VIRGINIA CHESAPEAKE BAY PROGRAM MICROZOOPLANKTON MONITORING SURVEY DATA DICTIONARY

Virginia Chesapeake Bay Water Quality Monitoring Program: Microzooplankton Component
- Taxonomic Data Dictionary
- Event Data Dictionary

NOTE
1) THIS PROGRAM WAS TERMINATED AS OF 31 DECEMBER 2002
2) THIS DICTIONARY WAS REVISED ON 15 AUGUST 2005 AND SUPERSEDES ALL OTHER DICTIONARIES FOR THE VIRGINIA MICROZOOPLANKTON MONITORING DATA

The Commonwealth of Virginia, in cooperation with the US EPA Chesapeake Bay Program, has monitored plankton species abundance and composition in the Virginia Chesapeake Bay mainstem and tributaries since 1985. This program is designed to give comprehensive spatial and temporal information on composition of the microzooplankton in the water column. The Microzooplankton in this survey refers to copepod nauplii, rotifers, and some protozoans. Sampling is performed in conjunction with the Virginia phytoplankton and water quality monitoring programs

NAMES AND DESCRIPTIONS OF ASSOCIATED DATA DICTIONARY FILES:
The 2000 User's Guide to Chesapeake Bay Program Biological and Living Resources Monitoring Data

PROJECT TITLE
Chesapeake Bay Monitoring Program: Lower Chesapeake Bay Microzooplankton Study

CURRENT PRINCIPAL INVESTIGATORS

THIS PROGRAM WAS TERMINATED AS OF 31 DECEMBER 2002; THE FOLLOWING WERE THE INVESTIGATOR AND PROJECT MANAGERS AT TIME OF PROJECT TERMINATION.

>PROGRAM MANAGER: Frederick Hoffman, Virginia Department of Environmental Quality
>PRINICIPAL INVESTIGATORS: Dan Dauer, Kenneth Carpenter, Harold Marshall, Old Dominion University.
>TECHNICAL STAFF: Field collection, sample analysis and data file verification by selected gradate students of R. Birdsong and K. Carpenter, Old Dominion University. Sample analysis (since 1993) by G.Park, A. Logalbo, K. Kowalski and F. Crock. Data Files verified by M. Lane, G. Mateja, A.Gover or F.Crock
>PROGRAMMER/ANALYST: Michael Lane, Old Dominion University, Applied Marine Research Laboratory
>DATA COORDINATOR: Cory Christman, Old Dominion University, Applied Marine Research Laboratory
>PREVIOUS PRINCIPAL INVESTIGATORS: Raymond Birdsong, Old Dominion University (Deceased)

CURRENT FUNDING AGENCIES
Not Applicable

PROJECT COST
Not Applicable

QA/QC OFFICER
Not Applicable

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LOCATION OF STUDY
Lower Chesapeake Bay and its Tidal Tributaries in the Commonwealth of Virginia

DATE INTERVALS
10/01/1993 – 10/01/2002

ABSTRACT
The initial objective of this study is to determine the seasonal composition and abundance of the microzooplankton in the lower Chesapeake Bay and 4 major tributaries. This category includes zooplankton less than 200 microns in size. The first year of the research represented a preliminary study limited to 10 Stations (Park and Marshall, 1994). After the first year, the program was expanded to sample 14 stations. Emphasis is on the temporal and spatial distribution and composition patterns of the major microzooplankton categories, and their relationships to water quality variables and other plankton components. These microzooplankton include copepod nauplii, barnacle nauplii, rotifers, loricated and non-loricated ciliates, polychaete larvae, cladocerans, sarcodinids, and others. Note due to contract changes starting in January 1996, station LE5.5 had a coordinate change. This station move was not documented until August 2005. Due to this station relocation, all data collected at the altered location had the station name changed to LE5.5-W in August 2005.

STATION NAMES AND DESCRIPTIONS

CB6.1	Main Channel, Mid-Bay
CB6.4	Main Channel, Mid-Bay
CB7.3E	Eastern Shore Channel, Southern End
CB7.4	Baltimore Channel, Bay Mouth
LE3.6	Off Mouth of Rappahannock River
WE4.2	Off Mouth of York River
LE5.5	Off Mouth of James River
LE5.5-W	Off Mouth of James River
SBE2	South Branch Elizabeth River
SBE5	South Branch Elizabeth River, Off VEPCO
TF3.3	Rappahannock River, Buoy N40
RET3.1	Rappahannock River, N Buoy R10
TF4.2	Pamunkey River, Off White House
RET4.3	York River, Buoy C57
TF5.5	James River, Red Buoy 107
RET5.2	James River, Off Swann's Point

STATION NAMES, LATITUDE (decimal degrees), LONGITUDE (decimal degrees), TOTAL DEPTH (meters), LATITUDE (degrees, minutes and decimal seconds), AND LONGITUDE (degrees, minutes and decimal seconds). The station positions represent target values. The actual position in the field will vary. The positions below are used by CBPO to coordinate data. All positions are provided as NAD83 coordinates.

STATION	LATITUDE	LONGITUDE	T_DEPTH	LATITUDE (dms)	LONGITUDE (dms)
CB6.1	37.59	-76.16	13.1	37 35' 18"	-77 50' 15"
CB6.4	37.24	-76.21	10.5	37 14' 11"	-77 47' 30"
CB7.3E	37.23	-76.05	17.8	37 13' 43"	-77 56' 45"
CB7.4	37.00	-76.02	13.8	36 59' 44"	-77 58' 45"
LE3.6	37.60	-76.29	9.8	37 35' 48"	-77 42' 54"
LE5.5	37.00	-76.31	21.4	36 59' 48"	-76 18’ 12"
LE5.5-W	36.99	-76.31	6.0	36 59’ 56”	-76 18’ 49”
RET3.1	37.92	-76.82	5.8	37 55' 12.488"	-77 10' 43.138"
RET4.3	37.51	-76.79	5.2	37 30' 24.522"	-77 12' 43.14"
RET5.2	37.21	-76.79	8.3	37 12' 36.533"	-77 12' 25.145"
SBE2	36.81	-76.31	13.0	36 48' 45.533"	-77 41' 39.212"
SBE5	36.77	-76.30	10.0	36 46' 11.534"	-77 42' 14.215"
TF3.3	38.02	-76.91	6.6	38 1' 7.481"	-77 5' 31.122"
TF4.2	37.58	-77.02	6.4	37 34' 47.52"	-78 58' 42.113"
TF5.5	37.31	-77.23	9.0	37 18' 46.534"	-78 46' 2.087"
WE4.2	37.24	-76.39	14.1	37 14' 30"	-77 36' 48"

Average Station depths are based on a ten-year average (1985-1995) of Virginia Department of Environmental Quality; water quality hydrographic data collected concurrently with the zooplankton samples.

METHODOLOGY DESCRIBING CHAIN OF CUSTODY FOR LAB SAMPLES
The zooplankton field chief is the custodian for all samples collected, and verifies proper labeling of bottles, complete field data entries, preservative used and transport to the laboratory. He also supervises the availability of field equipment. Samples are turned over to the laboratory chief who oversees the sample processing, analysis and recording of the raw data.

#BIOLOGICAL ENUMERATION TECHNIQUES
>Chesapeake Bay Program Laboratory Method Code MI102
Each 1-liter sample was allowed to settle for 72 hours and carefully siphoned down to a 300 ml concentrated sample, which were then combined. A two-step settling and siphoning steps followed to produce first a 250 ml concentrate, which was next concentrated to 100 ml. This concentrate was sieved through 73 micron mesh net to trap microzooplankton >73 microns which were washed into a beaker, then placed into a settling chamber #1 for examination and counts. The filtrate was mixed and 3 5ml aliquots are removed and placed in settling chamber #2, with a buffered formalin solution (20%) added to bring the total volume to 25 ml. After 5 minutes of settling, 15 ml of the upper concentrate is removed and placed in settling chamber #3. The settling chambers were allowed to settle for 24 hours, and then counts were made. The entire bottom surface of the settling chambers were scanned at 100x for chamber #1 and at 200x for chamber #2 and #3 using an inverted plankton microscope. Chamber #1 provides counts for the larger microzooplankton (>73 microns), Chamber #2 for Microzooplankton groups between 40 and 73 microns in size, and Chamber #3 for small ciliates < 40 Microns. Counts are reported as number of organisms per liter.
>Additional Preservative: Buffered Formalin

FORMULAS, CALCULATIONS AND CONVERSIONS

The following equation was used to convert raw counts to density (#/L) for each taxon identified:

GROUP 2 OR THREE ARE MULTIPLIED BY 10 IN MAINSTEM AND 20 IN TRIBS
SUM OF GROUP 1+(2* MULTIPLIER)+(3* MULTIPLIER)
DEN_L = DENSITY PER VOLUME ((RAWCOUNT/MILLILITERS OFSAMPLE)*CONCENTRATION)
/TOTAL VOLUME OF COMPOSITE SAMPLE
WHERE
RAW COUNT= NUMBER OF ORGANISMS COUNTED IN A CHAMBER
CONCENTRATION=CONCENTRATION FACTOR {283.286}

MONITORING QA/QC PLAN FOR PROJECT

The principal investigator and laboratory chief for quality assurance routinely check taxon identifications, raw data sheets and other stages of the collection and analysis procedures.

VARIABLE NAMES, MEASUREMENT UNITS AND DESCRIPTIONS

>PARAMETER: COUNT (Density Microzooplankton taxa per liter)
-COLLECTION METHODS: The use of whole water samples over net collections is the protocol followed to assure adequate abundance estimates of the smaller micro- zooplankton components, e.g. smaller ciliates (Brownlee and Jacobs, 1987). Monthly whole water samples are collected at 14 stations in the lower Bay and 4 tributaries using a hose attached to a pump to collect water a specific depth. Two composite water samples, each totaling 15 l, are taken from 5 equidistant depths above the pycnocline and collected in two carboys. Each carboy is thoroughly mixed, and 1 l is taken from each (samples A and B). 10 ml of Lugol's solution are added to each sample, and these samples are then placed in a storage container for transport to the laboratory.
>SAMPLE PRESERVATIVE: Lugol's Solution
>SAMPLE STORAGE ENVIORONMENT: Room Temperature
>TIME IN STORAGE: 1-2 Weeks
-LAB TECHNIQUES WITH REFERENCES:
Brownlee, D.C and F. Jacobs. 1987. Mesozooplankton and microzooplankton in the Chesapeake Bay. In: S. Majumdar, L. Hall, and H. Austin (eds.) Contaminant Problems and Management of Living Chesapeake Bay Resources, The Pennsylvania Academy of Science, Easton, Pa., pp.217-269.
Park, G.S. and H.G. Marshall. 1993. Microzooplankton in the lower Chesapeake Bay, and the tidal Elizabeth, James, and York Rivers. Va.J.Sci. 44:329-340.

>PARAMETER: LATITUDE (Latitude in decimal degrees) LONGITUDE (Longitude in decimal degrees)
COLLECTION METHODS: LORAN-C, NAD27-before July 1995; GPS, NAD83 July 1985 to present
Note: All positions in data sets have been converted to NAD83 coordinates.
-SAMPLE PRESERVATIVES: None
-SAMPLE STORAGE ENVIRONMENT: None
-TIME IN STORAGE: None
-LAB TECHNIQUES WITH REFERENCES: Station positions in data set are approximations of actual positions in the field. Station latitudes and longitudes are input into a Loran-C/ GPS receiver and sampling begins when boat reaches preprogrammed coordinates. Loran-C is accurate to +/- 1500 ft. The actual Loran/GPS coordinates for each sampling event are not currently recorded in data set.

>PARAMETER: P_DEPTH (Composite Sample Cut-off Depth)
COLLECTION METHODS: Hydrolab CTD
-SAMPLE PRESERVATIVES: None
-SAMPLE STORAGE ENVIRONMENT: None
-TIME IN STORAGE: None

-LAB TECHNIQUES WITH REFERENCES: Water column salinity, temperature and depth are recorded prior to zooplankton sampling. Pycnocline is used as the cutoff depth between upper and lower water column for composite samples. If a station has no pycnocline the water column is divided in to thirds by total depth and the top third of the water column is treated as the upper water column.
The pycnocline is determined as follows:
((Bottom Conductivity-Surface Conductivity)/ Bottom Depth)*2= Threshold
If Threshold is less than 500, then the station has no pycnocline. AP is determined to be the top 1/3 of the water column. This rule is also applied if conductivity was not measured at a station.
If Threshold is greater than 500, then the pycnocline depth is determined to be the first depth at which the conductivity change is greater than the threshold value.
Units of measurement:
Conductivity- uhhos/cm
Depth- meters
Prior to 1997 this depth was not recorded in the datasets and is reported as missing.

>PARAMETER: SALZONE (Salinity zone),
-COLLECTION METHODS: Hydrolab CTD
-SAMPLE PRESERVATIVES: None
-SAMPLE STORAGE ENVIRONMENT: None
-TIME IN STORAGE: None
-LAB TECHNIQUES WITH REFERENCES: Water column salinity, temperature and depth are recorded prior to zooplankton sampling. Salinity values are averaged over the upper third of the water column and a salinity zone is determined. Salinity Ranges are as follows: Fresh 0-0.5 ppt (F), Oligohaline >0.5-5.0 ppt (O), Mesohaline >5.0-18 ppt (M) and Polyhaline >18 ppt (P). Prior to 1997, P_depth was not recorded in the datasets. Therefore salinity zones were determined by averaging salinity values from the upper third of the water column.

>PARAMETER: TOTAL_DEPTH (Total Depth in meters)
-COLLECTION METHODS: Hydrolab CTD
-SAMPLE PRESERVATIVES: None
-SAMPLE STORAGE ENVIRONMENT: None
-TIME IN STORAGE: None
-LAB TECHNIQUES WITH REFERENCES: Water column salinity, temperature and depth are recorded prior to zooplankton sampling.

>DATA ENTRY METHOD: From 1989 to 2000- Microzooplankton counts were entered and calculated in a QUATTRO spread sheet directly from the bench sheets by the principle investigator and output as ASCII files. These files were then compared. Data keypunched to microcomputer and/or mainframe terminal. From 2000-2002- Microzooplankton counts were entered and calculated in a FOXPRO Database system directly from the bench sheets by the principle investigator and output as ASCII files.

>DATA VERIFICATION: From 1989 to 2001-Double-entry with comparison of two files in SAS. Re-entry until both copies match exactly. From 2000-2002-Bench sheets were double entered into FOXPRO Database system and re-entered until copies matched bench sheets.

SPECIES INHOUSE CODE AND SCIENTIFIC NAME
Old Dominion University uses in-house numeric codes for species identification.
> INHOUSE SPECIES LIST

PLEASE SEE THE IMPORTANT DATA REVISIONS SECTION BELOW THERE HAVE BEEN CHANGES OVER THE PERIOD OF DATA RECORD IN THE USAGE OF INHOUSE SPECIES CODES.

Old Dominion University in-house microzooplankton species codes and Latin Names
Are as follows:

SPEC_CODE	TSN	SOURCE_LBL
1	0085257	COPEPOD NAUPLII
2	0089589	BARNACLE NAUPLII
3	0058239	ROTIFERS
4	0046620	TINTINNIDS
5	0046594	OLIGOTRICHS
6	0064358	POLYCHAETE LARVAE
7	0043848	SARCODINIA
8	0083832	Cladocerans
9		OTHER
ODU_1	0083832	CLADOCERANS
ODU_10	0058454	BRACHIONUS CAUDATUS
ODU_11	0058435	BRACHIONUS PLICATILIS
ODU_12	0058443	BRACHIONUS PTERODINOIDES
ODU_13	0059072	BIRGEA ENANTIAN
ODU_14	0059426	FILINIA LONGISETA
ODU_15	0059354	HEXATHRA FENNICA
ODU_16	0059253	HARRINGIA ROUSSELETI
ODU_17	0058360	KERATELLA COCHLEARIS
ODU_18	0058486	KELLICOTTIA LONGISPINA
ODU_19	0058352	KERATELLA QUADRATA

SPEC_CODE	TSN	SOURCE_LBL
ODU_2	0085257	COPEPOD NAUPLII
ODU_20	0058399	NOTHOLCA ACUMINATA
ODU_21	0058398	NOTHOLCA STRIATA
ODU_22	0059273	POLYARTHRA DOLICHOPTERA
ODU_23	0059291	PLOESOMA HUDSONI
ODU_24	0059283	PLOESOMA TRUNCTATUM
ODU_25	0059277	POLYARTHRA VULGARIS
ODU_26	0059256	SYNCHAETA BALTICA
ODU_27	BAY0263	SYNCHAETA CURVATA
ODU_28	BAY0288	SYNCHAETA FENNICA
ODU_3	0046594	OLIGOTRICHS
ODU_30	0059075	TRICHCERCA MARINA
ODU_31	0043848	SARCODINIA
ODU_32	0089589	BARNACLE NAUPLII
ODU_4	0064358	POLYCHAETE LARVAE
ODU_5	0058239	ROTIFERS
ODU_6	0046620	TINTINNIDS
ODU_7	0059240	ASPLANCHNA PRIODONTATA
ODU_8	0058445	BRACHIONUS ANGULARIS
ODU_9	0058438	BRACHIONUS CALYCIFLORUS

VARIABLE NAMES AND DESCRIPTIONS FOR DATA FILE
Structure for data files on: https://archive.chesapeakebay.net/pub/ or http://www.chesapeakebay.net/
>MICROZOOPLANKTON SPECIES ABUNDANCE AND COMPOSITON FILES

Name	Type	Width	Variable Definitions:
SOURCE	Text	10	Data Collection Agency
STATION	Text	15	Sampling Station
SAMPLE_DATE	Date/Time	8	Sampling date (YYYYMMDD)
LAYER	Text	3	Layer in Water Column Which Composite Sample was Taken
SAMPLE_NUMBER	Number	4	Sample Replicate Number
GMETHOD	Text	3	Chesapeake Bay Program Sampling Gear Code
TSN	Text	7	ITIS Taxon Serial Number
LATIN_NAME	Text	45	Species Latin Name
LIFE_STAGE	Text	50	Life stage of individual- Chesapeake Bay Program Life Stage Code
METHOD	Text	8	Parameter Method Analysis Code
PARAMETER	Text	10	Parameter
VALUE	Number	8	Parameter Value
UNITS	Text	15	Parameter Reporting Units.
NODCCODE	Text	12	NODC Species Code
SPEC_CODE	Text	14	Source Species Taxon Code
R_DATE	Date/Time	8	Version Date of Data (YYYYMMDD)

> MICROZOOPLANKTON SURVEY SAMPLING EVENT FILES

Name	Type	Width	Variable Description
DATA_TYPE	Text	2	CBP Data Type Code
SOURCE	Text	10	Data Collection agency
SAMPLE_TYPE	Text	2	Collection type
LAYER	Text	3	Layer in water column from which sample was Taken
SAMPLE_DATE	Date/Time	8	Sample date (YYYYMMDD)
LATITUDE	Number	8	Latitude in Decimal Degrees (NAD83)
LONGITUDE	Number	8	Longitude in Decimal Degrees (NAD83)
P_DEPTH	Number	4	Composite Sample Cut Off Depth (meters)
R_DATE	Date/Time	8	Data version date (YYYYMMDD)
SALZONE	Text	2	Salinity Zone
SAMPLE_VOLUME	Number	8	Total Volume of Sample
UNITS	Text	15	Units for Sample Volume
STATION	Text	15	Sampling Station
TOTAL_DEPTH	Number	4	Total Station Depth (meters)
SAMPLE_TIME	Date/Time	8	Sampling Time (HHMM)

>The following field may also appear in a downloaded data set:

Name	Type	Width	Variable Definitions
BASIN	Text	20	Chesapeake Bay Basin Designation
HUC8	Text	8	USGS Eight Digit Hydrologic Unit Code
CATALOGING_UNIT_DESCRIPTION	Text	50	USGS Cataloging Unit Code Description
FIPS	Text	5	Federal Information Processing Code
STATE	Text	3	Federal Information Processing Code State Designation
COUNTY_CITY	Text	30	Federal Information Processing Code City or County Designation
LL_DATUM	Text	5	Latitude and Longitude Geographic Datum
CBSEG_1998	Text	6	1998 Chesapeake Bay Segment Designation
CBSEG_1998_DESCRIPTION	Text	50	1998 Chesapeake Bay Segment Designation Description

#VARIABLE NAMES AND DESCRIPTIONS FOR SPECIES KEY
Structure for data files on: https://archive.chesapeakebay.net/pub/ or http://www.chesapeakebay.net/ File of name format: VAMIKYyy.TXT

Name	Type	Width	Variable Descriptions
SPEC_CODE	Text	14	Source In-House Species Codes
SOURCE	Text	6	Data Source Identifier
DATA_TYPE	Text	2	Data Type Identifier Code
SOURCE_LBL	Text	45	Source Species Latin Name
LBL	Text	45	National Oceanographic Data Center Species Latin Name
TSN	Text	7	ITIS Talon Serial Number
R_DATE	Date/Time	8	Version Date of Data (YYYYMMDD)
VOLUME	Number	8	Cell Biomass Estimator
SIZE	Text	30	Taxa Size-Fraction Identifier
LIFE_STG	Text	3	Chesapeake Bay Program Life Stage Code

REFERENCE CODES IN DATA FILE AND TAXONOMIC KEY
See The 2000 Guide to Chesapeake Bay Program Biological and Living Resources Monitoring Data for full listing of acceptable codes.

>STATION: See section STATION NAMES AND DESCRIPTIONS

>SAMPLE_TYPE: Sample Collection Type
C - Composite

> DATA_TYPE: Data Type
BE Benthic
FL Fluorescence
MI Microzooplankton
MZ Mesozooplankton
PD Primary Production
PH Phytoplankton
PP Picoplankton

>SOURCE: Data Collection Agency
ODU - Old Dominion University

>SPEC_CODE: In house Species codes or ODUCODE, See Old Dominion University species names and codes listed above

>CRUISE: Chesapeake Bay Program Cruise Number

>GMETHOD: Sampling Gear Code
07 - unspecified plankton pump

>LAYER: Layer of Water Column in which Sample was taken
AP- Above Pycnocline
BP- Below Pycnocline
WC- Whole Water Column

>LIFE_STG DESCRIPTION - Chesapeake Bay Program Life Stage Code
11 NAUPLII
93 JUVENILE
97 LARVAE
98 ADULT

>SALZONE: Salinity Zone
F - Fresh (0 TO 0.5 PPT)
O - Oligohaline (>0.5 TO 5.0 PPT)
M - Mesohaline (>5.0 TO 18.0 PPT)
P - Polyhaline (> 18.0 PPT)
*E- An F, O, M, or P followed by an E indicates an estimated salinity range based on salinity data collected within 7 days of the biological sampling event. Used only when no actual salinity data available.

>NODCCODE and LATIN NAME: National Oceanographic Data Center Species Codes Version 8.
Note for current listing of Chesapeake Bay Program Species and their codes, see https://archive.chesapeakebay.net/species/. Organisms with out current NODC Codes have been assigned partial NODC codes containing alphabetic where no code has been assigned.

>BASIN: Chesapeake Bay Tributary Designation

BAY- Chesapeake Bay
ELZ- Elizabeth River
JAM- James River
YRK- York River
RAP- Rappahanock River

>TSN: National Oceanographic Data Center Taxon Serial Numbers Note for current listing of Chesapeake Bay Program Species and their codes, see https://archive.chesapeakebay.net/species/. Organisms without current serial numbers have ALL been assigned TSN of BAYXXXX.

>CBSEG_1998: Chesapeake Bay Program Monitoring Segment

CBSEG_1998	DESCRIPTION
CB6PH	CHESAPEAKE BAY-POLYHALINE REGION
CB7PH	CHESAPEAKE BAY-POLYHALINE REGION
CB8PH	CHESAPEAKE BAY-POLYHALINE REGION
JMSOH	JAMES RIVER-OLIGOHALINE REGION
JMSPH	JAMES RIVER-POLYHALINE REGION
JMSTF	JAMES RIVER-TIDAL FRESH REGION
MOBPH	MOBJACK BAY-POLYHALINE REGION
PMKTF	PAMUNKEY RIVER-TIDAL FRESH REGION
RPPMH	RAPPAHANNOCK RIVER-MESOHALINE REGION
RPPOH	RAPPAHANNOCK RIVER-OLIGOHALINE REGION
SBEMH	SOUTH BRANCH ELIZABETH RIVER-MESOHALINE REGION
YRKMH	YORK RIVER-MESOHALINE REGION

>FIPS: Federal Information Processing Codes

FIPS	STATE	COUNTY
51095	VA	JAMES CITY
51097	VA	KING AND QUEEN
51103	VA	LANCASTER
51127	VA	NEW KENT
51131	VA	NORTHAMPTON
51149	VA	PRINCE GEORGE
51159	VA	RICHMOND
51199	VA	YORK
51550	VA	CHESAPEAKE CITY
51650	VA	HAMPTON
51740	VA	PORTSMOUTH
51810	VA	VIRGINIA BEACH

>HUC8: USGS Hydrologic Unit Codes

HUC8	CATALOGING_UNIT_DESCRIPTION
02080101	LOWER CHESAPEAKE BAY
02080104	LOWER RAPPAHANNOCK
02080106	PAMUNKEY
02080107	YORK
02080206	LOWER JAMES
02080208	HAMPTON ROADS

>METHOD: Chesapeake Bay Program Lab Method Code Designation
MI102

>PARAMETER and UNIT: Measured Parameter and reporting units.

PARAMETER	UNITS
COUNT	NUMBER/LITER

NUMERIC VARIABLE NAMES - WARNING AND ERROR BOUNDS

Variable	Value Range
FVOL_M3	-99999, 0000-999999
LATITUDE	See section STATION NAMES AND DESCRIPTIONS
LONGITUDE	See section STATION NAMES AND DESCRIPTIONS
MAXDEPTH	0.5 - 32.0
P_DEPTH	-99.9, 1-10
PARAMETER	COUNT
R_DATE	19950101-20021231
R_DATE	19950301-20021001
SAMPLE_NUMBER	1,2
SAMPLE_TIME	06:00-21:00 missing times denoted by 00:00
SAMPLING_DATE	19930101-20021001
TOTAL_DEPTH	0.5 - 32.0
VALUE	0.05-10000.00

IMPORTANT DATA REVISIONS

THE LIVING RESOURCES DATA MANAGER RECOMMENDS THAT ALL DATA ANALYSIS IS PERFORMED WITH THE MOST RECENT DATA SETS VERSIONS AVAILABLE. HOWEVER IF YOU HAVE BEEN WORKING WITH OLDER DATA SETS THE FOLLOWING ARE IMPORTANT CHANGES TO BE AWARE OF.

8/31/95- LBL all Latin Names and spelling for names have been corrected to the National Oceanographic Data Center accepted spelling.

8/31/95 Sampling from January 1993 thorough September 1993 was conducted only at the following stations: CB6.1, CB6.4, CB7.4, LE3.6, WE4.2, LE5.5, SBE2, SBE5, TF4.2, RET4.3, TF5.5, and RET5.2. From September to the present, all stations in the current list were included in the sampling regime. During 1993 species counts were made only for large groups (SPECCODE 1 to 6). As a result, only density values for these 6 groups are included in the data set for 1993. During 1994, counts were made for Rotifers to the lowest possible taxonomic level and the data set structure reflects this change. The Rotifer spp. NAME and SPECCODE are total abundance of all rotifers.

The Chesapeake Bay Program office supplied 8/31/95- CRUISE NUMBERS -BAY171 - BAY211. See the Guide to Living Resources Data Sets for complete listing of Cruise periods.

8/31/95- SER_NUM Old Dominion University does not use a serial number system for sample tracking so this variable is not available

SUMMER 1997 - The Living Resources Data manager supplied salinity zones to the zooplankton Data based on salinity data collected by the Virginia Water Quality Monitoring Program. Values were derived from Water Quality Hydrographic data collected concurrently with the mesozooplankton. If data was not available for the of sampling but was collected within a one week window of sampling date, the water quality data was used to determine a salinity zone. However the salinity zone is marked with an E to denote being estimated.

02/01/98- The salinity zones appearing in the 1997 data are provisional. They have not yet been checked against the water quality data for validation. The 1997 Virginia Tributary water quality data will not be delivered to the CBPO until June 1998. After delivery of the water quality data, salinity zones will be confirmed.

07/01/1998- Analysis of the data as part of the CBP Zooplankton Indicator Program revealed a double counting rotifers in the 1994 data set rotifers were identified once as a group and then individually as species. Therefore all individual species counts were removed.

01/01/2000- As part of a migration to a FOXPRO database management system, the species coding system changed. Old codes were changed to the form ODU_## to clearly denote them from the new species list. It is recommended that only data from the online data system or ASCII files generated after October 2002 be used for analysis.

04/21/2000- Analysis of data noticed that in July-December 1999 data deliverables abnormally high counts of Oligotrichs were found at numerous stations. It is unclear whether this increase due to natural phenomena or some kind of taxonomist bias due to the introduction of new personnel.

03/27/2002- Annual Split Sample studies revealed that the members of phytoplankton genus Ceratium were being mistaken as rotifers in routine and split sample counts. Phytoplankton samples with high Ceratium counts were identified and the corresponding microzooplankton samples were recounted and resubmitted from the time period between July 1999-December 2001. ODU taxonomists were also noted finding high counts of Oligotrichs in split samples where Maryland personnel did not find these. No explanation for this has been determined to date.

WINTER 2002- This monitoring program was terminated. The data record ends in October of 2002.

Winter 2002- For extensive details in regards to quality assurance issues and data comparability issues between Maryland and Virginia Programs please see the CBP Phytoplankton Split sample portion of the Chesapeake Bay Quality Assurance Program at:

http://www.chesapeakebay.net/qualityassurance.htm

08/11/2005. Note due to contract changes starting in January 1996, station LE5.5 had a coordinate change. This station move was not documented until August 2005. Due to this station relocation, all data collected at the altered location had the station name changed to LE5.5-W in August 2005.

#KEY WORDS (EXCLUDING VARIABLE NAMES)
Microzooplankton Counts
Microzooplankton Densities
Microzooplankton Monitoring
Microzooplankton Taxon

THIS IS THE END OF THE VIRGINIA CHESAPEAKE BAY PROGRAM MICROZOOPLANKTON MONITORING DATA DICTIONARY