.1.2 Theme Keyword:	ESTUARINE
1.6.1.2 Theme Keyword:	ESTUARY
1.6.1.2 Theme Keyword:	INORGANIC SUSPENDED SOLIDS
1.6.1.2 Theme Keyword:	ORGANIC SUSPENDED SOLIDS
1.6.1.2 Theme Keyword:	WATER CHEMISTRY
1.6.1.2 Theme Keyword:	TIDAL CREEK
1.6.1.2 Theme Keyword:	MARSH
1.6.1.2 Theme Keyword:	SALT MARSH
1.6.1.2 Theme Keyword:	NITRATE
1.6.1.2 Theme Keyword:	NITRITE
1.6.1.2 Theme Keyword:	NUTRIENT CHEMISTRY
1.6.1.2 Theme Keyword:	NUTRIENT CYCLING
1.6.1.2 Theme Keyword:	NITROGEN
1.6.1.2 Theme Keyword:	ORTHOPHOSPHATE
1.6.1.2 Theme Keyword:	PHOSPHATE
1.6.1.2 Theme Keyword:	PHOSPHORUS
1.6.1.2 Theme Keyword:	SALINITY
1.6.1.2 Theme Keyword:	SUSPENDED SEDIMENT
1.6.1.2 Theme Keyword:	TOTAL SUSPENDED SOLIDS
1.6.1.2 Theme Keyword:	WATER TEMPERATURE
1.6.1.2 Theme Keyword:	WATER QUALITY
1.6.1.2 Theme Keyword:	FIELD EXPERIMENT

1.6.2 Place

1.6.2.1 Place Keyword Thesaurus:	None
1.6.2.2 Place Keyword:	NORTH INLET ESTUARY
1.6.2.2 Place Keyword:	SOUTH CAROLINA
1.6.2.2 Place Keyword:	TOWN CREEK
1.6.2.2 Place Keyword:	CLAMBANK CREEK
1.6.2.2 Place Keyword:	EAST COAST
1.6.2.2 Place Keyword:	SOUTHEAST COAST
1.6.2.2 Place Keyword:	COASTAL
1.6.2.2 Place Keyword:	GEORGETOWN COUNTY
1.6.2.2 Place Keyword:	USA

1.6.3 Stratum

1.6.3.1 Stratum Keyword Thesaurus:	None
1.6.3.2 Stratum Keyword:	WATER COLUMN
1.6.3.2 Stratum Keyword:	SURFACE WATERS

1.6.4 Temporal

1.6.4.1 Temporal Keyword Thesaurus:	None
1.6.4.2 Temporal Keyword:	1997
1.6.4.2 Temporal Keyword:	1998
1.6.4.2 Temporal Keyword:	1999
1.6.4.2 Temporal Keyword:	2000
1.6.4.2 Temporal Keyword:	1997-2000

1.7 Access Constraints:

None; however, it is strongly recommended that these data be acquired directly from the Belle W. Baruch Institute for Marine and Coastal Sciences and not indirectly through other sources which may have changed the data in some way.

1.8 Use Constraints:

Following academic courtesy standards, the PIs (originators), the University of South Carolina's Belle W. Baruch Institute for Marine and Coastal Sciences, Coastal Carolina University, and Grantor (see Data Set Credit section) should be fully acknowledged in any subsequent publications in which any part of these data are used. Use of the data without completely reading and understanding the metadata is not recommended. The Baruch Institute, Coastal Carolina University, Baruch Institute and Coastal Carolina researchers, and Grantor are not responsible for the use and/or misuse of data from this database. See the section on Distribution Liability for more information.

1.9 Point of Contact:

10.2 Contact Organization Primary	
10.2.1 Contact Organization:	Univ. of South Carolina's Baruch Institute
10.2.2 Contact Person:	Ginger Ogburn-Matthews
10.3 Contact Position:	Research Data Manager & Analyst
10.4 Contact Address	
10.4.1 Address Type:	Mailing Address
10.4.2 Address:	USC Baruch Marine Field Laboratory
10.4.2 Address:	P.O. Box 1630
10.4.3 City:	Georgetown
10.4.4 State or Province:	South Carolina
10.4.5 Postal Code:	29442
10.4.6 Country:	USA
10.5 Contact Voice Telephone:	(843) 546-6219
10.7 Contact Facsimile Telephone:	(843) 546-1632
10.8 Contact Electronic Mail Address:	ginger@belle.baruch.sc.edu
10.9 Hours of Service:	8:30 am to 4:30 pm Mon.- Friday

1.11 Data Set Credit:

Funding was provided by the National Science Foundation, grant DEB_95_0957 to Coastal Carolina University and the University of South Carolina's Belle W. Baruch Institute, with Dr. Richard Dame as project director. Numerous researchers and students contributed to these datasets.

1.14 Native Data Set Environment

Data are in Microsoft Excel 2000 Professional and csv formats. Metadata are in MS Word 2000 Professional and txt formats. Graphics are in SigmaPlot 8.0 and jpg formats.

1.15 Cross Reference:
8. Citation Information
8.1 Originator: Richard Dame
8.1 Originator: David Bushek
8.1 Originator: Dennis Allen
8.1 Originator: Leah Gregory
8.1 Originator: Don Edwards
8.1 Originator: Alan Lewitus
8.1 Originator: Sarah Crawford
8.1 Originator: Eric Koepfler
8.1 Originator: Bjorn Kjerfve
8.1 Originator: Theo Prins
8.1 Originator: Chris Corbett
8.1 Originator: Department of Marine Science, Coastal Carolina University
8.1 Originator: Belle W. Baruch Institute for Marine and Coastal Sciences, Department of Statistics of the University of South Carolina
8.2 Publication Date: 20000730
8.4 Title: The experimental analysis of tidal creeks dominated by oyster reefs: the premanipulation year
8.6 Geospatial Data Presentation Form: Scientific publication
8.8 Publication Information:
8.8.1 Publication Place: Unknown
8.8.2 Publisher: Journal of Shellfish Research
8.9 Other Citation Details: Volume19:1, pages 361-369.

1.15 Cross Reference:
8. Citation Information
8.1 Originator: David Bushek
8.1 Originator: Richard Dame
8.1 Originator: Leah Gregory
8.1 Originator: Department of Marine Science, Coastal Carolina University
8.1 Originator: Belle W. Baruch Institute for Marine and Coastal Sciences and Department of Statistics of the University of South Carolina
8.2 Publication Date: 20030808
8.4 Title: CREEK Project's Oyster Biomass Database for Eight Creeks in the North Inlet Estuary, South Carolina
8.6 Geospatial Data Presentation Form: comma delimited digital data and spreadsheet
8.8 Publication Information:
8.8.1 Publication Place: Belle W. Baruch Marine Field Laboratory, Georgetown, South Carolina USA
8.8.2 Publisher: Belle W. Baruch Institute for Marine and Coastal Sciences, University of South Carolina
8.10 Online linkage: http://links.baruch.sc.edu/data/

1.15 Cross Reference:
8. Citation Information
8.1 Originator: Dennis Allen
8.1 Originator: Richard Dame
8.1 Originator: Leah Gregory
8.1 Originator: Department of Marine Science, Coastal Carolina University
8.1 Originator: Belle W. Baruch Institute for Marine and Coastal Sciences and Department of Statistics of the University of South Carolina
8.2 Publication Date: 2004
8.4 Title: CREEK Project's Nekton Monitoring Database for Eight Creeks in the North Inlet Estuary, South Carolina
8.6 Geospatial Data Presentation Form: comma delimited digital data and spreadsheet
8.8 Publication Information:
8.8.1 Publication Place: Baruch Marine Field Laboratory, Georgetown, SC
8.8.2 Publisher: Belle W. Baruch Institute for Marine and Coastal Sciences, University of South Carolina
8.10 Online linkage: http://links.baruch.sc.edu/data/

1.15 Cross Reference:
8. Citation Information
8.1 Originator: Richard Dame

8.1 Originator: Alan Lewitus
8.1 Originator: Eric Koepfler
8.1 Originator: Department of Marine Science, Coastal Carolina University
8.1 Originator: Belle W. Baruch Institute for Marine and Coastal Sciences and Department of Statistics of the University of South Carolina
8.2 Publication Date: Unpublished material
8.4 Title: CREEK Project's Microzooplankton Seasonal Monitoring Database for Eight Creeks in the North Inlet Estuary, South Carolina
8.6 Geospatial Data Presentation Form: comma delimited digital data and spreadsheet
8.8 Publication Information:
8.8.1 Publication Place: Baruch Marine Field Laboratory, Georgetown, SC
8.8.2 Publisher: Belle W. Baruch Institute for Marine and Coastal Sciences, University of South Carolina

1.15 Cross Reference:
8.1 Originator: Alan Lewitus
8.1 Originator: Raphael Tymowski
8.1 Originator: Ivy Collins
8.1 Originator: Department of Marine Science, Coastal Carolina University
8.1 Originator: Belle W. Baruch Institute for Marine and Coastal Sciences and Department of Statistics of the University of South Carolina
8.2 Publication Date: 20050228
8.4 Title: CREEK Project's Phytoplankton Pigment Monitoring Database for Eight Creeks in the North Inlet Estuary, South Carolina: 1997-1999
8.6 Geospatial Data Presentation Form: comma delimited digital data and Microsoft Excel spreadsheet
8.8 Publication Information:
8.8.1 Publication Place: Baruch Marine Field Laboratory, Georgetown, SC USA
8.8.2 Publisher: Belle W. Baruch Institute for Marine and Coastal Sciences, University of South Carolina
8.10 Online linkage: http://links.baruch.sc.edu/data/

1.15 Cross Reference:
8. Citation Information
8.1 Originator: Richard Dame
8.1 Originator: David Bushek
8.1 Originator: Department of Marine Science, Coastal Carolina University
8.1 Originator: Belle W. Baruch Institute for Marine and Coastal Sciences and Department of Statistics of the University of South Carolina
8.2 Publication Date: 2004
8.4 Title: CREEK Project's Oyster Disease Monitoring Database for Eight Creeks in the North Inlet Estuary, South Carolina
8.6 Geospatial Data Presentation Form: comma delimited digital data and spreadsheet
8.8 Publication Information:
8.8.1 Publication Place: Baruch Marine Field Laboratory, Georgetown, SC
8.8.2 Publisher: Belle W. Baruch Institute for Marine and Coastal Sciences, University of South Carolina
8.10 Online linkage: http://links.baruch.sc.edu/data/

1.15 Cross Reference:
8. Citation Information
8.1 Originator: Richard Dame
8.1 Originator: Bjorn Kjerfve
8.1 Originator: Chris Corbett
8.1 Originator: Department of Marine Science, Coastal Carolina University
8.1 Originator: Belle W. Baruch Institute for Marine and Coastal Sciences and Department of Statistics of the University of South Carolina
8.2 Publication Date: 2004
8.4 Title: CREEK Project's Tidal Creek Geomorphology Database for Eight Creeks in the North Inlet Estuary, South Carolina
8.6 Geospatial Data Presentation Form: comma delimited digital data and spreadsheet
8.8 Publication Information:
8.8.1 Publication Place: Baruch Marine Field Laboratory, Georgetown, SC
8.8.2 Publisher: Belle W. Baruch Institute for Marine and Coastal Sciences, University of South Carolina
8.10 Online linkage: http://links.baruch.sc.edu/data/

1.15 Cross Reference:
8. Citation Information
8.1 Originator: Dennis Allen
8.1 Originator: David Bushek
8.1 Originator: Brian Milan
8.1 Originator: Department of Marine Science, Coastal Carolina University
8.1 Originator: Belle W. Baruch Institute for Marine and Coastal Sciences and Department of Statistics of the University of South Carolina
8.2 Publication Date: Unpublished material
8.4 Title: CREEK Project's Internal Creek Habitat Survey for Eight Creeks in the North Inlet Estuary, South Carolina
8.6 Geospatial Data Presentation Form: comma delimited digital data and spreadsheet

1.15 Cross Reference:
8. Citation Information
8.1 Originator: Richard Dame
8.1 Originator: David Bushek
8.1 Originator: Department of Marine Science, Coastal Carolina University
8.1 Originator: Belle W. Baruch Institute for Marine and Coastal Sciences and Department of Statistics of the University of South Carolina
8.2 Publication Date: 2004
8.4 Title: CREEK Project's Oyster Growth and Survival Monitoring Database for Eight Creeks in the North Inlet Estuary, South Carolina
8.6 Geospatial Data Presentation Form: comma delimited digital data and spreadsheet
8.8 Publication Information:
8.8.1 Publication Place: Baruch Marine Field Laboratory, Georgetown, SC
8.8.2 Publisher: Belle W. Baruch Institute for Marine and Coastal Sciences, University of South Carolina
8.10 Online linkage: http://links.baruch.sc.edu/data/

2. Data Quality Information
2.1 Attribute Accuracy
2.1.1 Attribute Accuracy Report:
Various control measures were taken to monitor the operation of the Technicon Auto Analyzers. Standard curves were analyzed in order to insure linearity and instrument stability. For TN and TP five blanks were prepared and analyzed to determine the level of contamination of the oxidizing reagent used in each batch of total nitrogen and total phosphorus samples. These blanks were run in duplicate and the lowest value was used as a correction for that batch of total samples.

Samples, which were analyzed for dissolved organic carbon (DOC) on the SHIMADZU TOC-500 Carbon Analyzer, were run in triplicate and means were reported.

Chlorophyll a values were determined by standard method of Fluorometric Analysis. The fluorometer was calibrated by running standard curves, which were then used to generate correction equations.

All recorded sediment weights were determined using a four-place Analytical Balance with a standard deviation of (+/-) 0.1 mg.

2.1.2 Quantitative Attribute Accuracy Assessment
2.1.2 .1 Attribute Accuracy Value

Total Nitrogen Filtered (TNF)	± 1 micromoles per liter*
Total Phosphorus Filtered (TPF)	± 1 micromoles per liter*
Ortho phosphate (PO4)	± 0.08 micromoles per liter*
Ammonia (NH_4)	± 0.2 micromoles per liter*
Nitrate (NO3)	± 0.1 micromoles per liter*
Dissolved Organic Carbon (DOC)	± 0.1 milligrams per liter
Total Suspended Solids (SusSol)	± 0.001 grams per liter (± 1 milligram per liter)
Organic Suspended Solids (OSS)	± 0.001 grams per liter (± 1 milligram per liter)
Inorganic Suspended Solids (ISS)	± 0.001 grams per liter (± 1 milligram per liter)
Chlorophyll a (Chla)	± 0.1 micrograms per liter (µg/l)
Salinity	± 2 parts per thousand
Water Temperature	± 1 degrees Celsius

[micromoles per liter (µM/L) = microgram atoms per liter (µg atoms/L)

Parameter	Number of Decimal Places
TNF	1
TPF	1
PO4	2
NH4	2
NO3	2
DOC	1
SusSol	3
OSS	3
ISS	3
CHLA	2
SAL	0
TEMP	0

2.1.2.2 Attribute Accuracy Explanation

TNF and TPF: The Technicon Autoanalyzer used for these analyses reports values to three decimal places, but due to variations and slight contamination of the oxidizing reagent, handling, and processing of the water samples, the accuracy of the final values is only to ± 1 micromoles per liter. However, the measurements (reported in micromoles per liter) are reported with one decimal place. Negative calculated values for total nitrogen and phosphorus can occur and negative values are the result of mathematical manipulation of the raw values.

PO4, NH4, and NO3: The handling and processing of these nutrients is more accurate, and there is less room for error. The measurements (reported in micromoles per liter) are given with two decimal places.

DOC: A Shimadzu Carbon analyzer was used that reads to the nearest one hundredth, but because the final value is an average of the three values, the nearest tenth of a milligram per liter is used (one decimal place).

SusSol, OSS, and ISS: The balance reads to the fourth decimal place of a gram (ten thousands of a gram), but humidity in the air can influence the filters, so the 3rd decimal place is read and assumed accurate (±0.001 g = ± 1 milligram). Measurements are reported in grams/liter with three decimal places in the database.

Chlorophyll a: Strickland and Parsons (1972) say that detection limits depend upon the volume filtered and the sensitivity of the fluorometer. Using a Turner fluorometer, the accuracy limit documentation states a limit of 0.01 µg/L when 2 L was filtered. Because we filter 10-20 ml, the accuracy would be much less. We are estimating that our chlorophyll accuracy is 0.1 µg/L at best. No tests have been done to verify this. Measurements are reported in micrograms/liter with two decimal places in the database.

Strickland, J.D.H., and T.R. Parsons. 1972. A Practical Handbook of Seawater Analysis, Seconded. Ottawa: Fisheries Research Board of Canada. 309pp.

Salinity: Refractometer has lines that represent every two part per thousands and can be read to the nearest part per thousand; but the instrument is only accurate ± 2 parts per thousand. The measurements are reported in parts per thousand with no decimal places in the database.

Water temperature: Thermometers have lines for each degree C. Could only read to the nearest 1°C with no decimal places in the database.

2.2 Logical Consistency Report:
Negative calculated values for total nitrogen & total phosphorus (TNF, TPF) can occur. These negative values are not generated by the Technicon Autoanalyzer. Negative values are the result of mathematical manipulation of the raw values. Very low values approaching the lower detection limit should be suspect and considered zero values. The actual negative values should be viewed as an indicator of the range of error involved in the method for analysis.

Negative values can occur for one or a combination of the following reasons:
1) The nutrient concentration of the sample approaches the minimum detection limit of the technique – the assumption is that the baseline drift on the technicon is both linear & incremental
2) Errors were incurred during the preparation of the samples for analysis
3) Subtraction of the oxidation reagent blank from the very low total nutrient concentration

These values are reported as negative values in the final data set, they are not changed to zero.

Negative values for Orthophosphate (PO4) and Nitrate (NO3) also indicate that the concentration of the sample is below the minimum detection limit of the technique, these values should be viewed as an indicator of the range of error involved in the method of analysis and are reported as negative, they are not changed to zero.

Negative values for Total Suspended Solids (SusSol), Organic Suspended Solids (OSS), and Inorganic Suspended Solids (ISS) are rare, but can exist due to the measuring error of the electronic balance plus the minute amount of solids on the filter.

2.3 Completeness Report:

Missing Data:
The MS Excel data file is verified for typographical errors by the Data Manager. Missing data values are represented by periods. Missing values are usually a result of aborted samplings (i.e. boat or weather problems); other missing values are due to samples being lost or contaminated. The first sampling was named CP1 (Creek Project #1) and the numbers were sequential up to the last sample date. If a sample week was missed, a sample number was not skipped. Triplicate samples were taken at each creek. Creek 1a, Creek 1b, and Creek 1c represent the first, second, and third samples taken at Creek 1, respectively. There may be missing data between the project date ranges of March 3, 1997 – February 23, 2000.

Missing Data:

Creek 1:
2/2/1998 (CP 46): Creek 1a, missing DOC data
8/9/1999 (CP 125): Creek 1a-1c, no water sample taken due to nekton net

Creek 2:
2/11/98 (CP 47): Creek 2c, no TNF and TPF data; no oxidizing agent

Creek 3:
6/29/1999 (CP 119) Creek 3a-3c, missing DOC data
9/23/1999 (CP 130) Creek 3a-3c, missing DOC data

Creek 4:
2/11/98 (CP 47) Creek 4a, no TNF and TPF data; sample was broken
9/9/1998 (CP 77) Creek 4b, missing DOC data
2/16/1999 (CP 100) Creek 4a, missing TNF and TPF data

Creek 5:
5/21/1997 (CP 10) Creek 5a-5c, no water sample taken; boat overheated
4/27/1998 (CP 58) Creek 5a-5c, missing Chla data
7/27/1998 (CP 71) Creek 5a-5c, no water sample taken due to storm
12/31/1998 (CP 93) Creek 5b, missing DOC data
8/2/1999 (CP 124) Creek 5c, missing DOC data

Creek 6:

5/21/1997 (CP 10)	Creek 6a-6c, no water sample taken; boat overheated
6/16/1997 (CP 14)	Creek 6b, missing TNF and TPF data
7/27/1998 (CP 71)	Creek 6a-6c, no water sample taken due to storm
9/4/1998 (CP 76)	Creek 6a-6c, no water sample taken due to very low tide
7/9/1999 (CP 120)	Creek 6a-6c, missing DOC data
8/9/1999 (CP 125)	Creek 6a-6c, missing DOC data
10/26/1999 (CP 135)	Creek 6a, missing DOC data
2/23/2000 (CP 151)	Creek 6a-6c, missing DOC data

Creek 7:

5/21/1997 (CP 10)	Creek 7a-7c, no water sample taken; boat overheated
7/27/1998 (CP 71)	Creek 7a-7c, no water sample taken due to storm
12/7/1998 (CP 90)	Creek 7c, no TNF and TPF data; sample was broken
2/23/2000 (CP 151)	Creek 7a-7c, missing DOC data

Creek 8:

5/21/1997 (CP 10)	Creek 8a-8c, no water sample taken; boat overheated
4/27/1998(CP 58)	Creek 8a, missing DOC data
7/27/1998 (CP 71)	Creek 8a-8c, no water sample taken due to storm
8/2/1999 (CP 124)	Creek 8c, missing TNF and TPF data

CP 26 does not exist: No data sheets or digital data can be found (as of September 2003)

Missing Files:

Raw excel spreadsheets do not exist for CP 152-CP 155 (see nutrient exceptions below); however, hardcopy versions do exist for all nutrients for these files:

4/6/2000	CP 152
4/18/2000	CP 153, except TNTP
5/16/2000	CP 154, except NNOP and TNTP
5/31/2000	CP 155, except TNTP

Anomalous Data

CP 124 on **8/2/1999**, NH4 (1.06, 0.89, 1.56), NO3 (0.24, 0.20, 0.20), PO4 (0.45, 0.33, 0.34), all contain 3 extra values in each excel spreadsheet after the last sample, 8c. These values were deleted from the raw excel spreadsheets since it was difficult to determine what the values represented.

Chla

CP 20 on **7/29/1997**, creek 4a (40.79), 4b (37.94), and 4c (37.69), there was a lot of suspended sediment which is noted by the water chemistry technician. CP 59 on **5/8/1998**, creek 2a (24.62), creek 2b (24.71), and creek 2c (27.14), the values were very high which might be due to a strong thunderstorm the night before. CP 64 on **6/9/1998**, creek 4a (59.85) and creek 4c (37.17), the values were high because it was very turbid from boat disturbance which is noted by the water chemistry technician. CP 64 on **6/9/1998**, creek 4a (59.85) was not listed in the raw excel spreadsheet; however, the value was listed in the raw data sheets. The Rescue Data Manager entered this value into the process data sheets. CP 64 on **6/9/1998**, creek 7c (37.17) had a high value relative to the other values taken at this site from March 1997 – February 2000. CP 70 on **7/21/1998**, creek 5a (29.16), creek 5b (28.98), and creek 5c (34.92), the values seem high relative to other values taken at these sites from March 1997 – February 2000. The values below were very high due to a very low tide which was noted by the water chemistry technician. All of the water samples for CP 76 were stirred up from a 15 mph SW wind, which was noted by the water chemistry technician.

Chla CP 76 on **9/4/1998**, creek 1a (29.16), creek 1b (24.93), and creek 1c (31.14)
Chla CP 76 on **9/4/1998**, creek 3a (31.23), creek 3b (24.66), and creek 3c (33.30)
Chla CP 76 on **9/4/1998**, creek 4b (42.57) and creek 4c (30.96)
Chla CP 76 on **9/4/1998**, creek 5a (35.73), creek 5b (31.95), and creek 5c (42.21)
Chla CP 76 on **9/4/1998**, creek 7a (48.96), creek 7b (38.79), and creek 7c (44.10)
Chla CP 76 on **9/4/1998** creek 8a (32.94), creek 8b (32.76), and creek 8c (31.50)
Chla CP 119 on **6/29/1999**, creek 3b (43.59) and creek 3c (45.31)
Chla CP 119 on **6/29/1999**, creek 4a (35.31), creek 4b (32.32), and creek 4c (41.06)

The values below were very high, which was due to Town Creek water that was very turbid from the wind according to the field technician notes.
Chla CP 119 on **6/29/1999**, creek 6a (42.78), creek 6b (36.92), and creek 6c (28.18)
Chla CP 119 on **6/29/1999**, creek 7a (49.91), creek 7b (53.02), and creek 7c (62.91)

DOC
The values below were high relative to the other values taken at these sites from March 1997 – February 2000. CP 19 on **7/23/1997** the values were high which may be due to a rain shower. CP 20 on **7/29/1997**, the values were high which may due to a low mid – ebb tide.
DOC CP 14 on **6/16/1997**, creek 2a (14.4), creek 2b (16.8), and creek 2c (15.2)
DOC CP 14 on **6/16/1997**, creek 3a (15.6), creek 3b (14.9), and creek 3c (14.0)
DOC CP 14 on **6/16/1997**, creek 4a (14.4), creek 4b (13.3), and creek 4c (12.6)
DOC CP 14 on **6/16/1997**, creek 5a (12.1), creek 5b (13.0), and creek 5c (13.2)
DOC CP 15 on **6/23/1997**, creek 1a (21.1), creek 1b (22.5), and creek 1c (19.5)
DOC CP 15 on **6/23/1997**, creek 2a (20.8), creek 2b (20.1), and creek 2c (17.9)
DOC CP 15 on **6/23/1997**, creek 3a (17.4), creek 3b (16.5), and creek 3c (17.3)
DOC CP 15 on **6/23/1997**, creek 4a (15.9), creek 4b (15.0), and creek 4c (15.5)
DOC CP 15 on **6/23/1997**, creek 5a (14.8), creek 5b (14.7), and creek 5c (13.3)
DOC CP 16 on **7/1/1997**, creek 1a (23.3), creek 1b (22.5), and creek 1c (23.4)
DOC CP 16 on **7/1/1997**, creek 2a (22.0), creek 2b (20.6), and creek 2c (20.5)
DOC CP 16 on **7/1/1997**, creek 3a (19.0), creek 3b (17.8), and creek 3c (16.6)
DOC CP 16 on **7/1/1997**, creek 4a (15.7), creek 4b (15.0), and creek 4c (15.5)
DOC CP 16 on **7/1/1997**, creek 5a (14.9), creek 5b (13.4), and creek 5c (14.8)
DOC CP 17 on **7/9/1997**, creek 1a (22.3), creek 1b (22.8), and creek 1c (23.1)
DOC CP 17 on **7/9/1997**, creek 2a (22.1), creek 2b (21.7), and creek 2c (21.8)
DOC CP 17 on **7/9/1997**, creek 3a (18.8), creek 3b (19.2), and creek 3c (19.1)
DOC CP 17 on **7/9/1997**, creek 4a (19.4), creek 4b (17.7), and creek 4c (18.0)
DOC CP 17 on **7/9/1997**, creek 5a (16.3), creek 5b (16.3), and creek 5c (15.1)
DOC CP 19 on **7/23/1997**, creek 1a (19.2) and creek 1b (18.8)
DOC CP 19 on **7/23/1997**, creek 2a (15.0), creek 2b (16.1), and creek 2c (15.6)
DOC CP 19 on **7/23/1997**, creek 3a (14.4), creek 3b (14.7), and creek 3c (13.6)
DOC CP 19 on **7/23/1997**, creek 4a (13.6), creek 4b (12.3), and creek 4c (12.3)
DOC CP 20 on **7/29/1997**, creek 1a (25.7), creek 1b (24.7), and creek 1c (22.7)
DOC CP 20 on **7/29/1997**, creek 2a (25.1), creek 2b (21.8), and creek 2c (22.8)
DOC CP 20 on **7/29/1997**, creek 3a (19.2), creek 3b (15.9), and creek 3c (15.1)
DOC CP 20 on **7/29/1997**, creek 4a (15.8), creek 4b (12.7), and creek 4c (14.0)
DOC CP 20 on **7/29/1997**, creek 5a (15.9), creek 5b (16.2), and creek 5c (14.5)
DOC CP 21 on **8/5/1997**, creek 1a (22.4), creek 1b (21.0), and creek 1c (21.2)
DOC CP 21 on **8/5/1997**, creek 2a (22.6), creek 2b (20.3), and creek 2c (18.7)
DOC CP 21 on **8/5/1997**, creek 3a (18.7), creek 3b (19.2), and creek 3c (17.6)
DOC CP 21 on **8/5/1997**, creek 4a (18.0), creek 4b (18.5), and creek 4c (16.6)
DOC CP 21 on **8/5/1997**, creek 5a (17.6), creek 5b (16.6), and creek 5c (15.6)

CP 115 on **6/1/1999**, creek 7c (46.0) was a high value in comparison to the other values in the spreadsheet. It was determined that it was entered in error; the actual value was 4.6, so it was corrected in the final published Excel spreadsheet by the Rescue Data Manager.

SusSol
CP 2 on **3/27/1997**, creek 2 was in bottles 1a, b, and c and creek 1 was in bottles 2a, b, and c which was noted by the water chemistry technician in the parameter sheets. The Rescue Data Manager reentered the data into the correct creeks in the Process Directory in the SusSol file; creek 1a (0.061), creek 1b (0.061), creek 1c (0.064), creek 2a (0.061), creek 2b (0.064), and creek 2c (0.055).

CP 20 on **7/29/1997**, creek 4a (0.387), creek 4b (0.335), and creek 4c (0.347) there was a lot of suspended sediment in the creek water, which is noted by the water chemistry technician in the parameter sheets. CP 64 on **6/9/1998**, creek 4a (0.407), creek 4b (0.329), and creek 4c (0.282) the values were high because it was taken from very turbid waters from the boat

disturbance, which is noted by the water chemistry technician. CP 64 on **6/9/1998**, creek 7c (0.291), the value seems high relative to the other values taken at this site from March 1997 – February 2000.

The values below were very high due to a very low tide which was noted by the water chemistry technician. All of the water samples for CP 76 were stirred up from a 15 mph SW wind, which was noted by the water chemistry technician.
SusSol CP 70 on **7/21/1998**, creek 4a (0.281)
SusSol CP 76 on **9/4/1998**, creek 1a (0.254), creek 1b (0.217), and creek 1c (0.303)
SusSol CP 76 on **9/4/1998**, creek 3a (0.279), creek 3b (0.221), and creek 3c (0.336)
SusSol CP 76 on **9/4/1998**, creek 4b (0.479) and creek 4c (0.313)
SusSol CP 76 on **9/4/1998**, creek 5a (0.335), creek 5b (0.327), and creek 5c (0.477)
SusSol CP 76 on **9/4/1998**, creek 7a (0.441), creek 7b (0.309), and creek 7c (0.403)
SusSol CP 76 on **9/4/1998** creek 8a (0.315), creek 8b (0.321), and creek 8c (0.283)
SusSol CP 119 on **6/29/1999**, creek 3b (0.271) and creek 3c (0.388)
SusSol CP 119 on **6/29/1999**, creek 4c (0.291)

SusSol CP 119 on **6/29/1999**, creek 6a (0.305), creek 6b (0.388), and creek 6c (0.234)
SusSol CP 119 on **6/29/1999**, creek 7a (0.640), creek 7b (0.685), and creek 7c (0.815)
The above values were very high, which was due to Town water that was very turbid from the wind according to the field technician notes.

OSS
In the original raw weekly Microsoft Excel spreadsheets; the Organic Solids and Ashfree Dry Weight (AFDW) were labeled together in the same column within the Suspended Solids worksheet. This was incorrect because AFDW by definition represents inorganic suspended solids (ISS), not organic suspended solids (OSS). However, the formula within the column calculated the organic suspended solids (OSS). Therefore, AshfreeSS actually represented the OSS values within all of the raw worksheets. In February of 2004 the Rescue Data Manager corrected the problem by renaming the column as OSS and by calculating and creating an ISS file. The term, ISS, was used to replace the term, AshfreeSS, which is used in the original raw spreadsheets. No changes were made to the original raw files, but copies and changes were made to these files. These new corrected files were placed in the DATA directory in the "RESCUE2003.PROCESS" directory and carried forward into the RESCUE2003.FINAL directory. See the section called "**Resource Description"** for Directory and Files listings.

CP 2 on **3/27/1997**, creek 2 was in bottles 1a, b, and c and creek 1 was in bottles 2a, b, and c which was noted by the water chemistry technician in the parameter sheets. The Rescue Data Manager reentered the data into the correct creeks in the Process Directory in the OSS file; creek 1a (0.010), creek 1b (0.010), creek 1c (0.010), creek 2a (0.009), creek 2b (0.009), and creek 2c (0.009).

OSS CP 18 on **7/17/1997**, creek 1a (0.052), creek 1b (0.051), and creek 1c (0.054)
OSS CP 18 on **7/17/1997**, creek 2a (0.056), creek 2b (0.057), and creek 2c (0.055)
OSS CP 18 on **7/17/1997**, creek 3a (0.052), creek 3b (0.053), and creek 3c (0.055)
OSS CP 18 on **7/17/1997**, creek 4a (0.054), creek 4b (0.061), and creek 4c (0.055)
OSS CP 70 on **7/21/1998**, 4a (0.049)
OSS CP 76 on **9/4/1998**, creek 1a (0.046), creek 1b (0.038), and creek 1c (0.055)
OSS CP 76 on **9/4/1998**, creek 3a (0.052) and creek 3c (0.064)
OSS CP 76 on **9/4/1998**, creek 4b (0.092) and creek 4c (0.059)
OSS CP 76 on **9/4/1998**, creek 5a (0.063), creek 5b (0.061), and creek 5c (0.092)
OSS CP 119 on **6/29/1999**, creek 1c (0.042)
OSS CP 119 on **6/29/1999**, creek 3b (0.051) and creek 3c (0.077)
OSS CP 119 on **6/29/1999**, creek 4c (0.059)
OSS CP 119 on **6/29/1999**, creek 6a (0.058) and creek 6b (0.080)
OSS CP 119 on **6/29/1999**, creek 7a (0.113), creek 7b (0.120), and creek 7c (0.153)
CP 18 on **7/17/1997**, high values due to low water level and rain the night before which was noted by the water chemistry technician. CP 70 on **7/21/1998**, CP 76 on **9/4/1998** and CP 119 on **6/29/1999**, the values were high due to a very low tide which was noted by the water chemistry technician.

CP 20 on **7/29/1997**, creek 4a (0.075), creek 4b (0.066), and creek 4c (0.072), the values were high which may due to a low mid – ebb tide. CP 120 on **7/9/1999**, creek 4b (0.055), high value due to a low water level. CP 64 on **6/9/1998**, creek 4a (0.077) creek 4b (0.063), and creek 4c (0.055), the values were high because it was very turbid from boat disturbance which is noted by the water chemistry technician.

CP 143 on **12/20/1999**, creek 4c and CP 149 on **2/9/2000**, creek 8b, missing numbers were inserted into the values in the oxidized weight column by the Rescue Data Manager. The value in the oxidized weight column for CP 143 was listed as 0.126; however the correct number is 0.1206. The value in the oxidized weight column for CP149 was 0.118; however the correct number is 0.1128.

CP 102 on **3/2/1999**, creek 1a (-0.001) and CP 120 on **7/9/1999**, creek 1b (-0.010) had negative values. In checking for errors in calculation, the Rescue Data Manager determined that the recorded oxidized weight for the two samples with negative values were actually higher than the total weights. This is due to the measuring error of the electronic balance plus the minute amount of solids on the filter.

ISS (See Information about ISS variable creation in OSS entry above)
ISS CP 70 on **7/21/1998**, 4a (0.232)
ISS CP 76 on **9/4/1998**, creek 1a (0.208), creek 1b (0.179), and creek 1c (0.248)
ISS CP 76 on **9/4/1998**, creek 3a (0.227), creek 3b (0.180), and creek 3c (0.272)
ISS CP 76 on **9/4/1998**, creek 4b (0.387) and creek 4c (0.254)
ISS CP 76 on **9/4/1998**, creek 5a (0.272), creek 5b (0.266), and creek 5c (0.385)
ISS CP 76 on **9/4/1998**, creek 8a (0.255), creek 8b (0.263), and creek 8c (0.234)
ISS CP 119 on **6/29/1999**, creek 3b (0.220) and creek 3c (0.311)
ISS CP 119 on **6/29/1999**, creek 4c (0.232)
ISS CP 119 on **6/29/1999**, creek 6a (0.247), creek 6b (0.308), and creek 6c (0.187)
ISS CP 119 on **6/29/1999**, creek 7a (0.528), creek 7b (0.565), and creek 7c (0.663)
CP 70 on **7/21/1998**, CP 76 on **9/4/1998** and CP 119 on **6/29/1999**, the values were high due to a very low tide which was noted by the water chemistry technician.
CP 20 on **7/29/1997**, creek 4a (0.311), creek 4b (0.269), and creek 4c (0.275), the values were high which may due to a low mid – ebb tide. CP 64 on **6/9/1998**, creek 4a (0.331) creek 4b (0.267), and creek 4c (0.227), the values were high because it was very turbid from boat disturbance which is noted by the water chemistry technician.

NH4
NH4 CP 76 on **9/4/1998**, creek 1a (15.20), creek 1b (17.40), and creek 1c (11.20)
NH4 CP 76 on **9/4/1998**, creek 2a (31.50), creek 2b (32.60), and creek 2c (33.40)
NH4 CP 76 on **9/4/1998**, creek 3a (29.20), creek 3b (28.30), and creek 3c (29.80)
NH4 CP 76 on **9/4/1998**, creek 4a (21.90), creek 4b (24.60), and creek 4c (28.10)
NH4 CP 76 on **9/4/1998**, creek 5a (36.30), creek 5b (36.90), and creek 5c (41.50)
NH4 CP 76 on **9/4/1998** creek 8a (19.90), creek 8b (22.80), and creek 8c (22.50)
The above values were high due to a very low tide which was noted by the water chemistry technician.

CP145 on **1/10/2000**, creek 7b, the Rescue Data Manager changed the value from 830.00 to 0.830 since it was entered incorrectly; the value was verified against the Technicon printouts.

NO3
CP 119 on **6/29/1999**, creek 1b (3.62), the values were high due to a very low tide which was noted by the water chemistry technician.

CP 51 on **3/10/1998**, creek 6a (3.69), creek 6b (3.69), and creek 6c (3.72)
CP 134 on **10/22/1999**, creek 1a (3.64), creek 1b (3.81), and creek 1c (3.65)
CP 134 on **10/22/1999**, creek 2a (3.76), creek 2b (3.82), and creek 2c (3.80)
CP 134 on **10/22/1999**, creek 3a (4.35), creek 3b (4.38), and creek 3c (4.34)
CP 134 on **10/22/1999**, creek 4a (4.67), creek 4b (4.70), and creek 4c (4.64)
CP 134 on **10/22/1999**, creek 5a (3.88), creek 5b (3.92), and creek 5c (3.86)
CP 134 on **10/22/1999**, creek 6a (4.11), creek 6b (4.12), and creek 6c (4.08)
CP 134 on **10/22/1999**, creek 7a (3.97), creek 7b (3.83), and creek 7c (3.90)
CP 134 on **10/22/1999**, creek 8a (4.09), creek 8b (4.10), and creek 8c (4.13)
The above values were high relative to the other values taken at these sites from March 1997 – February 2000.

CP 48 on **2/17/1998** NH4 and NO3 had the same values. After the values were verified it appeared that the NO3 values were copied from the NH4 "process" worksheet not from the NO3 "process" worksheet. The values were corrected in the final spreadsheet by the Rescue Data Manager.

PO4
CP 32 on **10/20/1997**, creek 1 (2.23), one triplicate value was higher relative to the other values taken at this site from March 1997 – February 2000.

PO4 CP 76 on **9/4/1998**, creek 2a (1.54), creek 2b (1.59), and creek 2c (1.59)
PO4 CP 76 on **9/4/1998**, creek 3a (1.83), creek 3b (1.88), and creek 3c (1.88)
PO4 CP 76 on **9/4/1998**, creek 4a (1.20), creek 4b (1.20), and creek 4c (1.53)
PO4 CP 76 on **9/4/1998**, creek 5a (1.86), creek 5b (1.90), and creek 5c (1.96)
The above values were high due to a very low tide which was noted by the water chemistry technician.

CP 103 on **3/9/1999**, creek 8a (0.11), creek 8b (0.11), and creek 8c (0.11) were not listed in the raw excel spreadsheet. The values were found in the Technicon printout sheets and were entered in the final spreadsheet by the Rescue Data Manager.
CP 147 on **1/26/2000**, creek 2c-7b, the values were all listed as zeros in the raw excel spreadsheet. The original values on the Technicon printout were negative values. The Rescue Data Manager changed the values back to the original negative values and the values were entered in the process excel spreadsheets and carried forward into the final database.

TNF
CP 40 on **12/15/1997** creek 1a (54.7), CP 47 on **2/11/1998** creek 1a (52.8), and CP 61 on **5/22/1998** creek 5a (77.3), the values were higher relative to the other values taken at these sites from March 1997 – February 2000.

TNF CP 76 on **9/4/1998**, creek 2a (58.7) and creek 2b (55.9)
TNF CP 76 on **9/4/1998**, creek 3a (50.8), creek 3b (50.8), and creek 3c (56.4)
TNF CP 76 on **9/4/1998**, creek 4c (50.8)
TNF CP 76 on **9/4/1998**, creek 5a (59.0), creek 5b (59.0), and creek 5c (69.4)
The above values were high due to a very low tide which was noted by the water chemistry technician.

CP 4 on **4/7/1997** creek 6c (1.4), CP 6 on **4/22/1997** creek 1b (0.5), CP 13 on **6/9/1997** creek 4a (1.7), CP 15 on **6/23/1997** creek 1c (0.5) and creek 3a (0.2), CP 22 on **8/15/1997** creek 1b (0.8) and creek 7c (1.7),and CP 64 on **6/9/1998** creek 8a (2.0), the values were lower relative to the other values taken at these sites from March 1997 – February 2000.

CP 61 on **5/22/1998**, creek 5a (77.3), the value was not listed in the yearly raw excel spreadsheet; however, the value was listed in the Technicon printouts and in CP 61. The value was entered in the final spreadsheet Rescue Data Manager.
CP 64 on **6/9/1998**, creek 8a (2.0), the value was not listed in the yearly raw excel spreadsheet; however, the value was listed in the Technicon printouts and in CP 64. The value was entered in the final spreadsheet by the Rescue Data Manager.

TPF
In the original raw weekly TN and TP spreadsheets, the total nitrogen filtered (TNF) and total phosphorus filtered (TPF) columns are labeled as total dissolved nitrogen (TDN) and total dissolved phosphorus (TDP). In the yearly raw TN and TP worksheets, the total nitrogen filtered and total phosphorus filtered columns are labeled as total nitrogen (TN) and total phosphorus (TP). The column headings were changed in February 2004 to TNF and TPF by the Rescue Data Manager in the final data files. Further, dissolved and filtered are used interchangeably in this case.

CP 2 on **3/28/1997**, creek 2c (4.8), CP 1 on **3/19/1997**, creek 3b (2.7) and creek 8a (2.6) and CP 125 on **8/9/1999**, creek 6b (2.7), the values were higher relative to the other values taken at these sites from March 1997 – February 2000.

CP 61 on **5/22/1998** creek 5a (0.6), the value was not listed in the yearly raw excel spreadsheet; however, the value was listed in the Technicon printouts and in CP 61. The value was entered in the final spreadsheet by the Rescue Data Manager.
CP 64 on **6/9/1998** creek 8a (-0.1), the value was not listed in the yearly raw excel spreadsheet; however, the value was listed in the Technicon printouts and in CP 64. The value was entered in the final spreadsheet by the Rescue Data Manager.

2.5 Lineage

2.5.1 Methodology

2.5.1.1 Methodology Type: Field Collection Procedures and Protocols

2.5.1.3 Methodology Description: Overall Field Collection Protocol

Three 1000-ml water samples were taken weekly at all eight creeks in the North Inlet Estuary, 1.0 meters below the water's surface. Temperature was also taken at the same time. The water samples were placed in a cooler (no ice) which kept it ambient temperature, and the samples were filtered back in the lab usually within an hour of collection; however, if the samples could not be brought back within the hour, they were placed in an ice chest. {Tests were run to determine if filtering the water after one hour gave different nutrient concentration values from the samples which were filtered within one hour. There were no significant differences observed.} Date, sample name, water temperature, time and samplers were recorded in the field on a master data sheet and kept with all values obtained for that sample number.

2.5.1 Methodology

2.5.1.1 Methodology Type: Field Collection Procedures and Protocols

2.5.1.3 Methodology Description: Water Temperature

Water temperature was measured in the field with a mercury filled thermometer from the water sample taken at the 1.0 meter level below the surface water. The thermometer was marked in 1°C increments.

2.5.1 Methodology

2.5.1.1 Methodology Type: Laboratory Procedures and Protocols

2.5.1.3 Methodology Description: Overall Laboratory Protocol

Salinity values were determined after the water sample was brought back into the laboratory. Water from the sample was placed onto a hand-held refractometer. Seventy-five to 500 ml of the water samples were filtered through a pre-weighed pre-combusted Whatman GFF 0.7 µm (nominal pore size) glass fiber filter usually within one hour of the water sample collection at the Baruch Marine Field Laboratory's Water Chemistry Lab to separate the particulates from the water. Samples were shaken up first before filtering began; the amount of water filtered was determined by how much sediment and other solids were in the sample. In the winter in the absence of phytoplankton blooms and when sedimentation was low, up to 400 ml were filtered. In the summer and usually after heavy rains, less water was filtered; the determining factor was to get a good sample of suspended solids on the filter from the water sample in order to get beyond the minimum detection limits of the SusSol analysis.

A 0.7 µm (nominal pore size) glass fiber filter was used throughout the entire study to determine the cutoff between dissolved and particulate constitutes in the water sample. The filtered water is then run through a Technicon Analyzer. The following water chemistry analysis used filtered aliquots (< 0.7 µm): NH4, NO3, PO4, TN, TP, and carbon (DOC). What remained on the 0.7 µm filters were used for the Suspended solid and Chlorophyll a analysis.

Technicons have a datalogger that calculates the concentrations and puts them into a temporary file as the trays are run. The data are transferred via software to a computer that stores the concentrations in a file. No correction is necessary for the ortho phosphate (PO4), Nitrate-Nitrite (NO3), or Ammonia (NH4). The only data corrections required are for Whole and Filtered Total Nitrogen and Whole and Filtered Total Phosphorus. The correction formula is established in the spreadsheet that will take each concentration number, subtract out the Oxidizer Reagent Blank (ORB) and then multiply the number by the Dilution factor. These two numbers are supplied by the chemist.

2.5.1 Methodology

2.5.1.1 Methodology Type: Laboratory Procedures and Protocols

2.5.1.3 Methodology Description: Orthophosphate (PO4)

The filtrate (<0.7 µm) was used in the procedure to determine the PO4 chemistry. The basic method was the Technicon Industrial Method No. 155-71W (1973), which was a modification of the Murphy and Riley (1962) single solution method. The method depended on the formation of a phospomolybdate blue complex, the color of which is read at a wavelength of 880 nm.

2.5.1.4 Methodology Citation:

8. Citation Information

8.1 Originator: Technicon Industrial Systems

8.2 Publication Date: 197301

8.4 Title: Technicon Industrial Method No. 155-71W; Ortho Phosphate in Water and Seawater

8.6 Geospatial Data Presentation Form: Manual

8.8 Publication Information:

8.8.1 Publication Place: Tarrytown, NY 10591

8.8.2 Publisher: Technicon Industrial Systems; A Division of Technicon Instruments Corporation

8.9 Other Citation Details: Technicon AutoAnalyser II (Methodology)

2.5.1 Methodology

2.5.1.1 Methodology Type: Laboratory Procedures and Protocols

2.5.1.3 Methodology Description: Nitrate-Nitrite (NO3)

The filtrate (<0.7 µm) was used in the procedure to determine the NO3 chemistry. The basic method was Technicon Industrial Method No. 158-71W/B, which utilized the reaction in which nitrate was reduced to nitrite by a copper-cadmium reductor column. The nitrite ion then reacted with sulfanilamide under acidic conditions to form a diazo compound. This compound then coupled with N-1-napthylethylenediamine dihydrochloride to form a reddish-purple azo dye.

2.5.1.4 Methodology Citation:

8. Citation Information

8.1 Originator: Technicon Industrial Systems

8.2 Publication Date: 197908

8.4 Title: Technicon Industrial Method No. 158-71W/B; Nitrate-Nitrite in Water and Seawater

8.6 Geospatial Data Presentation Form: Manual

8.8 Publication Information:

8.8.1 Publication Place: Tarrytown, NY 10591

8.8.2 Publisher: Technicon Industrial Systems; A Division of Technicon Instruments Corporation

8.9 Other Citation Details: Technicon AutoAnalyser II (Methodology)

2.5.1 Methodology

2.5.1.1 Methodology Type: Laboratory Procedures and Protocols

2.5.1.3 Methodology Description: Ammonia (NH4)

The filtrate (<0.7 µm) was used in the procedure to determine the NH4. This method was dependent upon the Berthelot Reaction, during which the formation of a blue colored compound closely related to indophenol occurred when the solution of an ammonium salt was added to sodium phenoxide, followed by the addition of sodium hypochlorite Glibert and Loder (1977). A solution of potassium sodium tartrate and sodium citrate was added to the sample stream to eliminate the precipitation of the hydroxides of calcium and magnesium.

2.5.1.4 Methodology Citation:

8. Citation Information

8.1 Originator: Patricia M. Glibert

8.1 Originator: Theodore C. Loder

8.2 Publication Date: 197706

8.4 Title: "Automated Analysis of Nutrients in Seawater: A Manual of Techniques"

8.5 Edition: Publication Number WHOI-77-47

8.6 Geospatial Data Presentation Form: Manual

8.8 Publication Information:

8.8.1 Publication Place: Woods Hole, Massachusetts 02543

8.8.2 Publisher: Woods Hole Oceanographic Institution

8.9 Other Citation Details: Unpublished Manuscript supported by Ocean Industry Program of the Woods Hole Oceanographic Institution

2.5.1 Methodology

2.5.1.1 Methodology Type: Laboratory Procedures and Protocols

2.5.1.3 Methodology Description: Total Nitrogen - Total Phosphorus (TNF, TPF)

Non-filtered water samples were used in the procedure to determine TNW and TPW chemistries. The filtrate (<0.7 µm) was used in the procedure to determine the TNF and TPF chemistries. The TN & TP method is a combination of two methods listed below, but in general the procedure consisted of an alkaline persulfate oxidation followed by automated analysis for nitrogen (as nitrate) and phosphorus (as phosphate) on a Technicon Auto Analyzer for all four chemistries. Oxidation reagent blanks (ORB) are run with each batch of persulfate digestion reagents.

With alkaline persulfate digestion, all nitrogen in the sample was oxidized to nitrate, which was then reduced by cadmium and analyzed as nitrite. The precision and recovery of this method compared favorably with a Kjeldahl procedure (D'Elia et al., 1977). The main advantage of the persulfate oxidation was the speed and convenience with which it was accomplished. Unlike the Kjeldahl method, which recovered only organic and NH4 - nitrogen, the persulfate oxidation also included NO3 and NO2 nitrogen.

This semi-automated procedure combines the persulfate oxidation with automated nitrate and phosphate analysis to provide simultaneous analysis for total persulfate nitrogen (TPN) and total persulfate phosphorus (TTP) (Glibert et al., 1977). Glibert's procedure has been further modified to use smaller sample size so that the digestion flask can double as the sampler tray cup (Loder 1978). With this method, many samples can be run quickly with a minimum of handling.

2.5.1.4 Methodology Citation:

8. Citation Information
8.1 Originator: C.F. D'Elia
8.1 Originator: P.A. Steudler
8.1 Originator: N. Corwin
8.2 Publication Date: 1977
8.4 Title: Determination of total nitrogen in aqueous samples using persulfate digestion.
8.6 Geospatial Data Presentation Form: Manuscript
8.8 Publication Information:
8.8.1 Publication Place: unknown
8.8.2 Publisher: Limnol. Oceanography
8.9 Other Citation Details: Volume 22: pp. 760-764

2.5.1.4 Methodology Citation:

8. Citation Information
8.1 Originator: P.M. Glibert
8.1 Originator: Z. Mlodzinska
8.1 Originator: C.F. D'Elia
8.2 Publication Date: 1977
8.4 Title: "A semiautomated persulfate oxidation technique for simultaneous total nitrogen and total phosphorus determination in natural water samples"
8.6 Geospatial Data Presentation Form: Scientific paper
8.8 Publication Information:
8.8.1 Publication Place: Woods Hole, Massachusetts 02543
8.8.2 Publisher: Ocean Industry Program of the Woods Hole Oceanographic Institution
8.9 Other Citation Details: Woods Hole Oceanographic Institution Contribution Number 3954

2.5.1.4 Methodology Citation:

8. Citation Information
8.1 Originator: T.C. Loder
8.2 Publication Date: 1978
8.4 Title: "A semi-automated total nitrogen and phosphorus method for low volume samples"
8.6 Geospatial Data Presentation Form: Unpublished Manuscript
8.8 Publication Information:
8.8.1 Publication Place: Woods Hole, Massachusetts 02543
8.8.2 Publisher: Ocean Industry Program of the Woods Hole Oceanographic Institution

2.5.1 Methodology
2.5.1.1 Methodology Type: Laboratory Procedures and Protocols
2.5.1.3 Methodology Description: Dissolved Organic Carbon (DOC)

Water samples are filtered through a pre-combusted (24 hr @ 450°C) Whatman GFF 0.7 micron glass fiber filter. The filtrate samples are purged of inorganic carbon by adding 10% Hydrochloric Acid and sparged with ultra zero grade air. A 40-microliter aliquot is injected, via an autosampler, into a Shimadzu TOC-500 organic carbon analyzer. A non-dispersive infrared gas analyzer is utilized to measure the carbon dioxide produced and samples are run in triplicate with means reported.

Triplicates were run on the water samples, and the results had to be within a set standard deviation. As long as they were, then the mean was taken based on what the error the machine was set to accept.

2.5.1 Methodology
2.5.1.1 Methodology Type: Laboratory Procedures and Protocols
2.5.1.3 Methodology Description: Total Suspended Solids (SusSol)

After the water sample is well shaken, a known volume of sample (75 to 500 ml depending on the sediment load) is filtered through a pre-combusted, pre-weighed Whatman GFF 0.7 micron glass fiber filter. (Filters are weighed on an analytical balance with four place accuracy). The filter is dried in a drying oven at low temperature (less than 50°C) until a stable weight is obtained.

2.5.1 Methodology

2.5.1.1 Methodology Type: Laboratory Procedures and Protocols

2.5.1.3 Methodology Description: Organic Suspended Solids (OSS)

After the weight is obtained for total suspended solids, the filters are returned to the muffle furnace and combusted at 450 degrees C for 24 hrs. Filters are reweighed and the final weight is subtracted from the total weight and normalized for the volume of water sample filtered. (Filters are weighed on an analytical balance with four place accuracy).

2.5.1 Methodology

2.5.1.1 Methodology Type: Laboratory Procedures and Protocols

2.5.1.3 Methodology Description: Inorganic Suspended Solids (ISS)

Inorganic Suspended Solids (ISS) is a calculation of the oxidized weight (weight of filter and the inorganic material, which would not volatilize at 450 degrees C) minus the initial pre-combusted filter weight. Weights are normalized for the volume of water sample filtered.

2.5.1 Methodology

2.5.1.1 Methodology Type: Laboratory Procedures and Protocols

2.5.1.3 Methodology Description: Chlorophyll a (CHLA)

An appropriate amount of sample (10 or 20 ml) is filtered through a 2.5 cm, 0.7 micron (nominal pore size) GFF glass fiber filter. The filter is then placed into a scintillation vial with 1 ml of saturated magnesium carbonate ($MgCO_3$) and frozen. Samples are removed from the freezer, 9-ml of 100% acetone is added, placed into the refrigerator for 24 hrs, and then shaken and returned to the refrigerator for another 24 hrs. After extraction is complete, the samples are analyzed with a Sequioa-Turner Model 450.

2.5.1.4 Methodology Citation:

8. Citation Information

8.1 Originator: Arnold E. Greenberg, APHA, Chairman (Joint Editorial Board)

8.1 Originator: Joseph J. Connors, AWWA (Joint Editorial Board)

8.1 Originator: David Jenkins, WPCF (Joint Editorial Board)

8.1 Originator: Mary Ann H. Franson (Managing Editor)

8.2 Publication Date: 1980

8.4 Title: "Standard Methods For the Examination of Water and Waste Water"

8.5 Edition: 15th Edition

8.6 Geospatial Data Presentation Form: Book

8.8 Publication Information:

8.8.1 Publication Place: American Public Health Association, 1015 Fifteenth Street NW, Washington, DC 20005

8.8.2 Publisher: Prepared and Published Jointly by: American Public Health Association (APHA), American Water Works Association (AWWA), Water Pollution Control Federation (WPCF)

8.9 Other Citation Details: Part 1002 G. Chlorophyll, pp. 950-954

2.5.1.4 Methodology Citation:

8. Citation Information

8.1 Originator: L.R. Glover

8.1 Originator: I. Morris

8.2 Publication Date: 1979

8.4 Title: "Photosynthetic carboxylating enzymes in marine phytoplankton"

8.6 Geospatial Data Presentation Form: Published Manuscript

8.8 Publication Information:

8.8.1 Publication place: unknown

8.8.2 Publisher: Limnol. Oceanography

8.9 Other Citation Details: Volume 23: pp. 80-89

2.5.1.4 Methodology Citation:

8. Citation Information

8.1 Originator: Turner Designs Inc.

8.2 Publication Date: 198103

8.4 Title: "Fluorometric Facts, Chlorophyll and Phaeophytin"

8.6 Geospatial Data Presentation Form: Manual

8.8 Publication Information:

8.8.1 Publication Place: Ballentin 101, Mountain View, California

8.8.2 Publisher: Turner Designs

2.5.3: Process Step

2.5.3.1 Process Description:

Overall Description

Date, sample name, water temperature, time, and field sampler names were recorded in the field on a master data sheet and kept with all values obtained for that sample number. Weekly water chemistries were analyzed in the water chemistry laboratory, and the data values from each analysis were later entered (either by hand or by ftp) into a Microsoft Excel workbook file, verified, edited and finalized. Sampling event numbers were assigned to each weekly sampling CP # (C=CREEK, P= Project). The first sampling was named CP1 and the numbers were sequential up to the last sample date. If a sample week was missed, a sample number was not skipped. Therefore, each weekly file is named as follows: CP01-CP99; beginning 2/16/1999 the naming convention was changed to CPA100-CPA151. The database is compiled and maintained in yearly MS Excel Workbooks. All hardcopy (paper) data collected were kept in individual weekly files and organized by sample number. Hardcopies of all raw datasheets are maintained on site in the BMFL's data archival room.

Worksheets also known as "tabs" within each Excel Workbook file are where each water chemistry calculations were made. These tabs represent "Process" spreadsheets for particular groups of parameters, such as sediment, nutrient, or chlorophyll. Any calculations or manipulation of the data necessary to achieve the final data take place within these "Process" work sheets. In this way, the critical process/calculation steps can be kept with the final data. The process steps taken to reach the final database values are explained below.

In the original MS Excel spreadsheets, the data was compiled into yearly spreadsheets for 1997, 1998, and 1999. NOTE: some data from 1998 occurs in the 1997 file, 1997 includes data from March 19, 1997-February 11, 1998, 1998 includes data from February 17, 1998-February 22,1999, and 1999 includes data from March 2, 1999-February 23, 2000. Each spreadsheet contained all of the water chemistry research conducted throughout the year which was listed in separate tabs within the spreadsheets. The data were also plotted and examined for potential outliers and errors in the data. The original annual files also contain logged data and graphics for each water chemistry variable. All water chemistry parameters were logarithmically transformed to ensure equal variability, but temperature and salinity observations were not transformed. The Grubbs test (Grubbs and Beck, 1972*) was used to determine outliers; only two observations were deleted. *Grubbs, F.E. and G. Beck. 1972. Extension of sample sizes and percentage points for significance tests of outlying observations. *Technometrics* 14:847-854.

Process Description for Parameter Sheets: Salinity, Volume Filtered

When the water sample reaches the chemistry laboratory, salinity readings are taken with a refractometer and recorded for each water sample on a parameter sheet. The parameter sheets are handwritten data sheets that include: date, cruise #, sample #, site, time, weather, salinity, temperature, suspended solids and chlorophyll a sample volume filtered, and any pertinent comments. A data technician entered these data into yearly "Process" Excel worksheet or tab.

Process Description for TNF, TPF, NO3, NH4, PO4

Information on the samples in each tray of nutrients run through the technicon is recorded on a "Run Sheet" by the water chemistry technician. The technicons have a datalogger that calculates the concentrations, puts them into a temporary text file, and produces an output printout with the same information. Hardcopies of both the printouts and run sheets are maintained on site in the BMFL's data archival room.

No corrections are necessary for the orthophosphate (PO4), nitrate (NO3), or Ammonia (NH4) concentrations from the Technicon printout. A data technician entered these data into yearly MS Excel nutrient process worksheets, and later copied the values directly into the final yearly Excel file.

Total Nitrogen Filtered and Total Phosphorus Filtered data from the technicon printout do require corrections. A data technician entered these data into yearly TNTP MS Excel files. Within this file, a calculation was performed which took each concentration number, subtracted the Oxidizer Reagent Blank (ORB), and then multiplied the number by the Dilution factor. The ORB values and dilution factors were supplied by the chemist. Once the totals were calculated in the process worksheet tab, they were copied into the final yearly spreadsheet tab.

Technicon printouts for TNF, TPF 10/22/99 (CP 134), NH4 9/23/99 (CP 130), and NO3OP 12/20/99 (CP 143) all changed formats for the rest of the project. The chemistry process is still the same, however a new computer program was implemented and this is why the printouts look different.

Total Nitrogen Filtered and Total Phosphorus Filtered data from the technicon printout do require corrections. The correction formula was established in the "TNTP" "Process" tab of the Workbook. It takes each concentration number, subtracts the Oxidizer Reagent Blank (ORB), and then multiplies the number by the Dilution factor. The ORB values and dilution factors are supplied by the chemist. Once the totals are verified error-free and the final value is calculated, the final values are copied from the TNTP "Process" tab into the FINAL spreadsheet tab.

Process and Calculation Description for Chlorophyll a

Chlorophyll readings were recorded onto new Chlorophyll data sheets that also contained the sample site, date, door factor, fluorometer gain, sample volume, dilution factor, and other parameters important to the calculation of the final chlorophyll data. A data technician entered the values from the data sheets into the "Process" tab of the yearly MS Excel Workbook, where final values are calculated in micrograms per liter and copied to the FINAL tab of the Workbook.

Calculated chlorophyll values (in micrograms per liter) are derived using the raw data and predetermined door factors and gain factor. For those samples that were acidified, a Tau value is also calculated and incorporated into the formula. Over the course of the database, there have been changes in equipment and protocol. Therefore, with changes in filters, fluorometers, door factor values, etc., the calculation process has also evolved. The following are explanations and formulas for individual time periods of chlorophyll data.

Where,

F_D = Door Factor (as calculated for each door)
FO = Chla reading
FA = Phae reading
Gain = Gain value
Volume filtered = 10 or 20ml, normally 10ml as of 1 May and 20ml on 1 December
Volume Extract = 10ml, from Greenberg et al. (1980)
Tau(T) = acid factor (as calculated)

March 19, 1997 – December 17, 1998; Creek Projects 1-91:

Data processing for chlorophyll since July 23 has been completed using the Sequoia-Turner Model 450 Fluorometer, SC 665 nanometer emission filter, and NB 440 nanometer excitation filter. This filter does not allow for the measurement of the FA wavelength and is specific to chlorophyll a (FO) only. Neither Tau nor FA values are used in the final calculation. The "span" knob for this period was turned to minimum, and as a result, it was no longer necessary to use the correction factor (6.4) for maximum span in the denominator.

$$\text{Chl (ug/L)} = \frac{((F_D)(FO)(50)(\text{vol. extract}))}{((\text{vol. filtered})(\text{Gain}))}$$

F_D values
1x=5.38
3x=0.379
10x=0.09
30x=0.053

December 21, 1998 – February 23, 2000; Creek Projects 92-151:

Data processing for this period was the same as above, with the exception of the new door factors listed below.

$$\text{Chl (ug/L)} = \frac{((F_D)(FO)(50)(\text{vol. extract}))}{((\text{vol. filtered})(\text{Gain}))}$$

F_D values
1x=8.76
3x=0.46
10x=0.107
30x=0.077

The door factors are not the same on the handwritten data sheets and the "process" excel spreadsheets. The door factors used to calculate the chlorophyll a values were from the "process" excel spreadsheets and not from the raw data sheets.

Process and Calculation Description for Suspended Solids (SusSol, OSS, and ISS)
Filter number, weights of pre-weighed filters, dried sample weights for SusSol, and muffled sample weights for OSS were hand written onto datasheets. A data technician entered the values from the parameter sheets into the "Process" tab of the yearly MS Excel workbook, where final values are then copied to the FINAL tab of the workbook. Final values were calculated using the following formulas.

Suspended Solids Calculations:

SusSol value (g) = [Total wt.(g) minus (-) Filter weight(g)].
Organic Sediment value (g) = [Total wt.(g) minus (-) Oxidized wt.(g)]
Inorganic Sediment value (g) = [Total sediment value(g) minus (-) Organic sediment value(g)]

TO CONVERT TO MILLIGRAMS PER LITER:

Total Suspended Solids (SusSol) (g/L) = [[Total Sediment value (g) times (x) 1000] divided by (/) volume of water sample filtered (ml)]
Organic Suspended Solids (OSS) (g/L) = [[Organic Sediment value (g) times (x) 1000] divided by (/) volume of water sample filtered (ml)]
Inorganic Suspended Solids (ISS) (g/L) = [[Inorganic Sediment value (g) times (x) 1000] divided by (/) volume of water sample filtered (ml)]

Process and Calculation Description for Carbon:
Information on the samples in each tray run through the Shimadzu Carbon Analyzer is recorded on a "Run Sheet" by the Water Chemistry Technician. The carbon analyzer produces an output printout with three DOC concentrations (in mg/L) and an average of the three concentrations for each sample. A data technician entered the average value into the "Process" nutrient MS Excel spreadsheet. These values were later copied directly into the final yearly tab.

Data Rescue Process Description

Data Capture of Original Raw and Final Data Files and Documentation (July 2003)
Obtained original Raw hardcopy data sheets from PI, David Bushek. Raw digital values in the MS Excel process worksheet tabs and the Final yearly digital data files also came from David Bushek. Project manager, Leah Gregory created the first version of this metadata record.

Data Verification, Editing, and Graphing (August 2003)
The database was verified using hardcopy original datasheets and MS Excel spreadsheets to account for missing and anomalous data. The Data Rescue Data Manager edited the Final data by comparing the hardcopy original datasheets to the original MS Excel Final spreadsheet tabs. In the original MS Excel spreadsheets, the data was compiled into yearly spreadsheets for 1997, 1998, and 1999. Each spreadsheet contained all of the water chemistry research conducted throughout the year which was listed in separate tabs within the spreadsheets. The original database that was obtained from the PIs was modified when creating the Final Rescued database. The spreadsheet data was transposed (i.e. the data was rearranged by creek and date). When rearranging yearly spreadsheets for 1997, 1998, and 1999 in MS Excel, some of the columns were not complete (i.e. the formulas were not copied into the corresponding cells). So the formulas were copied into the empty cells. This only applies to the log spreadsheets.

Creation of Final Rescued Databases (September through December 2003)
Further modification of the original database included the removal of the log transformed data. Also, the creek's entire sample A's were arranged together chronologically, then creek B and creek C. Separate spreadsheets (tabs) and folders were created for each creek and water chemistry analyzed. Each tab was then sorted by creek and then by date. Further, water chemistry values were corrected for the right amount of decimal places. Final metadata was created by verifying, editing, and updating the documentation. The entire database including date, creek, and triplicate for all 3 years is contained in the Final Rescued database called, WATERCHEMISTRY.RESCUE2003.FINAL. It is arranged by creek and date. The data was then imported into Sigma Plot software, graphed, and reviewed for anomalous data. Final graphics were created after the review and edit process.

Data Archive and Dissemination of Rescued Data, Documentation, and Graphics (February 2004)
All original raw datasheets were scanned into digital format and archived on the 1996-2000 CREEK Project Archive CD in the WATERCHEMISTRY.ORIGINAL.RAW Directory. All original digital Excel workbook files obtained from the PIs that contain data in the worksheet process data and final worksheet data was also burned to CD and are archived in the WATERCHEMISTRY.ORIGINAL.RAW/DATA directory. The individual worksheet water chemistry tabs and worksheet final data were also exported as text (CSV) format and placed in the "RAW" directory. The "PROCESS" directory contains the Final data values that were rearranged by Creek/Date. Each Creek's data is in a separate spreadsheet. The "PROCESS" directory also contains the final yearly data with its water chemistry tabs and the Sigma Plot files. Inorganic Suspended Solids (ISS) file and tabs were archived in the "PROCESS" and "FINAL" directories. Please see Supplemental Information for further explanation. The final merged FINAL.CREEKWATERCHEM database, its graphics (exported as jpg format), and final metadata are located in the WATERCHEMISTRY.RESCUE2003.FINAL directory of the 1996-2000 CREEK Project Archive CD.

Rescued final data, graphics, and metadata are also all printed out into a hardcopy paper version. The hardcopy and CD versions are compiled into a 3-ring binder notebook and stored at the BMFL Computer Laboratory. All original printed documentation is also in the 3-ring notebook. The 1996-2000 CREEK Project Archive CD is kept in a fireproof cabinet at the BMFL data manager's office. Final data, graphics, and metadata are also available on Baruch Institute's web site: http://links.baruch.sc.edu/data/ and archived on Baruch's Rescue Server. Metadata are published on the BMFL's Isite Node.

2.5.2.3 Process Date: 20031025

3 Spatial Data Organization Information:

3.1 Indirect Spatial Reference:

North Inlet Estuary which is part of Hobcaw Barony is located in Georgetown County, South Carolina, USA

3.2 Direct Spatial Reference Method: Point

5. Entity_and_Attribute_Information:

5.2 Overview_Description:

5.2.1 Entity_and_Attribute_Overview:

Each CREEK subproject had its own database attribute naming conventions, abbreviations, and meanings. See each subproject's metadata for details. But, there were some names and meanings common to the entire Creek project.

Creek = The numbering identification of each tidal creek within North Inlet Estuary where water samples were collected; creeks 1-4 were creeklets running into Clambank Creek; creeks 5-8 were creeklets running into Town Creek. See map for creek numbering and location within North Inlet Estuary (located in the 1.2.3 Supplemental Information).
Date = The date on which the sample was collected (not necessarily processed or analyzed) in m/d/yyyy format (original) and mm/dd/yyyy format (final).

The names and meanings below are specific to the CREEK Water Chemistry, Chlorophyll a, and Suspended Sediment database. The log and AshfreeSS variables only apply to the Original Raw Database (found in RAW Directory) obtained by the PIs, not to the Final Rescued Database which is the one that is published. In February of 2004 the Rescue Data Manager added another suspended sediment variable by calculating and creating an ISS database. This is in the final, published database created in 2004.

Sample# = Sample number assigned to each sample collected, within each corresponding creek. Triplicate water samples were collected weekly from March 3,1997 – February 23, 2000 and were sampled simultaneously.
TN, TP: T = Total (i.e. after alkaline persulfate oxidation / digestion)
TNF= Total Nitrogen Filtered, TPF = Total Phosphorus Filtered
PO4 = Ortho phosphate levels measured from a filtered aliquot (as described above).
PO4log = Log of ortho phosphate values.
NH4 = Ammonia levels measured from a filtered aliquot (as described above).
NH4log = Log of ammonia values.

NO3 = Nitrate levels measured from a filtered aliquot (as described above).
NO3log = Log of nitrate values.
DOC = Dissolved organic carbon levels measured from a filtered aliquot (as described above)
SusSol = Total suspended solids; anything such as zooplankton, algae, sand, etc. that stays on the 0.7 micrometer GFF Whatman filter after filtering the water sample. SusSol = total dried sample weight minus the filter weight divided by the volume of water sample filtered.
SusSolLog = Log of total suspended solids.
AshfreeSS (OSS) = **Note: These values actually represent Organic suspended solids(OSS); total dried sample weight - oxidized weight (weight of filter and the inorganic material which would not volatilize at 450 degrees C) divided by the volume of water sample filtered. This variable name has been changed to OSS.**
Ashfreelog = **Note: These values actually represent the log of Organic Suspended Solids (OSS).**
ISS = Inorganic suspended sediments (solids); the oxidized weight minus the initial precombusted filter weight divided by the volume of water sample filtered. This variable is not found in the original raw database.
CHLA = Chlorophyll a levels measured fluorometrically.
CHLAlog = Log of Chlorophyll a values.
SAL = Salinity measured in parts per thousand from a refractometer.
TEMP = Temperature measured in degrees Celsius.

Variable	Type (total size of value.number of decimal places)	*Range of Measurement (min-max)*
Creek	Integer, Alpha	1-8, A-C
Date (mm/dd/yyyy)	Integer	1-12, 1-31, 1997-2000
Sample#	Integer	1-151
Total Nitrogen Filtered (TNF)	Real 4.1	0.2 – 77.3
Total Phosphorus Filtered (TPF)	Real 4.1	-0.6 – 4.8
Ortho phosphate (PO4)	Real 5.2	-0.04 – 2.23
Ammonia (NH4)	Real 5.2	0.08 – 41.50
Nitrate (NO3)	Real 5.2	-0.01 – 4.70
Dissolved Organic Carbon (DOC)	Real 4.1	1.2 – 25.7
Total Suspended Solids (SusSol)	Real 5.3	0.012 – 0.815
Organic Suspended Solids (OSS)	Real 6.3	-0.010 – 0.153
Inorganic Suspended Solids (ISS)	Real 5.3	0.001 – 0.663
Chlorophyll a (CHLA)	Real 5.2	0.32 – 62.91
Salinity (SAL)	Integer	6 - 37
Temperature (TEMP)	Integer	3 - 35

*Range of measurement values are actual highest and lowest values collected during the database timeframe. They may include values that are considered anomalous.

The table below lists the Creek Project (CP) weekly sample event numbers and the corresponding dates.

Year 1997		Year 1998		Year 1999		Year 2000	
Sample	Date	Sample	Date	Sample	Date	Sample	Date
CP1	03/19/1997	CP42	01/09/1998	CP94	01/04/1999	CP144	01/06/2000
CP2	03/28/1997	CP43	01/13/1998	CP95	01/15/1999	CP145	01/10/2000
CP3	04/01/1997	CP44	01/19/1998	CP96	01/18/1999	CP146	01/20/2000
CP4	04/07/1997	CP45	01/26/1998	CP97	01/29/1999	CP147	01/26/2000
CP5	04/17/1997	CP46	02/02/1998	CP98	02/02/1999	CP148	02/02/2000
CP6	04/22/1997	CP47	02/11/1998	CP99	02/12/1999	CP149	02/09/2000
CP7	04/29/1997	CP48	02/17/1998	CP100	02/16/1999	CP150	02/18/2000
CP8	05/06/1997	CP49	02/25/1998	CP101	02/22/1999	CP151	02/23/2000
CP9	05/12/1997	CP50	03/03/1998	CP102	03/02/1999		
CP10	05/21/1997	CP51	03/10/1998	CP103	03/09/1999		
CP11	05/26/1997	CP52	03/18/1998	CP104	03/16/1999		
CP12	06/05/1997	CP53	03/25/1998	CP105	03/22/1999		
CP13	06/09/1997	CP54	03/31/1998	CP106	03/30/1999		
CP14	06/16/1997	CP55	04/08/1998	CP107	04/05/1999		
CP15	06/23/1997	CP56	04/13/1998	CP108	04/15/1999		
CP16	07/01/1997	CP57	04/23/1998	CP109	04/19/1999		
CP17	07/09/1997	CP58	04/27/1998	CP110	04/29/1999		
CP18	07/17/1997	CP59	05/08/1998	CP111	05/03/1999		
CP19	07/23/1997	CP60	05/12/1998	CP112	05/14/1999		
CP20	07/29/1997	CP61	05/22/1998	CP113	05/18/1999		
CP21	08/05/1997	CP62	05/26/1998	CP114	05/27/1999		
CP22	08/15/1997	CP63	06/05/1998	CP115	06/01/1999		
CP23	08/19/1997	CP64	06/09/1998	CP116	06/11/1999		
CP24	08/29/1997	CP65	06/15/1998	CP117	06/17/1999		
CP25	09/03/1997	CP66	06/25/1998	CP118	06/25/1999		
CP27	09/15/1997	CP67	06/30/1998	CP119	06/29/1999		
CP28	09/22/1997	CP68	07/07/1998	CP120	07/09/1999		
CP29	09/30/1997	CP69	07/13/1998	CP121	07/14/1999		
CP30	10/06/1997	CP70	07/21/1998	CP122	07/23/1999		
CP31	10/15/1997	CP71	07/27/1998	CP123	07/29/1999		
CP32	10/20/1997	CP72	08/05/1998	CP124	08/02/1999		
CP33	10/29/1997	CP73	08/11/1998	CP125	08/09/1999		
CP34	11/03/1997	CP74	08/18/1998	CP126	08/16/1999		
CP35	11/14/1997	CP75	08/24/1998	CP127	08/24/1999		
CP36	11/18/1997	CP76	09/04/1998	CP128	08/31/1999		
CP37	11/26/1997	CP77	09/09/1998	CP129	09/07/1999		
CP38	12/02/1997	CP78	09/16/1998	CP130	09/23/1999		
CP39	12/12/1997	CP79	09/22/1998	CP131	09/28/1999		
CP40	12/15/1997	CP80	10/02/1998	CP132	10/07/1999		
CP41	12/30/1997	CP81	10/06/1998	CP133	10/13/1999		
		CP82	10/15/1998	CP134	10/22/1999		
		CP83	10/20/1998	CP135	10/26/1999		
		CP84	10/27/1998	CP136	11/04/1999		
		CP85	11/02/1998	CP137	11/12/1999		
		CP86	11/10/1998	CP138	11/15/1999		
		CP87	11/18/1998	CP139	11/22/1999		
		CP88	11/23/1998	CP140	11/29/1999		
		CP89	12/02/1998	CP141	12/07/1999		
		CP90	12/07/1998	CP142	12/13/1999		
		CP91	12/17/1998	CP143	12/20/1999		
		CP92	12/21/1998				
		CP93	12/31/1998				

5.2.2 Entity and Attribute Detail Citation:
Definitions were developed by the Baruch Institute's and Coastal Carolina University's researchers, data managers, and technicians; no published standards for entity definitions were used to define the entities used in this dataset. However, some of the entity type definitions are standard for the field of estuarine ecology.

6. Distribution Information

6.1 Distributor:

10.2 Contact Organization Primary

10.1.2 Contact Organization:	Univ. of South Carolina's Baruch Institute
10.1.1 Contact Person:	Ginger Ogburn-Matthews
10.3 Contact Position:	Research Data Manager & Analyst
10.4 Contact Address	
10.4.1 Address Type:	Mailing Address
10.4.2 Address:	USC Baruch Marine Field Lab
10.4.2 Address:	PO Box 1630
10.4.3 City:	Georgetown
10.4.4 State or Province:	South Carolina
10.4.5 Postal Code:	29442
10.4.6 Country:	USA
10.5 Contact Voice Telephone:	(843) 546-6219
10.7 Contact Facsimile Telephone:	(843) 546-1632
10.8 Contact Electronic Mail Address:	ginger@belle.baruch.sc.edu
10.9 Hours of Service:	8:30 am to 4:30 pm EST/EDT Mon.- Friday

6.2 Resource Description:
Creek Project's Water Chemistry, Chlorophyll, and Suspended Sediment Database
Creek Project's Chlorophyll Database
Creek Project's Water Chemistry
Creek Project's Suspended Sediment Database
Creek Project's Water Nutrient Database

Dataset Identification names:

Directory: WATERCHEMISTRY.ORIGINAL.RAW: (Total size 603 Mb, 37 Folders, 1324 files)
CONTENTS:

Directory: DATA: all files are in **MICROSOFT EXCEL WORKBOOK FORMAT and .CSV FORMAT**
CHEM97.xls (March 19, 1997-February 11, 1998)
CHEM97.csv
CHEM98.xls (February 17, 1998-February 22, 1999)
CHEM98.csv
CHEM99.xls (March 2, 1999-February 23, 2000)
CHEM99.csv
cp01-cpa151.xls
SAL97-99.csv
TEMP97-99.csv
SusSol97-99.csv
AshfreeSS97-99.csv **(Note: Represents Organic Suspended Solids)**
Chla97-99.csv
NH497-99.csv
NO397-99.csv
PO497-99.csv
DOC97-99.csv
TN97-99.csv
TP97-99.csv

Directory: WATERCHEMISTRY.ORIGINAL.RAW (Continued)

All files in the Directories below are scanned images from the original data sheets and are in the JPG format.

Directory: **Carbon.1997-2000:** are Carbon Output Sheets and all files are in **.JPG FORMAT**

Directory: Carbon 1997
DOC.CP001.MAR19.1997-DOC.CP041.DEC30.1997
Directory: Carbon 1998
DOC.CP042.JAN09.1998-DOC.CP093.DEC31.1998
Directory: Carbon 1999
DOC.CP094.JAN04.1999-DOC.CP143.DEC20.1999
Directory: Carbon 2000
DOC.CP144.JAN06.2000-DOC.CP155.MAY31.2000

Directory: **CHLA.1997-2000:** are Chlorophyll A Data Sheets and all files are in **.JPG FORMAT**

Directory: CHLA 1997
CHLA.CP001.MAR19.1997-CHLA.CP041.DEC30.1997
Directory: CHLA 1998
CHLA.CP042.JAN09.1998-CHLA.CP093.DEC31.1998
Directory: CHLA 1999
CHLA.CP094.JAN04.1999-CHLA.CP143.DEC20.1999
Directory: CHLA 2000
CHLA.CP144.JAN06.2000-CHLA.CP155.MAY31.2000

Directory: **Nutrient.1997-2000:** all files are in **.JPG FORMAT**

Directory: NH4.1997-2000: Ammonia (NH4) Output Sheets

Directory: NH4 1997
NH4.CP001.MAR19.1997-NH4.CP041.DEC30.1997
Directory: NH4 1998
NH4.CP042.JAN09.1998-NH4.CP093.DEC31.1998
Directory: NH4 1999
NH4.CP094.JAN04.1999-NH4.CP143.DEC20.1999B
Directory: NH4 2000
NH4.CP144.JAN06.2000A-NH4.CP155.MAY31.2000B

Directory: NNOP.1997-2000: Nitrate-Nitrite (NN) and Ortho-Phosphate (OP) Output Sheets

Directory: NNOP 1997
NNOP.CP001.MAR19.1997-NNOP.CP041.DEC30.1997
Directory: NNOP 1998
NNOP.CP042.JAN09.1998- NNOP.CP093.DEC31.1998
Directory: NNOP 1999
NNOP.CP094.JAN04.1999- NNOP.CP143.DEC20.1999B
Directory: NNOP 2000
NNOP.CP144.JAN06.2000A- NNOP.CP155.MAY31.2000B

Directory: TNTP.1997-2000: Total Nitrogen (TN) and Total Phosphorus (TP) Output Sheets

Directory: TNTP 1997
TNTP.CP001.MAR19.1997- TNTP.CP041.DEC30.1997
Directory: TNTP 1998
TNTP.CP042.JAN09.1998- TNTP.CP093.DEC31.1998
Directory: TNTP 1999
TNTP.CP094.JAN04.1999- TNTP.CP143.DEC20.1999B
Directory: TNTP 2000
TNTP.CP144.JAN06.2000A- TNTP.CP152.APR06.2000B

Directory: WATERCHEMISTRY.ORIGINAL.RAW (Continued)

All files in the Directories below are scanned images from the original data sheets and are in the JPG format.

Directory: Sediment.1997-2000
- Directory: Sediment 1997
  - SED.CP001.MAR19.1997- SED.CP041.DEC30.1997
- Directory: Sediment 1998
  - SED.CP042.JAN09.1998- SED.CP093.DEC31.1998
- Directory: Sediment 1999
  - SED.CP094.JAN04.1999- SED.CP143.DEC20.1999
- Directory: Sediment 2000
  - SED.CP144.JAN06.2000- SED.CP155.MAY31.2000

Directory: ParameterSheets1997-2000: all files are in **.JPG FORMAT**
- Directory: Parameter Sheets 1997
  - PS.CP001.MAR19.1997- PS.CP041.DEC30.1997
- Directory: Parameter Sheets 1998
  - PS.CP042.JAN09.1998- PS.CP093.DEC31.1998
- Directory: Parameter Sheets 1999
  - PS.CP094.JAN04.1999- PS.CP143.DEC20.1999
- Directory: Parameter Sheets 2000
  - PS.CP144.JAN06.2000- PS.CP155.MAY31.2000

Directory: WATERCHEMISTRY.RESCUE2003.PROCESS: (Total size 25.2 Mb, 14 Folders, 130 files)
CONTENTS:

Directory: DATA: all files are in **MS Excel format**
- Directory: ISS
  - All ISS Data from Creek 1 through 8 from 1997 to 2000
- Directory: OSS
  - All OSS Data from Creek 1 through 8 from 1997 to 2000
- Directory: Chla
  - All Chla Data from Creek 1 through 8 from 1997 to 2000
- Directory: DOC
  - All DOC Data from Creek 1 through 8 from 1997 to 2000
- Directory: NH4
  - All NH4 Data from Creek 1 through 8 from 1997 to 2000
- Directory: NO3
  - All NO3 Data from Creek 1 through 8 from 1997 to 2000
- Directory: PO4
  - All PO4 Data from Creek 1 through 8 from 1997 to 2000
- Directory: SAL TEMP
  - All SAL TEMP Data from Creek 1 through 8 from 1997 to 2000
- Directory: SusSol
  - All SusSol Data from Creek 1 through 8 from 1997 to 2000
- Directory: TNF
  - All TNF Data from Creek 1 through 8 from 1997 to 2000
- Directory: TPF
  - All TPF Data from Creek 1 through 8 from 1997 to 2000
- Directory: ISS Calculations
  - ISS Caluclations.xls
  - ISS Caluclations.csv
- CHEM97.xls
- CHEM98.xls
- CHEM99.xls
- SAL97-99.csv

Directory: WATERCHEMISTRY.RESCUE2003.PROCESS

Directory: DATA (Continued)

TEMP97-99.csv
SusSol97-99.csv
OSS97-99.csv
ISS97-99.csv
CHLA97-99.csv
NH497-99.csv
NO397-99.csv
PO497-99.csv
DOC97-99.csv
TNF97-99.csv
TPF97-99.csv

Directory: GRAPHICS: all files are in **SIGMAPLOT 8.0 FORMAT**

File: CPWaterChem

Directory: WATERCHEMISTRY.RESCUE2003.FINAL: (Total size 18.9 Mb, 15 Folders, 99 files)
CONTENTS:

Directory: FINAL.DOCUMENTATION: the file is in MICROSOFT WORD FORMAT, TEXT, PDF

CREEK.WATERCHEMISTRY.FINAL

Directory: FINAL.GRAPHICS: all files are in **.JPG FORMAT**

Directory: TPF
TPF.CREEK1.1997-2000 - TPF.CREEK8.1997-2000
Directory: TNF
TNF.CREEK1.1997-2000 - TNF.CREEK8.1997-2000
Directory: SusSol
SusSol.CREEK1.1997-2000 - SusSol.CREEK8.1997-2000
Directory: SAL
SAL.CREEK1.1997-2000 - SAL.CREEK8.1997-2000
Directory: TEMP
TEMP.CREEK1.1997-2000 - TEMP.CREEK8.1997-2000
Directory: PO4
PO4.CREEK1.1997-2000 - PO4.CREEK8.1997-2000
Directory: NO3
NO3.CREEK1.1997-2000 - NO3.CREEK8.1997-2000
Directory: NH4
NH4.CREEK1.1997-2000 - NH4.CREEK8.1997-2000
Directory: DOC
DOC.CREEK1.1997-2000 - DOC.CREEK8.1997-2000
Directory: CHLA
CHLA.CREEK1.1997-2000 - CHLA.CREEK8.1997-2000
Directory: OSS
OSS.CREEK1.1997-2000 - OSS.CREEK8.1997-2000
Directory: ISS
ISS.CREEK1.1997-2000 - ISS.CREEK8.1997-2000

Directory: FINAL.DATA: all files are in **MS Excel and Comma Separate Value (CSV) format**

Contains all data from CHEM97.xls, CHEM98.xls, and CHEM99.xls merged into one large spreadsheet, called FINAL.CREEKWATERCHEM

6.3 Distribution Liability:

The datasets are only as good as the quality assurance and quality control procedures outlined in the Metadata. The user bears all responsibility for its subsequent use in any further analyses or comparisons. No warranty expressed or implied is made regarding the accuracy or utility of any data collected, managed, or disseminated for general or scientific purposes by the Belle W. Baruch Institute for Marine and Coastal Sciences. This disclaimer applies both to individual use of the data and aggregate use with other data. It is strongly required that these data be directly acquired from the Belle W. Baruch Institute for Marine and Coastal Sciences and not indirectly through other sources which may have changed the data in some way. It is strongly recommended that careful attention be paid to the contents of the metadata file associated with these data. Neither the Belle W. Baruch Institute for Marine and Coastal Sciences, Coastal Carolina University, nor the National Science Foundation shall be held liable for the use and/or misuse of the data described and/or contained herein.

6.4 Standard Order Process

6.4.2. Digital Form

6.4.2.1 Digital Transfer Information

6.4.2.1.1. Format Name: EXCEL (.XLS) or WORD (.DOC) format as well as .CSV or .TXT (text only) format.

6.4.2.1.2 Format Version Number: Microsoft Office Professional 2000

6.4.2.1.6 File Decompression Technique: No compression applied

6.4.2.2 Digital Transfer Option

6.4.2.2.1.1 Computer Contact Information

6.4.2.2.1.1.1 Network Address

6.4.2.2.1.1.1.1 Network Resource Name: http://links.baruch.sc.edu/data/

6.4.3 Fees: None

6.5 Custom Order Process:

If requesting Non-digital (Paper (hard copy) printout), a fee of $50 per hour (with a one-hour minimum) plus the cost of supplies will be imposed. As an offline option, CD-ROMs are available at the cost of $5.00 each. This fee pays for the CD, the creation of the CD, and mailing charges.

7. Metadata Reference Information

7.1 Metadata Date: 20000730

7.2 Metadata Review Date: 20040227

7.4 Metadata Contact:

10.2 Contact Organization Primary

10.1.2 Contact Organization:	Univ. of South Carolina's Baruch Institute
10.1.1 Contact Person:	Ginger Ogburn-Matthews
10.3 Contact Position:	Research Data Manager & Analyst
10.4 Contact Address	
10.4.1 Address Type:	Mailing Address
10.4.2 Address:	USC Baruch Marine Field Lab
10.4.2 Address:	PO Box 1630
10.4.3 City:	Georgetown
10.4.4 State or Province:	South Carolina
10.4.5 Postal Code:	29442
10.4.6 Country:	USA
10.5 Contact Voice Telephone:	(843) 546-6219
10.7 Contact Facsimile Telephone:	(843) 546-1632
10.8 Contact Electronic Mail Address:	ginger@belle.baruch.sc.edu
10.9 Hours of Service:	8:30 am to 4:30 pm EST/EDT Mon. - Friday

7.5 Metadata Standard Name:

Content Standard for Digital Geospatial Metadata, Part 1: Biological Data Profile

7.6 Metadata Standard Version: FGDC-STD_001.1-1999