CATALOG DOCUMENTATION
NATIONAL COASTAL ASSESSMENT- NORTHEAST DATABASE
YEARS 2000-2006
WATER COLUMN NUTRIENTS DATA: "NUTRNTS"

TABLE OF CONTENTS

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

1. DATASET IDENTIFICATION

1.1 Title of Catalog document

National Coastal Assessment-Northeast Region Database
Years 2000-2006
Water Column Nutrients Data

1.2 Authors of the Catalog entry

John Kiddon, U.S. EPA NHEERL-AED
Harry Buffum, Raytheon Corp.

1.3 Catalog revision date

October 2009

1.4 Dataset name

NUTRNTS

1.5 Task Group

National Coastal Assessment-Northeast

1.6 Dataset identification code

004

1.7 Version

001

1.8 Request for Acknowledgment

EMAP requests that all individuals who download EMAP data acknowledge the source of these data in any reports, papers, or presentations. If you publish these data, please include a statement similar to: "Some or all of the data described in this article were produced by the U. S. Environmental Protection Agency through its Environmental Monitoring and Assessment Program (EMAP)".

2. INVESTIGATOR INFORMATION (for full addresses see Section 13)

2.1 Principal Investigators (NCA Northeast Region)

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2.2 Sample Collection Investigators

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2.3 Sample Processing Investigators

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3. DATASET ABSTRACT

3.1 Abstract of the Dataset

The NUTRNTS data file reports the concentrations of nutrients and related parameters measured in the National Coastal Assessment during the summer of 2000-2006. Included is information regarding ammonium, nitrate and nitrite, nitrite, orthophosphate, chlorophyll *a*, and total suspended solids. Results are reported for three water layers—surface, mid-depth, and bottom, except for shallow stations (< 2m), in which case a single mid-depth measurement is reported. Only data for the northeastern states (ME through VA) are included here. One record is presented for each analyte measured per level per sampling event.

3.2 Keywords for the Dataset

Ammonium, nitrate, nitrite, orthophosphate, total suspended solids, chlorophyll *a*

4. OBJECTIVES AND INTRODUCTION

4.1 Program Objective

The National Coastal Assessment (NCA) is a national monitoring and assessment program with the primary goal of providing a consistent evaluation of the estuarine condition in U.S. estuaries. It is an initiative of the Environmental Monitoring and Assessment Program (EMAP), and is a partnership of several federal and state environmental agencies, including: EPA's Regions, Office of Research and Development, and Office of Water; state environmental protection agencies in the 24 marine coastal states and Puerto Rico; and the United States Geological Survey (USGS) and the National Oceanic and Atmospheric Agency (NOAA). The NCA program was initiated in 2000 and completed in 2006.

Stations were randomly selected using EMAP's probabilistic sampling framework and were sampled once during a summer index period (June to October). A consistent suite of indicators was used to measure conditions in the water, sediment, and in benthic and fish communities. The measured data may be used by the states to meet their reporting requirements under the Clean Water Act, Section 305(b). The data were

also used to generate a series of national reports characterizing the condition of the Nation's estuaries http://www.epa.gov/nccr/.

4.2 Dataset Objective

The NUTRNTS file reports the concentrations of nutrients and related parameters measured in 2000-2006 in the surface, mid-depth, and bottom layers of the water column in Northeast U.S. estuaries.

4.3 Background Discussion

Parameters contained in NUTRNTS data file are listed in Section 4.4. This section provides background information on several of these parameters. The information here pertains to data collected in 2000-2006 in northeastern coastal region, Maine through Virginia.

Water samples were generally collected in the surface mid-depth, and bottom water layers, However, at some shallow stations (<2 m), water was collected at a single mid-depth only. Results from these shallow stations are designated by the parameter LAYER = "Single." Users may wish to include these single-layer data with surface and/or bottom-layer data during analysis. The Table below indicates the number of records reporting data by analyte, layer, and year. Note that Total Nitrogen (TN) and Total Phosphorus (TP) were not measured in the first three years of the program.

Count of stations by ANALYTE, LAYER, and year:

Count of Records		year							
ANALYTE	LAYER	2000	2001	2002	2003	2004	2005	2006	Grand Total
CHLA	Bottom	167	193	93	135	145	171	175	1079
	Mid	108	130	54	92	92	111	130	717
	Single	93	104	73	74	94	92	112	642
	Surface	173	215	93	139	145	172	175	1112
NH4	Bottom	162	179	96	123	131	170	200	1061
	Mid	104	113	55	81	85	130	150	718
	Single	97	103	81	75	101	93	114	664
	Surface	169	191	93	125	132	171	199	1080
NO2	Bottom	108	125	79	91	96	123	148	770
	Mid	61	76	48	61	56	94	113	509
	Single	76	83	75	72	88	89	103	586
	Surface	109	133	78	90	97	124	149	780
NO23	Bottom	162	181	96	136	149	179	199	1102
	Mid	104	115	56	91	96	134	150	746
	Single	96	102	80	75	100	94	114	661
	Surface	170	192	93	138	150	179	200	1122
NO3	Bottom	108	125	79	91	96	118	146	763
	Mid	61	76	48	61	56	91	112	505
	Single	76	83	74	72	87	87	103	582
	Surface	109	133	78	90	97	121	149	777
PO4F	Bottom	161	194	96	136	148	181	199	1115

	Mid	103	128	56	91	95	136	150	759
	Single	96	105	81	75	100	96	114	667
	Surface	169	210	93	138	148	181	200	1139
TN	Bottom				119	96	72	128	415
	Mid				78	65	48	99	290
	Single				76	50	57	81	264
	Surface				123	96	72	127	418
TP	Bottom				118	96	63	122	399
	Mid				75	65	45	95	280
	Single				76	37	53	34	200
	Surface				120	96	63	123	402
TSS	Bottom	85	187	92	134	142	169	208	1017
	Mid	53	128	54	92	94	128	155	704
	Single	32	102	75	75	88	93	114	579
	Surface	91	209	89	141	145	171	209	1055
Grand Total		3103	3915	2158	3579	3654	4171	5099	25679

The Table below elaborates on the Table above by indicating the number of records reporting analyte results by ST_COOP. This Table can be used to identify systematic absences of data collection by coops. (Some absent blocks reflect coop name changes in 2005/6; essentially ST_COOP NJ-C = NJ, NJ-DB = DB, and DE = DI in the Table below. See the metadata file for STATIONS for discussion of the ST_COOP parameter). Note that RI, MA, and CT did not collect nutrient data in 2002. Only 2005/06 data for MD and VA are contained in this database; contact John Macauley (Section 13) for information regarding earlier data for these states. Regarding reporting of NO2, NO3, and NO23 (the sum of NO2 and NO3), generally only two of the three entities are measured and the third is calculated. Where possible, all three values are reported; however, in some cases only NO23 values were available.

Count of records by ST_COOP, ANALYTE, and Year:

Count of Records		year							
ST_COOP	ANALYTE	2000	2001	2002	2003	2004	2005	2006	Grand Total
ME	CHLA	73	132	78	86	90	67	71	597
	NH4	75	138	77	82	91	70	71	604
	NO2	75	138	77	82	91	70	71	604
	NO23	75	138	77	82	91	70	71	604
	NO3	75	138	77	82	91	70	71	604
	PO4F	75	138	77	82	91	70	71	604
	TN				80	91		71	242
	TP				80	91		71	242
	TSS		125	75	84	91	70	71	516
NH	CHLA	49	47	37	44	47	45	39	308
	NH4	49	47	44	45	48	46	38	317
	NO2	49	47	45	45	47	46	39	318
	NO23	49	47	45	45	47	46	39	318

	NO3	49	47	45	45	46	46	39	317
	PO4F	49	47	45	45	47	46	39	318
	TN				46		42	37	125
	TP				46		45	39	130
	TSS		44	41	45	28	45	39	242
MA	CHLA	74	98		42	41	63	64	382
	NH4	71	92		40	45	63	64	375
	NO2								
	NO23	71	69		40	45	63	64	352
	NO3								
	PO4F	71	92		40	45	63	64	375
	TN				40				40
	TP				40				40
	TSS	73	94		41	40	62	64	374
RI	CHLA	69	75		51	42	61	56	354
	NH4	69	73		52	42	61	56	353
	NO2	69	73		52	42	61	56	353
	NO23	69	73		52	42	52	56	344
	NO3	69	73		52	42	52	53	341
	PO4F	69	73		52	38	61	56	349
	TN				52				52
	TP				52				52
	TSS		75		52	42	62	56	287
CT	CHLA	77	95		33	52	41	92	390
	NH4	77	44		30	50	35	92	328
	NO2							36	36
	NO23	77	71		33	53	41	92	367
	NO3							36	36
	PO4F	74	95		33	53	41	92	388
	TN				24	50	35	90	199
	TP				17	50	35	90	192
	TSS	70	95		33	52	41	92	383
NY	CHLA	42	33	46	49	58	56	30	314
	NH4	30	33	46	20	16	35	30	210
	NO2								
	NO23	30	33	46	53	60	58	30	310
	NO3								
	PO4F	30	33	46	53	60	58	30	310
	TN				20	16	35	30	101
	TP				20	16	35	30	101
	TSS	45	32	46	53	59	58	53	346
NJ-C	CHLA	56	54	52	34	52			248
	NH4	59	56	52	34	53			254
	NO2	59	56	52	34	53			254
	NO23	59	56	52	34	53			254
	NO3	59	56	52	34	53			254
	PO4F	59	56	52	34	53			254

	TN				34	53			87
	TP				34	53			87
	TSS	59	58	48	34	53			252
NJ	CHLA						27	60	87
	NH4						28	59	87
	NO2						25	60	85
	NO23						28	60	88
	NO3						25	60	85
	PO4F						28	60	88
	TN						28	60	88
	TP								
	TSS						27	60	87
NJ-DB	CHLA	84	87	78	82	74			405
	NH4	84	82	84	82	84			416
	NO2	84	82	84	82	84			416
	NO23	84	82	83	82	84			415
	NO3	84	82	83	82	84			415
	PO4F	84	82	84	82	84			416
	TN				81	84			165
	TP				81	84			165
	TSS	14	82	81	81	84			342
DB	CHLA						8	31	39
	NH4						31	34	65
	NO2						31	34	65
	NO23						31	34	65
	NO3						31	34	65
	PO4F						31	34	65
	TN							33	33
	TP							23	23
	TSS							33	33
DE	CHLA	17	21	22	19	20			99
	NH4	18	21	22	19	20			100
	NO2	18	21	22	19	20			100
	NO23	18	21	22	19	20			100
	NO3	18	21	22	19	20			100
	PO4F	18	21	22	19	20			100
	TN				19	13			32
	TP				19				19
	TSS		21	19	19	20			79
DI	CHLA						26	28	54
	NH4						24	28	52
	NO2						26	28	54
	NO23						26	28	54
	NO3						26	28	54
	PO4F						26	28	54
	TN								

	TP								
	TSS						26	28	54
MD	CHLA						44		44
	NH4						62	70	132
	NO2						62	68	130
	NO23						62	68	130
	NO3						62	68	130
	PO4F						62	68	130
	TN								
	TP								
	TSS						62	70	132
VA	CHLA						108	121	229
	NH4						109	121	230
	NO2						109	121	230
	NO23						109	121	230
	NO3						105	121	226
	PO4F						108	121	229
	TN						109	114	223
	TP						109	121	230
	TSS						108	120	228
Grand Total		3103	3915	2158	3579	3654	4171	5099	25679

Samples collected in 2000-2006 were analyzed by a variety of state and national-contract analytical labs, identified by the parameter LABCODE. The Table below lists the number of records analyzed by the indicated labs by ST_COOP and year. While some indications of minor systematic laboratory biases may be evident for some analytes and labs, the biases were not considered great enough to exclude the results from the database. The parameter LABCODE can be used to more carefully examine the results for laboratory bias. Addresses of the participating labs follow the Table.

Count of nutrient records by ST_COOP, LABCODE, and Year:

Count of records		year							
ST_COOP	LABCODE	2000	2001	2002	2003	2004	2005	2006	Grand Total
ME	NAT-ERI	375	815	460					1650
	NAT-GED	73	132	78	86	90	67		526
	NAT-B&B				654	728	420	639	2441
NH	NAT-ERI	245	279	265					789
	NAT-GED	49	47	37	44				177
	NAT-B&B				362				362
	NH					310	407	348	1065
MA	NAT-B&B				80				80
	MA	360	445		203	216	314	320	1858
RI	NAT-ERI	345	440						785
	NAT-GED	69	75		51				195
	NAT-B&B				416				416
	RI					290	410	389	1089

CT	CT-ERI	375	400		191	349	245	390	1950
	NY-MSRC				12	11	24		47
	NAT-B&B							322	322
NY	NY-NYC	97							97
	NY-SUFF	80	164	230	136	110	245		965
	NY-MSRC				132	175	90		397
	NY							233	233
NJ-C	NAT-ERI		116						116
	NAT-GED		17		10	3			30
	NAT-B&B				80	3			83
	NJ	410	259	360	216	470			1715
NJ	NJ						216	479	695
NJ-DB	NAT-ERI	350	492	499					1341
	NAT-GED	70	87	78	82	72			389
	NAT-B&B				653	656			1309
	NJ	98				18			116
DB	NAT-GED						8		8
	NAT-B&B						155	210	365
	NJ							80	80
DE	NAT-ERI	90							90
	NAT-GED	17							17
	NAT-B&B				133				133
	DE		147	151	38	153			489
DI	DE						180	196	376
MD	MD						416	412	828
VA	VA						974	1081	2055
Grand Total		3103	3915	2158	3579	3654	4171	5099	25679

Addresses of analysis laboratories participating in Northeast NCA program:

LABCODE = NAT-ERI: Environmental Research Institute, University of Connecticut, Storrs, CT 06269-5210.

LABCODE = CT-ERI: Environmental Research Institute, University of Connecticut, Storrs, CT 06269-5210.

LABCODE = NAT-GED: (Chlorophyll analyses only) USEPA Gulf Ecology Division, 1 Sabine Island Drive, Gulf Breeze, FL 32561

LABCODE = NY_SUFF: (NY analyses only) Suffolk County Dept of Health Services, Hauppaug, NY 11788

LABCODE = NJ: (NJ analyses only) New Jersey Department of Environmental Protection, Trenton, NJ 08625

LABCODE = DE: (DE analyses only) Delaware Department of Natural Resources & Environ Control, 89 Kings Highway, Dover, DE 19901

LABCODE = MA: (MA analyses only) University of Massachusetts/Boston, Boston, MA 02125

LABCODE = NH: University of New Hampshire, Durham, NH 03824.

LABCODE = RI: University of Rhode Island, Graduate School of Oceanography, 215 South Ferry Road, Narragansett, RI 02882.

LABCODE = VA: Division of Consolidated Laboratory Services (DCLS) 600 North 5th Street Richmond, VA 23219
Water Chemistry Laboratory, Old Dominion University, NORFOLK, VA 23529

Some of the measured values in this file are smaller than the Method Detection Limit (MDL). Such 'non-detects' are reported as zero in this file, and the record is highlighted with the parameter QACODE = NUT-A. The user may wish to substitute values other than zero for the result, e.g., set the non-detect value to the MDL value, half the MDL value, etc.

NCA planners provide two alternate locations for a station location in the event that the original location cannot be sampled. The parameter STA_ALT indicates whether the station location was the original site, first alternate, or second alternate—STA_ALT = "A", "B", or "C", respectively. Also refer to discussion in the STATIONS metadata file regarding use of this parameter during analysis of the data.

4.4 Summary of Dataset Parameters

* denotes parameters that should be used as key fields when merging data files

PARAMETER	LABEL
*STATION	Station Identifier
*STAT_ALT	Station Location Alternates
	A = As originally planned
	B = First alternate
	C = Second alternate
*EVNTDATE	Event Date
LAYER	Water layer sampled for nutrients
	Bottom — Bottom layer measurement
	Mid — Mid-water measurement
	Surface — Surface layer measurement
	Single — Single measurement only (in shallow water)
LABCODE	Laboratory responsible for processing of samples (See section 4.3)
ANALYTE	Analyte Code
	NH4 — Dissolved Ammonia (mg/L as N)
	NO23 — Diss Nitrite and Nitrate (mg/L as N)
	NO2 — Dissolved Nitrite (mg/L as N)
	NO3 — Dissolved Nitrate (mg/L as N)
	PO4F — Dissolved Orthophosphate (mg/L as P)
	TN — Total Nitrate ((mg/L as N)
	TP — Total Phosphate ((mg/L as N))
	TSS — Total Suspended Solids (mg/L)
	CHLA — Chlorophyll *a* (ug/L)
CONC	Concentration
UNITS	Unit of Measure
QACODE	QA Qualifier Code
	CHL-C — Concentrations calculated from volume reported on field data sheet.

TSS-C Concentrations calculated from volume reported on field data sheet.
NUT_A Concentration below detection limit; CONC reported as zero.
NUT-B Concentration below detection limit; CONC reported as recorded.
NUT-C Concentration flagged by laboratory for QA reasons.
MDL Method Detection Limit

5. DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition

The sample collection methods used by USEPA trained field crews will be described here. Any significant variations by NCA partners are noted in Section 5.1.12. Details regarding NCA partners are reported in the STATIONS data file.

5.1.1 Sampling Objective

Seawater was collected and filtered for use in the measurement of nutrient, phytoplankton and total suspended solids concentrations. Samples were collected in the surface, mid, and bottom water layers, except at some shallow stations (water depth < 2m) where a single mid-depth sample was taken.

5.1.2 Sample Collection: Methods Summary

A seawater sample was collected from surface, mid-depth, and bottom water layers with a 5L Go-Flo® sampling bottle. At some shallow locations (water depth < 2m) only one mid-depth water sample was taken. Duplicate water samples from the same cast were filtered aboard ship with 0.7-micron glass-fiber filter pads (not all duplicates were analyzed), and both the filtered water and filter were immediately frozen. Replicate field samples were also taken from separate casts at approximately 10% of the stations to evaluate the repeatability of the sampling procedure.

5.1.3 Beginning Sampling Dates

10 June 2000

5.1.4 Ending Sampling Dates

7 October 2007

5.1.5 Sampling Platform

Samples were collected from gasoline or diesel powered boats 18 to 133 feet in length

5.1.6 Sampling Equipment

5 L Go-Flo® sampling bottle

5.1.7 Manufacturer of Sampling Equipment

Not applicable

5.1.8 Key Variables

Not applicable

5.1.9 Sample Collection: Calibration

The sampling gear does not require calibration

5.1.10 Sample Collection: Quality Control

Duplicate field samples from independent casts were taken, representing about 10% of all events. All parameters were measured on these duplicates, and the measurement precision is reported in Section 9.3.

5.1.11 Sample Collection: References

Strobel, C.J. 2000. Environmental Monitoring and Assessment Program: Coastal 2000 - Northeast component: field operations manual. Narragansett (RI): U.S. Environmental Protection Agency, National Health and Environmental Effects Research Laboratory, Atlantic Ecology Division. EPA/620/R-00/002. 68 p.

U.S. EPA. 2001. National Coastal Assessment: Field Operations Manual. U.S. Environmental Protection Agency, Office of Research and Development, National Health and Environmental Effects Research Laboratory, Gulf Ecology Division, Gulf Breeze, FL. EPA/620/R-01/003. 72 p.

5.1.12 Sample Collection: Alternate Methods

Not Applicable

5.2 Data Preparation and Sample Processing

The processing procedures of the core NCA water parameters described here are the methods of the national contract laboratory (see Section 4.3). Any significant variations in procedures used by other state labs are noted in Section 5.1.12.

5.2.1 Sample Processing Objective

Water samples were analyzed to measure the concentrations of water column nutrients, total suspended solids and phytoplankton pigments.

5.2.2 Sample Processing: Methods Summary

Filters and filtrate were delivered frozen from sampling locations following a filtration operation using a 0.7 micron glass-fiber filter (see Section 5.1.2). NH4, PO4, NO23, NO3, NO2, and Si were measured by analyzing filtered water with a segmented continuous flow analyzer. TN TP Chlorophyll *a* pigments were extracted from filter with 90% acetone and measured without acidification, using the Weshmeyer method. TSS was measured by drying the filter at 103 to 105 °C followed by weighing.

5.2.3 Sample Processing: Calibration

Standard laboratory procedures were followed to assure analytical instruments were calibrated.

5.2.4 Sample Processing: Quality Control

Approximately 5% of all filtered water samples were reanalyzed by the analytical laboratory to determine analytical repeatability of the analytical procedure. Another 5% of dissolved water samples were spiked with a known quantity of constituent and reanalyzed as a test for recovery efficience. For particulate constituents, 10% of all samples were reanalyzed (particulate samples cannot be spiked). Processing quality was considered acceptable if duplicate analyses were consistent within 10% and spiked analyses were as expected within 15%.

5.2.5 Sample Processing: References

D'Elia, C.F., Connor, E.E., Kaumeyer, N.L., Keefe, C.W., Wood, K.V., and Zimmermann, C.F. (1997). Nutrient Analytical Services Laboratory Standard Operating Procedures. Technical Report Series 158-97. Chesapeake Biological

Laboratory, University of Maryland Center for Environmental Science, Solomons, MD: 77 pp.

U.S. EPA. 2001. Environmental Monitoring and Assessment Program (EMAP): National Coastal Assessment Quality Assurance Project Plan 2001-2004. U.S. Environmental Protection Agency, Office of Research and Development, National Health and Environmental Effects Research Laboratory, Gulf Ecology Division, Gulf Breeze, FL. EPA/620/R-01/002. 189 p.

Welschmeyer, N.A. 1994. Fluorometer analysis of chlorophyll *a* in the presence of chlorophyll *b* and pheopigments. Limnology and Oceanography 39:1985-1992.

5.2.6 Sample Processing: Alternate Methods
Not Applicable

6. DATA ANALYSIS AND MANIPULATIONS

6.1 Name of New or Modified Values
Not applicable

6.2 Description of Data Manipulation
Analyte concentrations smaller than the method detection limit were reported as zero (see Section 4.3).

7. DATA DESCRIPTION

7.1 Description of Parameters

7.1.1 Components of the Dataset

NAME	TYPE	LENGTH	LABEL
STATION	Char	9	Station Identifier
STAT_ALT	Char	1	Station Location (A,B or C)
EVNTDATE	Num	8	Event Date
LAYER	Char	8	Water Layer of Nutrients Sample
ANALYTE	Char	5	Analyte Code
CONC	Num	8	Concentration
UNITS	Char	10	Unit of Measure
QACODE	Char	5	QA Qualifier Code
MDL	Num	8	Method Detection Limit
LABCODE	Char	5	Lab identifier

7.1.2 Precision of Reported Values
The values are accurate to no more than three significant digits; however more significant digits may be reported in the dataset because of formatting restrictions.

Parameter	Description	Precision	Min	Max	units
REP_NUM	Replicate Sample Number		1	2	mg/L
NH4	Dissolved Ammonia as N	0.001	0	2.28	mg N/L
NO23	Diss Nitrite and Nitrate as N	0.0001	0	4.61	mg N/L

NO2	Dissolved Nitrite as N	0.0001	0	0.683	mg N/L
NO3	Dissolved Nitrate as N		0	4.58	mg N/L
TN	Total Nitrogen		0.02	0.62	mg N/L
TP	Total Phosphate		0	0.65	mg P/L
PO4F	Dissolved Phosphate as P	0.001	0	0.586	mg P/L
CHLA	Chlorophyll *a*	0.01	0	302	ug/L
TSS	Total Suspended Solids	0.1	0	363	mg/L

7.1.3 Minimum Value in Dataset
See Section 7.1.2

7.1.4 Maximum Value in Dataset
See Section 7.1.2

7.2 Data Record Example

7.2.1 Column Names for Example Records
station stat_alt evntdate layer ANALYTE CONC UNITS QACODE MDL LABCODE

7.2.2 Example Data Records

station	stat_alt	evntdate	layer	ANALYTE	CONC	UNITS	QACODE	MDL	LABCODE
CT03-0021	A	8/20/2003	Bottom	BIOSI	0.9	mg/L		0.01	CT
CT03-0021	A	8/20/2003	Bottom	CHLA	2.2	ug/L		0.08	CT
CT03-0021	A	8/20/2003	Bottom	DOC	2.1	mg/L		0.5	CT

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude (Westernmost)
-77.304 decimal degrees

8.2 Maximum Longitude (Easternmost)
-66.946 decimal degrees

8.3 Minimum Latitude (Southernmost)
36.564 decimal degrees

8.4 Maximum Latitude (Northernmost)
45.1848 decimal degrees

8.5 Name of Region
The National Coastal Assessment Northeast Region covers the northeastern US coastline from Maine to Delaware.

9. QUALITY CONTROL AND QUALITY ASSURANCE

9.1 Measurement Quality Objectives
The measurement quality objectives of the EMAP-Estuaries program specify accuracy and precision requirements of 10% for measured analytes See U.S. EPA for details.

9.2 Data Quality Assurance Procedures
QA procedures included running blanks, spiked samples, and standard reference materials with each batch of samples. Any batch failing to meet the specifications presented in Section 9.1 was reanalyzed or rejected.

9.3 Actual Measurement Quality
All of the data reported in this data file met the QA specifications listed in Section 9.1.

10. DATA ACCESS

10.1 Data Access Procedures
Data can be downloaded from the web
http://www.epa.gov/emap/nca/html/regions/index.html

10.2 Data Access Restrictions
None

10.3 Data Access Contact Persons
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10.4 Dataset Format
ASCII (CSV) and SAS Export files

10.5 Information Concerning Anonymous FTP
Not available

10.6 Information Concerning WWW
No gopher access, see Section 10.1 for WWW access

10.7 EMAP CD-ROM Containing the Dataset
Data not available on CD-ROM

11. REFERENCES

Strobel, C.J. 2000. Environmental Monitoring and Assessment Program: Coastal 2000 - Northeast component: field operations manual. Narragansett (RI): U.S. Environmental Protection Agency, National Health and Environmental Effects Research Laboratory, Atlantic Ecology Division. EPA/620/R-00/002. 68 p.

U.S. EPA. 2001. National Coastal Assessment: Field Operations Manual. U.S. Environmental Protection Agency, Office of Research and Development, National Health and Environmental Effects Research Laboratory, Gulf Ecology Division, Gulf Breeze, FL. EPA/620/R-01/003. 72 p.

U.S. EPA. 2001. Environmental Monitoring and Assessment Program (EMAP): National Coastal Assessment Quality Assurance Project Plan 2001-2004. U.S. Environmental Protection Agency, Office of Research and Development, National Health and Environmental Effects Research Laboratory, Gulf Ecology Division, Gulf Breeze, FL. EPA/620/R-01/002. 189 p.

12. TABLE OF ACRONYMS

AED	Atlantic Ecology Division
EMAP	Environmental Monitoring and Assessment Program
EPA	Environmental Protection Agency
NCA	National Coastal Assessment
NHEERL	National Health and Environmental Effects Research Laboratory
QA/QC	Quality Assurance/Quality Control

13. PERSONNEL INFORMATION

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