# MARYLAND CHESAPEAKE BAY PROGRAM MICROZOOPLANKTON MONITORING SURVEY DATA DICTIONARY

Maryland Chesapeake Bay Water Quality Monitoring Program: Microzooplankton Component

- Taxonomic Data Dictionary
- Event Data Dictionary

NOTES:
1) THIS PROGRAM WAS TERMINATED AS OF 31 DECEMBER 2002
2) THIS DICTIONARY WAS REVISED ON March 11, 2009 AND SUPERSEDES ALL OTHER DICTIONARIES FOR THE MARYLAND MICROZOOPLANKTON TAXON DATA
3) THIS PROGRAM WAS CONDUCTED BY THE ACADEMY OF NATURAL SCIENCES (ANS) FROM AUGUST, 1984 THROUGH DECEMBER 2002. MORGAN STATE UNIVERSITY (MSU) TOOK OVER THE ANS LABORATORY IN SEPTEMBER, 2004, AND ALL REFERENCES TO THE DATA GENERATOR WERE UPDATED TO MSU IN MAY 2005.

The state of Maryland, in cooperation with the US EPA Chesapeake Bay Program, has monitored microzooplankton species abundance and composition in the Maryland Chesapeake Bay mainstem and tributaries since August 1984. The program is designed to give comprehensive spatial and temporal information on microzooplankton. Microzooplanktons in this survey refer to copepod nauplii, rotifers, and protozoans. Sampling is performed in conjunction with the Maryland phytoplankton, C14 primary production, fluorometry, mesozooplankton, and jellyfish and water quality monitoring programs.

# NAMES AND DESCRIPTIONS OF ASSOCIATED DATA DICTIONARY FILES
The 2000 Users Guide Chesapeake Bay Program Biological and Living Resources Monitoring Data

# PROJECT TITLE
Maryland Chesapeake Bay Water Quality Monitoring Program: Microzooplankton Component

# 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: Bruce Michaels, Renee Karrh-Maryland Department of Natural Resources
>PRINCIPAL INVESTIGATORS: R. V. Lacouture and S.G. Sellner- Morgan State University Estuarine Research Center.
>TECHNICAL STAFF: Field collection, sample analysis and data file verification by Morgan State University Estuarine Research Center staff. Sample analysis (since 1984) by R. E. Jacobsen, S. G. Sellner, S. S. Hedrick, B. B. Wagoner, James H. Sniezek, Kimberly M. Burke, Ralph Matos, Jr. Data files verified by S. G. Sellner.
>PROGRAMMER/ANALYST: M. C. Marsh, A. L. Imirie - Morgan State University Estuarine Research Center.
>DATA COORDINATOR: S. G. Sellner - Morgan State University Estuarine Research Center.
>PREVIOUS PRINCIPAL INVESTIGATORS: Kevin Sellner, Chesapeake Research Consortium.

# CURRENT FUNDING AGENCIES
Not Applicable

# PROJECT COST
Not Applicable

# CURRENT QA/QC OFFICER
Not Applicable

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# LOCATION OF STUDY
Chesapeake Bay and Tidal Tributaries in state of Maryland

# DATE INTERVALS:
07/02/1984 - 09/18/2002

# ABSTRACT
The overall microzooplankton monitoring program is designed to detect and monitor changes in microzooplankton abundances and species composition in relation to changing water quality conditions in the Chesapeake Bay. Microzooplankton are animal plankton between 20 and 200 micrometers in size and, in this study, include copepod nauplii, rotifers and protozoans. They are an important trophic link between phytoplankton and the higher trophic forms such as mesozooplankton and larval fish. In the present program, microzooplankton are collected with a 44-micrometer mesh net. Samples are collected in conjunction with the Maryland Chesapeake Bay phytoplankton, mesozooplankton, and jellyfish, C14 primary production, fluorometry and water quality monitoring programs. Beginning in August 1984, composite samples were collected monthly (usually excluding February) from waters above and below the pycnocline at 16 stations in conjunction with 3 other plankton elements of MSU portion of the Maryland Chesapeake Bay Water Quality Monitoring Program. Five 10-liter volumes were pumped from above-pycnocline depths; composited (50 liters total volume), and filtered through a 44 micrometer mesh net. This effort was then repeated to obtain a field replicate. Two samples were similarly collected from below-pycnocline depths. After June 1986, stations ET4.2 and EE3.1 were no longer sampled. After March 1985, the two replicate above-pycnocline samples were combined at each station yielding one above-pycnocline composite sample, which had 20 liters of water from each of five depths, for a total volume of 100 liters. Bottom replicates were also combined. Beginning July 1989, entire water column samples of 100 liters (10 liters from each of 10 depths) were collected for the tidal fresh and oligohaline stations RET2.2, TF1.7, TF1.5, ET5.1, CB1.1 and CB2.2. Between August 1984 and September 1985, 1 milliliters of 1% neosynephrine was added to each concentrated sample. The sample was allowed to set for about 30 minutes before formaldehyde was added. Following a study that showed no significant difference in contraction between microzooplankton treated or not treated with neosynephrine, the neosynephrine step was eliminated. Instead buffered formaldehyde (final concentration approximately 2.5%) was added to each sample jar prior to the addition of the sample. Numbers and species identifications were subsequently made using repeated counts on 1 milliliter aliquot in Sedgewick-Rafter cells and a compound microscope (total magnification =100X). Beginning with samples collected in April 1986, a small drop of concentrated Rose Bengal in formaldehyde was added to the Sedgewick-Rafter cell before adding the sample. The counting cell was allowed to set for 10 minutes before counting. The NODC species code was employed. Microzooplankton smaller than 44 micrometers were noted but not enumerated in counts after March 1985 since estimates would be non-quantitative. In May 1992, 1993 & 1994 microzooplankton samples for stations CB1.1, CB2.2, TF1.7, TF1.5, RET2.2, TF2.3, ET5.1 and ET5.2 were sampled twice to coincide with white perch and striped bass spawning periods. From April 1993 through June 1993 and again from April 1994 and June, 1994 and again

in 1995 additional station CB2.1, in the upper Chesapeake Bay was also sampled to coincide with the spawning periods. In April 1996, 3 more tidal fresh stations TF2.4 in the Potomac River, TF1.6 in the Patuxent River, and ET5.0 in the Choptank River were added for microzooplankton sampling in April, May, and June. Stations CB2.2, CB2.1, TF2.3, TF2.4, RET2.2, TF1.5, TF1.6, TF1.7, ET5.1, and ET5.0 were sampled twice in April and May, again to coincide with white perch and striped bass spawning periods. Main Bay stations CB1.1 and CB5.2 were no longer sampled as of March 1996. Sampling in November was discontinued in 1996. The ciliates are an important component of the microzooplankton assemblage in Chesapeake Bay. The net sampling is inappropriate for the identification and quantification this taxonomic group because of their size (often < 44µm) and their fragile nature. Therefore, from 1998 through 2000, whole water microzooplankton samples were taken at the mesohaline stations between March - September, in order to quantify the ciliates. The mesohaline stations were designated as CB3.3C, CB4.3C, CB5.2, LE1.1, LE2.2, AND ET5.2. Whole water samples were decanted from the replicate carboys that were collected from five discrete depths above the pycnocline. The whole water microzooplankton samples were preserved with acid Lugol's solution to a final concentration of 2 % and returned to the lab for enumeration. Sampling for microzooplankton at all stations ended in September 2002 due to the termination of the zooplankton portion of the monitoring program in October 2002.

# STATION NAMES AND DESCRIPTIONS

| | |
|---|---|
| CB1.1 | Mouth of Susquehanna River, main Bay |
| CB2.1 | Southwest of Turkey Point, main Bay |
| CB2.2 | West of Still Pond near buoy R34, main Bay |
| CB3.3C | North of Chesapeake Bay Bridge, main Bay |
| CB4.3C | East of Dares Beach near buoy R64, main Bay |
| CB5.2 | East of Point No Point, main Bay |
| LE1.1 | Mid-channel south-southwest of Jack Bay sandpits and northeast of Sand gates, Patuxent River |
| TF1.7 | Mid-channel on a transect heading of approximately 115 degrees from Jacks Creek, Patuxent River |
| TF1.6 | Mid-channel off the wharf at Lower Marlboro, Patuxent River |
| TF1.5 | Mid-channel at Nottingham, Patuxent River |
| TF2.3 | Mid-channel off Indian Head at buoy N54, Potomac River |
| TF2.4 | Buoy 44 between Possum Point and Moss Point Potomac River |
| RET2.2 | Mid-channel off Maryland Point at buoy 19, Potomac River |
| LE2.2 | Off Ragged Point at buoy BW51B, Potomac River (prior to October 1988 data tape, this station was designatedXBE9541) |
| ET4.2 | South of Eastern Neck Island at Buoy 9, Chester River |
| ET5.0 | Mid-channel off the mouth of Kings Creek, Choptank River |
| ET5.1 | At Ganey's Wharf, downstream of confluence with Tuckahoe Creek, Choptank River |
| ET5.2 | Near Route 50 bridge at Cambridge, Choptank River |
| EE3.1 | 1000 yards north of buoy R16, Tangier Sound northwest of Haines Point, main Bay |
| WT5.1 | East of Hawkins Point at buoy 5M, Patapsco River (Baltimore Harbor) |

# STATION NAMES, LATITUDE (decimal degrees), LONGITUDE (decimal degrees), TOTAL DEPTH (meters), LATITUDES (degrees, minutes and decimal seconds), AND LONGITUDES (degrees, minutes and decimal seconds). These station latitudes and longitudes represent target values and not actual values. They are the values used by the Chesapeake Bay Program as a whole to coordinate data for the stations. The MSU investigators have measured more precise latitudes and longitudes, which are available on request. All station positions are provided as NAD83 coordinates.

| STATION | LATITUDE | LONGITUDE | T_DEPTH | LATITUDE (DMS) | LONGITUDE (DMS) |
|---|---|---|---|---|---|
| CB1.1 | 39.54 | -76.08 | 6.1 | 39 32' 41.407" | -77 55' 7.18" |
| CB2.1 | 39.44 | -76.02 | 6.2 | 39 26' 24.412" | -77 58' 31.19" |
| CB2.2 | 39.35 | -76.17 | 12.1 | 39 20' 48.395" | -77 49' 31.172" |
| CB3.3C | 39.00 | -76.36 | 23.7 | 38 59' 45.403" | -77 38' 25.154" |
| CB4.3C | 38.56 | -76.43 | 26.1 | 38 33' 23.437" | -77 33' 55.176" |

| STATION | LATITUDE | LONGITUDE | T_DEPTH | LATITUDE (DMS) | LONGITUDE (DMS) |
|---|---|---|---|---|---|
| CB5.2 | 38.14 | -76.23 | 30.5 | 38 8' 12.448" | -77 46' 19.206" |
| EE3.1 | 38.20 | -75.97 | 13.7 | 38 12' 0.443" | -76 1' 31.237" |
| ET4.2 | 38.99 | -76.22 | 14.6 | 38 59' 30.404" | -77 47' 1.172" |
| ET5.0A | 38.47 | -75.58 | 11 | 38 27' 54.778" | -76 25' 8.59" |
| ET5.1 | 38.81 | -75.91 | 5.3 | 38 48' 25.411" | -76 5' 17.229" |
| ET5.2 | 38.58 | -76.06 | 12.3 | 38 34' 48.426" | -77 56' 31.217" |
| LE1.1 | 38.43 | -76.60 | 12.0 | 38 25' 30.447" | -77 23' 54.15" |
| LE2.2 | 38.17 | -76.58 | 11.0 | 38 10' 0.461" | -77 25' 1.153" |
| RET2.2 | 38.35 | -77.20 | 9.5 | 38 21' 7.452" | -78 47' 44.077" |
| TF1.5 | 38.71 | -76.70 | 10.3 | 38 42' 36.421" | -77 17' 55.125" |
| TF1.6 | 38.66 | -76.68 | 6.2 | 38 39' 28.427" | -77 18' 56.13" |
| TF1.7 | 38.58 | -76.68 | 2.3 | 38 34' 54.434" | -77 19' 11.134" |
| TF2.3 | 38.61 | -77.17 | 12.7 | 38 36' 29.426" | -78 49' 34.073" |
| TF2.4 | 38.53 | -77.27 | 9.0 | 38 31' 47.435" | -78 44' 5.068" |
| WT5.1 | 39.21 | -76.52 | 15.7 | 39 12' 30.39" | -77 28' 31.134" |

Station depths are based on a Fifteen-year average of Maryland Department of the Environment water quality hydrographic data collected concurrently with the plankton samples.

# METHODOLOGY DESCRIBING CHAIN OF CUSTODY FOR LAB SAMPLES
Microzooplankton samples were collected by a staff member of the Academy of Natural Sciences, Benedict Estuarine Research Center biomonitoring section and are transferred to the MSU BERC microzooplankton taxonomist on return to the laboratory. Sample concentrates are archived after counts and identifications are made.

# BIOLOGICAL ENUMERATION TECHNIQUES
-Chesapeake Bay Program Laboratory Method Code MI101

Samples are gently mixed and a 1-milliliter aliquot is removed with a Stempel pipette and put into a Sedgewick-Rafter cell for enumeration with a compound microscope at 100X magnification. Beginning with samples collected in April 1986, a small drop of concentrated Rose Bengal stain was added to the cell prior to addition of the sub sample. The sub sample is allowed to set for 10 minutes before counting. At least one chamber (1 milliliter) is counted for each sample and if the total count does not reach 250 organisms, subsequent l milliliter aliquots are enumerated until a count of 250 or more organisms is obtained or 3 milliliter are examined. If a certain organism is abundant (more than 60 per chamber), it is not counted in the subsequent 1 milliliter aliquot for a given sample. For extremely abundant taxa, less than one milliliter can be counted. Species identification is made using the NODC species code. Microzooplankton smaller than 44 micrometers are noted on the original data sheet but not enumerated since estimates would not be quantitative.

-Chesapeake Bay Program Laboratory Method Code MI103

In the lab, 5-25 ml are subsampled from the sample jar for settling. This amount depends on how much detritus and plankton are in the sample. If 25 ml are used, the bottle is shaken gently (slowly inverted 5 times) and 25 ml poured into a graduated cylinder. This is put into a 50 ml settling chamber and the graduated cylinder rinsed 3X. The sample is allowed to settle 48 h before being counted. If less than 25 ml aliquots are used, these are poured into 25 ml settling chambers which settle for 24 hr before counting.

To count, the entire chamber is examined at 200X with an inverted microscope to obtain a minimum count of 100 organisms. If 100 organisms are not counted, another subsample is settled. Any organism that is abundant in the first aliquot (more than 60) is not counted. The count program used for the net samples

(see above) is currently being adapted for use with whole water counts. The ITIS taxonomic codes will be used for the taxa that are enumerated. Biomass estimates for each taxon will be applied to the normalized densities in order to fit into various ecosystem models and the zooplankton index of biotic integrity.

#FORMULAS, CALCULATIONS, AND CONVERSIONS

The following equation is used to convert raw counts to density for both enumeration methods (# Per liter) for each taxon identified:

DENSITY = ((RAWCNT/MLSCNT)*CONCENT)/TOTVCOMP

Where
DENSITY = density of a given taxonomic group (# individuals/liter)
RAWCNT = raw count of taxonomic group per sub sample
MLSCNT = milliliters of sub sample counted
CONCENT = volume of concentrated sample
TOTVCOMP = # of liters filtered though net or total volume of Composite sample

If the sample was counted by rows, MLSCNT is determined by dividing the number of rows by 28.4.

# MONITORING VARIABLE QA/QC PLAN FOR PROJECT
Random sample recounts of previously counted microzooplankton samples are undertaken in order to determine counting error. One sample /20 samples is blindly selected and recounted. The recount total cell density must fall within 10 % of the total for the original count or the sample is counted again until 2 samples' total densities are within 10 % of one another. The recount and original sample data sheets are stored in a binder in the microscope laboratory at MSU.

# VARIABLE NAMES, MEASUREMENT UNITS AND DESCRIPTIONS

>PARAMETER: COUNT (Density of a Taxon as # Individuals per Liter)
-COLLECTION METHODS: Composited water samples pumped from 5 depths above the pycnocline and 5 depths below the pycnocline were filtered through a 44-micrometer mesh net and rinsed into a jar. After February 1985, the two above-pycnocline replicates were combined, as were the two below-pycnocline replicates. Beginning July 1985, waters from the above-pyncocline depths and below-pycnocline depths were pumped directly through the net and rinsed into their respective jars two times rather than first being composited. Beginning July 1989, entire water column samples from 10 depths were collected from stations RET2.2, TF1.7, TF1.5, ET5.1, CB1.1, CB2.2 and CB2.1 (when sampled).
-SAMPLE PRESERVATIVES: Between August 1984 and September 1985, 1 milliliter of neosynephrine was added to each concentrated sample. The sample was allowed to set for 30 minutes and then buffered formaldehyde was added. The neosynephrine step was eliminated after this time and buffered formaldehyde was added to each sample jar prior to the addition of the sample (final concentration of fixative was approximately 2.5%).
-SAMPLE STORAGE ENVIRONMENT: Laboratory
-TIME IN STORAGE: Indefinite
-LAB TECHNIQUES WITH REFERENCES: Standard Methods

>PARAMETER: LATITUDE (in decimal degrees), LONGITUDE (in decimal degrees)
-COLLECTION METHODS: Loran-C, NAD27 from July 1984 to June 1997; GPS NAD83 from June 1997 to October 2002.
-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 or GPS receiver and

sampling begins when boat reaches pre-programmed coordinates. Loran-C is accurate to plus or minus 1500 feet. The actual Loran or GPS coordinates for each sampling event are not currently recorded in data set.

>PARAMETER: LAYER (Layer of Water Column in which Sample was taken)
-COLLECTION METHODS: Hydrolab CTD
-SAMPLE PRESERVATIVES: None
-SAMPLE STORAGE ENVIRONMENT: None
-TIME IN STORAGE: None
-LAB TECHNIQUES WITH REFERENCES: Water column conductivity is recorded immediately before plankton sampling. P_DEPTH is set at 0.5 meters above the pycnocline and is used as the cutoff depth between upper (AP) and lower (BP) water column layers. The pycnocline is determined to be the depth at which the greatest conductivity change is observed. The minimum threshold change is 1000 umhos/cm. WC indicates the composite sample was derived from sub samples taken across the entire water column from surface to bottom without regards to P_DEPTH.

>PARAMETER: P_DEPTH (Depth 0.5 Meters Above the Pycnocline)
-COLLECTION METHODS: Hydrolab CTD
-SAMPLE PRESERVATIVES: None
-SAMPLE STORAGE ENVIRONMENT: None
-TIME IN STORAGE: None
-LAB TECHNIQUES WITH REFERENCES: Water column conductivity is recorded immediately before plankton sampling. P_DEPTH is set at 0.5 meters above the pycnocline and is used as the cutoff depth between upper (AP) and lower (BP) water column layers. The pycnocline is determined to be the depth at which the greatest conductivity change is observed. The minimum threshold change is 1000 umhos/cm. WC is the entire water column from surface to bottom without regards to P_DEPTH.

>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 tows. P_DEPTH is set at 0.5 meters above the pycnocline. Salinity values are averaged for above P_DEPTH and below P_DEPTH and salinity classification is determined.
Salinity classes are as follows: Fresh 0 - 0.5 ppt (F), Oligohaline >0.5 - 5.0 ppt (O). Mesohaline >5.0 - 18.0 ppt (M) and Polyhaline >18.0 ppt (P).

>PARAMETER: TOTAL_DEPTH (Total Station Depth in Meters)
-COLLECTION METHODS: Hydrolab CTD
-SAMPLE PRESERVATIVES: None
-SAMPLE STORAGE ENVIRONMENT: None
-TIME IN STORAGE: None
-LAB TECHNIQUES WITH REFERENCES: Water column TOTAL_DEPTH is based on data collected concurrently with the plankton samples.

>DATA ENTRY METHOD: Computer keyboard to disk from data sheets for sampling trips prior to April 1985, and keyboard to disk for trips from April 1985 through December 1994. Starting in January 1995, computer keyboard to in-house computer network.
>DATA VERIFICATION: Visual inspection and computer verification program.

# SPECIES INHOUSE CODES AND SCIENTIFIC NAMES

The in-house species codes used by the Academy of Natural Science Benedict Estuarine Research Center are modified NODC codes. Conversion of in-house species code to NODC Code and spelling are in file MDMIKYyy.TXT.

NODC CODE

| DIGIT | REPRESENTS |
|---|---|
| 1-2 | Phylum |
| 3-4 | Class and/or Order |
| 5-6 | Family |
| 7-8 | Genus |
| 9-10 | Species |
| 11-12 | Subspecies |
| 13 | Special in-house modifier |

In-house codes are same as the NODC codes with the addition of an in-house modifier in column 13. The modifier in the 13th column has different meanings depending on the taxa being considered. For larger metazoans, "1" in this column indicates that the organism is in its larval or nauplii stage. For smaller metazoans such as rotifers and for non-tintinnine ciliate protozoa, this modifier may indicate a size category within taxa. The NODC code does not distinguish between life history stages. For tintinnine ciliates (3540...), a 0, 1, 2 (or 3, 4, 5) in the 13th column indicates that it was not or could not be determined if the lorica contained a cell, that the lorica did contain a cell (full), or that the lorica did not contain a cell (empty), respectively. For an undescribed species, the code is given for as much of the higher taxa as possible, the unknown levels are given zeros and a number is assigned in the subspecies columns (11-12) (e.g. Brachionusa = 4506010400010; rotifer a = 45000000010). These numbers will be completed when more detailed taxonomic information is obtained.

Only the organisms greater than 44 and less than 200 micrometers in smallest dimension are included in the species list. The microzooplankton less than 44 micrometers are noted and recorded as rare, common, abundant, or dominant. The mesozooplankton are enumerated and recorded separately. Hard copies and copies on diskettes of these data as well as the species lists for these groups are available from S. G. Sellner at the Benedict Center.

| SPEC_CODE | TSN | SOURCE_LBL |
|---|---|---|
| 3438000000000 | 0043848 | SARCODINA-UNIDED SARCODINID |
| 3442010000000 | 0043947 | DIFFLUGIIDAE |
| 344201000000A | 0043947 | DIFFLUGIIDAE 20:49UM LENGTH |
| 3442010100000 | 0043948 | DIFFLUGIA SPP. |
| 3442020100000 | 0043959 | ARCELLA SP. |
| 3442030000000 | 0043965 | CENTROPYXIDAE |
| 3442030100000 | 0043966 | CENTROPYXIS SP. |
| 3442030101000 | 0043967 | CENTROPYXIS ACULEATA |
| 3442040000000 | 0043968 | PARAQUADRULIDAE |
| 3442040200000 | 0043970 | QUADRULELLA SP. |
| 3442050000000 | 0043974 | HYALOSPHENIIDAE-TESTATED AMOEBA |
| 3445020000000 | 0044007 | EUGLYPHA SP. |
| 3445040000000 | 0044023 | CYPHODERIIDAE |
| 3445040100000 | 0044024 | CYPHODERIA SP. |
| 3448000000000 | 0044030 | FORAMINIFERIDA |
| 3512000000000 | 0046211 | CILIOPHORA-UNIDED CILIATE |
| 35120000000AB | 0046211 | UNIDED CILIATE 50:99UM L 20:49UM W |
| 35120000000AC | 0046211 | UNIDED CILIATE 100:199UM L 20:49UM W |
| 35120000000BA | 0046211 | UNIDED CILIATE 20:49UM L 50:99UM W |
| 35120000000CC | 0046211 | UNIDED CILIATE 100:199UM L 100:199UM W |
| 3516020000001 | 0046267 | TRACHELOCERCIDAE-LARGE |
| 3516010100000 | 0046278 | DIDINIUM SP. |
| 351601010000B | 0046278 | DIDINIUM SP. 50-99UM LENGTH |
| 351601020000E | 0046287 | MESODINIUM SP. |

| SPEC_CODE | TSN | SOURCE_LBL |
|---|---|---|
| 351601020100E | 0046287 | MESODINIUM LIKE CILIATES |
| 3516010202000 | 0046289 | MESODINIUM RUBRUM |
| 351601020200E | 0046289 | MESODINIUM RUBRUM |
| 3517000000001 | 0046331 | CYRTOPHORIDA-LARGE |
| 3530000000001 | 0046459 | PERITRICHIDA-LARGE |
| 353000000000A | 0046459 | PERITRICH 20-49UM LENGTH |
| 353000000000B | 0046459 | UNIDED PERITRICH 50:99UM LENGTH |
| 3531000000000 | 0046460 | SESSILINA-UNIDED SESSILINE PERITRICH |
| 3532000000000 | 0046523 | MOBILINA-UNIDED MOBILINE PERITRICH |
| 3533000000000 | 0046524 | SUCTORIA-UNIDED SUCTORIAN |
| 3534010100000 | 0046527 | ACINETA SP. |
| 3534030700000 | 0046551 | STAUROPHRYA SP. |
| 3534040100000 | 0046554 | EPHELOTA SP. |
| 3537000000000 | 0046563 | HETEROTRICHINA-UNIDED HETEROTRICH |
| 3539000000000 | 0046594 | OLIGOTRICHIA-UNIDED OLIGOTRICH |
| 35390000001AA | 0046594 | OLIGOTRICH 20-49UM LENGTH 20-49UM WIDTH |
| 35390000001AB | 0046594 | OLIGOTRICH 50-99UM LENGTH 20-49UM WIDTH |
| 35390000001BB | 0046594 | OLIGOTRICH 50:99UM L 50:99UM W CUP |
| 35390000001GA | 0046594 | OLIGOTRICH 20:49UM L |
| 35390000001GG | 0046594 | OLIGOTRICH |
| 353900000020G | 0046594 | OLIGOTRICH |
| 35390000002AA | 0046594 | OLIGOTRICH 20:49UM L 20:49UM W CONE |
| 35390000002AB | 0046594 | OLIGOTRICH 50:99UM L 20:49UM W CONE |

| SPEC_CODE | TSN | SOURCE_LBL |
|---|---|---|
| 35390000002BB | 0046594 | OLIGOTRICH 50:99UM L 50:99UM W CONE |
| 35390000002GA | 0046594 | OLIGOTRICH 20:49UM L |
| 35390000002GG | 0046594 | OLIGOTRICH |
| 3539020100000 | 0046596 | STENTOR SP. |
| 3539030000000 | 0046607 | STROMBIDIDAE |
| 3539030100000 | 0046608 | STROMBIDIUM SP. |
| 3539030200000 | 0046611 | TONTONIA SP. |
| 3540000000000 | 0046620 | TINTINNINA-UNIDED TINTINNID |
| 354000000000B | 0046620 | TINTINNID 50-99UM LENGTH |
| 354000000000G | 0046620 | TINTINNID < 20UM LENGTH |
| 35400000000EB | 0046620 | UNIDED TINTINNID 50:99UM LENGTH EMPTY |
| 35400000000FA | 0046620 | UNIDED TINTINNID 20:49UM LENGTH FULL |
| 35400000000GB | 0046620 | UNIDED TINTINNID 50:99UM L |
| 35400000000HA | 0046620 | UNIDED TINTINNID 20:49UM L >20UM W |
| 35400000000HB | 0046620 | UNIDED TINTINNID 50:99UM L >20UM W |
| 3540010100050 | 0046622 | TINTINNIDIUM SP.-LARGE |
| 3540010100051 | 0046622 | TINTINNIDIUM SP.-LARGE-FULL |
| 3540010100052 | 0046622 | TINTINNIDIUM SP.-LARGE-EMPTY |
| 354001020000B | 0046625 | LEPROTINTINNUS SP. |
| 35400102000HB | 0046625 | LEPROTINTINNUS SP. >20UM W |
| 3540020100000 | 0046627 | TINTINNOPSIS SP. |
| 3540020100001 | 0046627 | TINTINNOPSIS SP.-FULL |
| 3540020100002 | 0046627 | TINTINNOPSIS SP.-EMPTY |
| 354002010000A | 0046627 | UNIDED TINTINNOPSIS 20:49UM LENGTH |
| 354002010000B | 0046627 | TINTINNOPSIS 50-99UM LENGTH |
| 354002010000D | 0046627 | UNIDED TINTINNOPSIS 200UM+ LENGTH |
| 354002010000G | 0046627 | UNIDED TINTINNOPSIS |
| 35400201000HA | 0046627 | UNIDED TINTINNOPSIS 20:49UM L >20UM W |
| 35400201000HC | 0046627 | UNIDED TINTINNOPSIS 100:199UM L >20UM W |
| 3540020100050 | 0046627 | TINTINNOPSIS SP. A |
| 3540020100051 | 0046627 | TINTINNOPSIS SP. A-FULL |
| 3540020100052 | 0046627 | TINTINNOPSIS SP. A-EMPTY |
| 35400201000GA | 0046627 | UNIDED TINTINNOPSIS 20:49UM L |
| 354002010100B | 0046628 | TINTINNOPSIS ACUMINATA-BEROIDEA GRP |
| 3540020105000 | 0046632 | TINTINNOPSIS DADAYI |
| 3540020105001 | 0046632 | TINTINNOPSIS DADAYI-FULL |
| 3540020105002 | 0046632 | TINTINNOPSIS DADAYI-EMPTY |
| 354002010600B | 0046633 | TINTINNOPSIS KOFOIDI SMALL |
| 35400201000GB | 0046633 | TINTINNOPSIS KOFOIDI-SMALL |
| 354002011000E | 0046637 | TINTINNOPSIS RAPA-PARVA-PARVULA GRP |
| 35400201100FE | 0046637 | TINTINNOPSIS RAPA-PARVA-PARVULA GRP FULL |
| 354002011700E | 0046644 | TINTINNOPSIS MINUTA |
| 35400201170GG | 0046644 | TINTINNOPSIS MINUTA |
| 3540020123000 | 0046650 | TINTINNOPSIS FIMBRIATA |
| 3540020123001 | 0046650 | TINTINNOPSIS FIMBRIATA-FULL |
| 3540020123002 | 0046650 | TINTINNOPSIS FIMBRIATA-EMPTY |
| 3540020129000 | 0046656 | TINTINNOPSIS RADIX |

| SPEC_CODE | TSN | SOURCE_LBL |
|---|---|---|
| 3540020129001 | 0046656 | TINTINNOPSIS RADIX-FULL |
| 3540020129002 | 0046656 | TINTINNOPSIS RADIX-EMPTY |
| 354002013200E | 0046659 | TINTINNOPSIS TOCANTINENSIS |
| 3540020133000 | 0046660 | TINTINNOPSIS SUBACUTA |
| 3540020133001 | 0046660 | TINTINNOPSIS SUBACUTA-FULL |
| 3540020133002 | 0046660 | TINTINNOPSIS SUBACUTA-EMPTY |
| 354002013300E | 0046660 | TINTINNOPSIS SUBACUTA-SMALL |
| 3540020100030 | 0046660 | TINTINNOPSIS SUBACUTA-HUGE |
| 3540020100031 | 0046660 | TINTINNOPSIS SUBACUTA-HUGE-FULL |
| 3540020100032 | 0046660 | TINTINNOPSIS SUBACUTA-HUGE-EMPTY |
| 354002013400B | 0046661 | TINTINNOPSIS TURBO |
| 3540020136000 | 0046663 | TINTINNOPSIS MEUNIERI |
| 3540020136001 | 0046663 | TINTINNOPSIS MEUNIERI-FULL |
| 3540020136002 | 0046663 | TINTINNOPSIS MEUNIERI-EMPTY |
| 3540020137000 | 0046664 | TINTINNOPSIS KARAJACENSIS |
| 3540020137001 | 0046664 | TINTINNOPSIS KARAJACENSIS-FULL |
| 3540020137002 | 0046664 | TINTINNOPSIS KARAJACENSIS-EMPTY |
| 3540020138000 | 0046665 | TINTINNOPSIS NITIDA |
| 3540020138001 | 0046665 | TINTINNOPSIS NITIDA-FULL |
| 3540020138002 | 0046665 | TINTINNOPSIS NITIDA-EMPTY |
| 354002020100B | 0046679 | CODONELLA CRATERA |
| 3540030100010 | 0046682 | STENOSEMELLA SP.A |
| 3540030100011 | 0046682 | STENOSEMELLA SP.A-FULL |
| 3540030100012 | 0046682 | STENOSEMELLA SP.A-EMPTY |
| 3540050100020 | 0046695 | METACYLIS SP. B |
| 3540050100021 | 0046695 | METACYLIS SP. B-FULL |
| 3540050100022 | 0046695 | METACYLIS SP. B-EMPTY |
| 3540050100030 | 0046695 | METACYLIS SP. C |
| 3540050100031 | 0046695 | METACYLIS SP. C-FULL |
| 3540050100032 | 0046695 | METACYLIS SP. C-EMPTY |
| 3540050400000 | 0046703 | CLIMACOCYLIS SP. |
| 3540050400001 | 0046703 | CLIMACOCYLIS SP.-FULL |
| 3540050400002 | 0046703 | CLIMACOCYLIS SP.-EMPTY |
| 3540070100000 | 0046707 | FAVELLA SP. |
| 3540070100001 | 0046707 | FAVELLA SP.-FULL |
| 3540070100002 | 0046707 | FAVELLA SP.-EMPTY |
| 3540130100010 | 0046744 | EUTINTINNUS SP.A |
| 3540130100011 | 0046744 | EUTINTINNUS SP.A-FULL |
| 3540130100012 | 0046744 | EUTINTINNUS SP.A-EMPTY |
| 354013010100C | 0046749 | EUTINTINNUS PECTINIS |
| 35401301010EC | 0046749 | EUTINTINNUS PECTINIS EMPTY |
| 35401301010FC | 0046749 | EUTINTINNUS PECTINIS FULL |
| 3543000000000 | 0046784 | HYPOTRICHIDA |
| 3545010000000 | 0046837 | EUPLOTIDAE |
| 3545010100001 | 0046838 | EUPLOTES SPP.-LARGE |
| 3545010100020 | 0046838 | EUPLOTES SP. A |
| 3545010100030 | 0046838 | EUPLOTES SP. B |
| 4400000000000 | 0057597 | GASTROTRICHA |
| 4500000000000 | 0058239 | ROTIFERA-UNIDED ROTIFER |
| 4500000000010 | 0058239 | ROTIFERA A |
| 4500000000020 | 0058239 | ROTIFERA B |
| 4500000000030 | 0058239 | ROTIFERA C |

| SPEC_CODE | TSN | SOURCE_LBL |
|---|---|---|
| 4500000000040 | 0058239 | ROTIFERA D |
| 4500000000050 | 0058239 | ROTIFERA E |
| 4500000000060 | 0058239 | ROTIFERA F |
| 4504000000000 | 0058247 | BDELLOIDA-UNIDED BDELLOID ROTIFER |
| 4504020100000 | 0058267 | ROTARIA SP. |
| 4504020103000 | 0058269 | ROTARIA CITRINA |
| 4504020104000 | 0058270 | ROTARIA NEPTUNIA |
| 4504020300000 | 0058298 | MACROTRACHELA SP. |
| 4506010100000 | 0058348 | KERATELLA SP. |
| 4506010100010 | 0058348 | KERATELLA SP. A |
| 4506010102000 | 0058352 | KERATELLA QUADRATA |
| 4506010103000 | 0058360 | KERATELLA COCHLEARIS |
| 4506010103020 | 0058362 | KERATELLA COCHLEARIS COCHLEARIS |
| 4506010103030 | 0058363 | KERATELLA COCHLEARIS HISPIDA |
| 4506010103040 | 0058364 | KERATELLA COCHLEARIS MICRACANTHA |
| 4506010103050 | 0058365 | KERATELLA COCHLEARIS ROBUSTA |
| 4506010103060 | 0058366 | KERATELLA COCHLEARIS TECTA |
| 4506010104000 | 0058370 | KERATELLA CRASSA |
| 4506010105000 | 0058371 | KERATELLA EARLINAE |
| 4506010106000 | 0058374 | KERATELLA VALGA |
| 4506010200000 | 0058396 | NOTHOLCA SP. |
| 4506010203000 | 0058399 | NOTHOLCA ACUMINATA |
| 4506010300000 | 0058419 | COLURELLA SP. |
| 4506010400000 | 0058434 | BRACHIONUS SP. |
| 4506010400010 | 0058434 | BRACHIONUS SP. A |
| 4506010400020 | 0058434 | BRACHIONUS SP. B |
| 4506010401000 | 0058435 | BRACHIONUS PLICATILIS |
| 4506010402000 | 0058438 | BRACHIONUS CALYCIFLORUS |
| 4506010403000 | 0058440 | BRACHIONUS HAVANAENSIS |
| 4506010404000 | 0058443 | BRACHIONUS PTERODINOIDES |
| 4506010405000 | 0058444 | BRACHIONUS URCEOLARIS |
| 4506010406000 | 0058445 | BRACHIONUS ANGULARIS |
| 4506010407000 | 0058452 | BRACHIONUS BIDENTATA |
| 4506010408000 | 0058453 | BRACHIONUS BUDAPESTINENSIS |
| 4506010409000 | 0058454 | BRACHIONUS CAUDATUS |
| 4506010410000 | 0058457 | BRACHIONUS DIVERSICORNIS |
| 4506010411000 | 0058458 | BRACHIONUS QUADRIDENTATUS |
| 4506010412000 | 0058464 | BRACHIONUS RUBENS |
| 4506010413000 | 0058466 | BRACHIONUS VARIABILIS |
| 4506010500000 | 0058485 | KELLICOTTIA SP. |
| 4506010501000 | 0058486 | KELLICOTTIA LONGISPINA |
| 4506010502000 | 0058487 | KELLICOTTIA BOSTONIENSIS |
| 4506010700000 | 0058488 | LEPADELLA SP. |
| 4506010704000 | 0058492 | LEPADELLA PATELLA |
| 4506010800000 | 0058525 | ANURAEOPSIS SP. |
| 4506010801000 | 0058526 | ANURAEOPSIS FISSA |
| 4506010900000 | 0058529 | EPIPHANES SP. |
| 4506011100000 | 0058535 | LOPHOCHARIS SP. |
| 4506011101000 | 0058536 | LOPHOCHARIS SALPINA |
| 4506011200000 | 0058538 | MACROCHAETUS SP. |
| 4506011300000 | 0058546 | MYTILINA SP. |
| 4506011400000 | 0058559 | PLATYIAS SP. |

| SPEC_CODE | TSN | SOURCE_LBL |
|---|---|---|
| 4506011401000 | 0058560 | PLATYIAS PATULUS |
| 4506011402000 | 0058563 | PLATYIAS QUADRICORNIS |
| 4506011500000 | 0058564 | TRICHOTRIA SP. |
| 4506011501000 | 0058565 | TRICHOTRIA TETRACTIS |
| 4506011000000 | 0058578 | EUCHLANIS SP. |
| 4506011001000 | 0058582 | EUCHLANIS DILATATA |
| 4506020100000 | 0058634 | LECANE SP. |
| 4506020200000 | 0058747 | MONOSTYLA SP. |
| 4506020201000 | 0058748 | MONOSTYLA BULLA |
| 4506020202000 | 0058751 | MONOSTYLA CLOSTEROCERCA |
| 4506020203000 | 0058752 | MONOSTYLA QUADRIDENTATA |
| 4506040100000 | 0058784 | ENCENTRUM SP. |
| 4506040200000 | 0058796 | PROALES SP. |
| 4506040300000 | 0058819 | CEPHALODELLA SP. |
| 4506040302000 | 0058821 | CEPHALODELLA GIBBA |
| 4506040400000 | 0058885 | NOTOMMATA SP. |
| 4506040500000 | 0058937 | MONOMMATA SP. |
| 4506040600000 | 0058952 | EOSPHORA SP. |
| 4506070100000 | 0059074 | TRICHOCERCA SP. |
| 4506070102000 | 0059076 | TRICHOCERCA CYLINDRICA |
| 4506070103000 | 0059077 | TRICHOCERCA LONGISETA |
| 4506070104000 | 0059078 | TRICHOCERCA MULTICRINIS |
| 4506070105000 | 0059079 | TRICHOCERCA SIMILIS |
| 4506080100000 | 0059167 | ASCOMORPHA SP. |
| 4506080102000 | 0059168 | ASCOMORPHA SALTANS |
| 4506080200000 | 0059175 | GASTROPUS SP. |
| 4506080201000 | 0059176 | GASTROPUS MINOR |
| 4506080101000 | 0059181 | ASCOMORPHA OVALIS |
| 4506120100000 | 0059235 | ASPLANCHNA SP. |
| 4506120101000 | 0059236 | ASPLANCHNA BRIGHTWELLII |
| 4506120102000 | 0059238 | ASPLANCHNA HERRICKII |
| 4506120103000 | 0059240 | ASPLANCHNA PRIODONTA |
| 4506130200000 | 0059255 | SYNCHAETA SP. |
| 4506130200001 | 0059255 | SYNCHAETA SPP. L-LARGE |
| 4506130200002 | 0059255 | SYNCHAETA SPP. M-MEDIUM |
| 4506130200003 | 0059255 | SYNCHAETA SPP. S-SMALL |
| 4506130200020 | 0059256 | SYNCHAETA BALTICA |
| 4506130204000 | 0059259 | SYNCHAETA PECTINATA |
| 4506130206000 | 0059261 | SYNCHAETA OBLONGA |
| 4506130207000 | 0059262 | SYNCHAETA STYLATA |
| 4506130200010 | 0059264 | SYNCHAETA BICORNIS |
| 4506130300000 | 0059270 | POLYARTHRA SP. |
| 4506130302000 | 0059272 | POLYARTHRA DISSIMULANS |
| 4506130303000 | 0059273 | POLYARTHRA DOLICHOPTERA |
| 4506130304000 | 0059274 | POLYARTHRA EURYPTERA |
| 4506130305000 | 0059275 | POLYARTHRA MAJOR |
| 4506130306000 | 0059276 | POLYARTHRA REMATA |
| 4506130307000 | 0059277 | POLYARTHRA VULGARIS |
| 4506130400000 | 0059282 | PLOESOMA SP. |
| 4506130402000 | 0059283 | PLOESOMA TRUNCATUM |
| 4506130401000 | 0059291 | PLOESOMA HUDSONI |
| 4507010100000 | 0059297 | TESTUDINELLA SP. |

| SPEC_CODE | TSN | SOURCE_LBL |
|---|---|---|
| 4507010101000 | 0059298 | TESTUDINELLA PATINA |
| 4507020100000 | 0059350 | HEXARTHRA SP. |
| 4507020101000 | 0059352 | HEXARTHRA MIRA |
| 4507040100000 | 0059412 | CONOCHILOIDES SP. |
| 4507040102000 | 0059413 | CONOCHILOIDES DOSSUARIUS |
| 4507040103000 | 0059414 | CONOCHILOIDES NATANS |
| 4507040200000 | 0059417 | CONOCHILUS SP. |
| 4507040201000 | 0059418 | CONOCHILUS HIPPOCREPIS |
| 4507040202000 | 0059419 | CONOCHILUS UNICORNIS |
| 4507050100000 | 0059425 | FILINIA SP. |
| 4507050101000 | 0059426 | FILINIA LONGISETA |
| 4507050102000 | 0059427 | FILINIA BRACHIATA |
| 4507050103000 | 0059428 | FILINIA TERMINALIS |
| 4508010100000 | 0059434 | COLLOTHECA SP. |
| 4508010101000 | 0059435 | COLLOTHECA MUTABILIS |
| 4508010102000 | 0059436 | COLLOTHECA PELAGICA |
| 4700000000000 | 0059490 | NEMATODA |
| 0000000000002 | 0064357 | UNIDED TROCHOPHORE LARVAE |
| 5100000000001 | 0069459 | GASTROPODA-LARVAE |
| 5500000000001 | 0079119 | PELECYPODA-LARVAE |
| 5515370301000 | 0081339 | DREISSENA POLYMORPHA |
| 5922000000000 | 0082754 | ACARINA-MITE |
| 6117000000001 | 0085257 | COPEPOD NAUPLII |
| 6117000000005 | 0085257 | COPEPOD NAUPLII+PERITRICHS |
| 6118180100001 | 0085780 | DIAPTOMUS -NAUPLII |
| 6118190200001 | 0085848 | PSEUDODIAPTOMUS SP.-NAUPLII |

| SPEC_CODE | TSN | SOURCE_LBL |
|---|---|---|
| 6118200200001 | 0085862 | EURYTEMORA SP.-NAUPLII |
| 6118290100001 | 0086084 | ACARTIA SP.-NAUPLII |
| 6119050200001 | 0086131 | SCOTTOLANA SP.-NAUPLII |
| 6120080200001 | 0088640 | CYCLOPS SP.-NAUPLII |
| 6120080300001 | 0088691 | MESOCYCLOPS SP.-NAUPLII |
| 6120090100001 | 0088802 | OITHONA SP.-NAUPLII |
| 6120260100001 | 0088960 | HEMICYCLOPS SP.-NAUPLII |
| 7500000000000 | 0155166 | TARTIGRADA |
| 3516000000000 | BAY0126 | HAPTORIDA |
| 3442010201000 | BAY0139 | LESQUEREUSIA GIBBOSA |
| 3540020123003 | BAY0275 | TINTINNOPSIS FIMBRIATA-MEUNIERI GRP |
| 3540020123004 | BAY0275 | TINTINNOPSIS FIMBRIATA-MEUNIERI GRP-FULL |
| 3540020123005 | BAY0275 | TINTINNOPSIS FIMBRIATA-MEUNIERI GRP-EMPTY |
| 3540050501000 | BAY0289 | STYLICAUDA PLATENSIS |
| 3540050501001 | BAY0289 | STYLICAUDA PLATENSIS-FULL |
| 3540050501002 | BAY0289 | STYLICAUDA PLATENSIS-EMPTY |
| 35120000000GA | BAY0297 | NON-LORICATE CILIATE 20-49UM LENGTH |
| 35120000000GG | BAY0297 | NON-LORICATE CILIATE |
| 35120000000BB | BAY0297 | NON-LORICATE CILIATE 50-99UM LENGTH 50-99UM W |
| 35120000000AA | BAY0297 | NON-LORCIATE CILIATE 20-49UM LENGTH 20-49UM W |
| 0000000000001 | BAY0321 | UNIDED LARVAE |
| 35400N000010B | BAY0324 | NOLACLUSILIS BICORNIS |

# VARIABLE NAMES AND DESCRIPTIONS FOR DATA FILES
Structure for data files on 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
These tables cross references Academy of Natural Sciences species codes and spellings with current National Oceanographic Data Center taxonomic codes and ITIS TSN codes. Structure for data files on http://www.chesapeakebay.net/

| 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 Taxon 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 FILES AND TAXONOMIC KEY
See the 2000 User's Guide to Chesapeake Bay Program Biological and Living Resources Data for full listing.

>MISSING VALUES: Missing SAMPLING_TIME values have been replaced with 00:00.

>STATION: See section STATION NAMES AND DESCRIPTIONS

>SAMPLE_TYPE: Sample Collection Type
C - Composite

>SOURCE: Data Collection Agency
MSU - Morgan State University Estuarine Research Center, formerly the Academy of Natural Sciences, Benedict Estuarine Research Laboratory

>SPEC_CODE: In house Species codes or MSUCODE,
See In House species names and codes listed above

>GMETHOD: Sampling Gear Code
08 - unspecified plankton Net

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

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

>LIFE_STAGE DESCRIPTION - Chesapeake Bay Program Life Stage Code

| | |
|---|---|
| 11 | NAUPLII |
| 12 | COPEPODITE |
| 52 | SPECIES A |
| 53 | SPECIES B |
| 54 | SPECIES C |
| 58 | SPECIES A-FULL |
| 59 | SPECIES A-EMPTY |
| 60 | SPECIES B-FULL |
| 61 | SPECIES B-EMPTY |
| 62 | SPECIES C-FULL |
| 63 | SPECIES C-EMPTY |
| 82 | LARGE |
| 83 | LARGE-FULL |
| 84 | LARGE-EMPTY |
| 85 | FULL |
| 86 | EMPTY |
| 87 | MEDIUM |
| 88 | SMALL |
| 97 | LARVAE |
| 98 | ADULT |

| | |
|---|---|
| 99 | NOT APPLICABLE |
| 100 | 20:49UM LENGTH <20UM WIDTH |
| 101 | 20:49UM LENGTH |
| 102 | 20:49UM LENGHT 50:99UM WIDTH |
| 103 | 20:49UM LENGHT 20:49UM WIDTH CUP |
| 104 | 20:49UM LENGHT 20:49UM WIDTH CONE |
| 105 | 20:49UM LENGHT 20:49UM WIDTH |
| 106 | 20:49UM LENGTH >20UM WIDTH |
| 107 | >200UM LENGTH |
| 108 | 20:49UM LENGHT <20UM WIDTH CONE |
| 109 | 50:99UM LENGTH <20UM WIDTH |
| 110 | 100:199UM LENGTH >20UM WIDTH |
| 111 | >20UM WIDTH |
| 112 | <20UM LENGTH |
| 113 | <20UM LENGTH <20UM WIDTH CUP |
| 114 | <20UM LENGTH <20UM WIDTH CONE |
| 115 | <20UM LENGHT <20UM WIDTH |
| 116 | <20UM LENGHT CONE |
| 117 | 20:49UM LENGHT <20UM WIDTH CUP |
| 118 | 50:99UM LENGTH EMPTY |

| | |
|---|---|
| 119 | SPECIES C 100:199UM LENGHT 100:199UM WIDTH |
| 120 | SPECIES B 50:99UM LENGHT 50:99UM WIDTH |
| 121 | SPECIES B 50:99UM LENGHT 20:49UM WIDTH |
| 122 | PARVULA GRP FULL |
| 123 | PARVULA GRP |
| 124 | 20:49UM LENGTH FULL |
| 125 | BEROIDEA GRP |
| 126 | SPECIES C 100:199UM LENGHT 20:49UM WIDTH |
| 127 | 50:99UM LENGTH |
| 128 | 50:99UM LENGHT 50:99UM WIDTH CUP |
| 129 | 50:99UM LENGHT 50:99UM WIDTH CONE |
| 130 | 50:99UM LENGHT 20:49UM WIDTH CUP |
| 131 | 50:99UM LENGHT 20:49UM WIDTH CONE |
| 132 | 50:99UM LENGHT >20UM WIDTH |

See On-Line Living Resources Data Documentation for full listing

>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)
N No salinity data available to establish salinity zone at time of sampling.
E Any valid salinity code 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 simultaneously collected 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 http://ftp.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
CHS - Chester River
PAX - Patuxent River
BAL - Baltimore Harbor
CHP - Choptank River
POT - Potomac River
TAN - Tangier River

>TSN: Interagency Taxonomic Identification System, Taxon Serial Numbers Note for current listing of Chesapeake Bay Program Species and their codes, see http://ftp.chesapeakebay.net/species/. Organisms without current serial numbers have ALL been assigned TSN of BAYXXXX.

> CBSEG_2003: Chesapeake Bay Program Monitoring Segment

| | |
|---|---|
| CB1TF | CHESAPEAKE BAY-TIDAL FRESH REGION |
| CB2OH | CHESAPEAKE BAY-OLIGOHALINE REGION |
| CB3MH | CHESAPEAKE BAY-MESOHALINE REGION |
| CB4MH | CHESAPEAKE BAY-MESOHALINE REGION |
| CB5MH | CHESAPEAKE BAY-MESOHALINE REGION |
| CHOMH2 | CHOPTANK RIVER-MESOHALINE REGION 2 |
| CHOOH | CHOPTANK RIVER-OLIGOHALINE REGION |
| CHSMH | CHESTER RIVER-MESOHALINE REGION |
| PATMH | PATAPSCO RIVER-MESOHALINE REGION |
| PAXMH | PATUXENT RIVER-MESOHALINE REGION |
| PAXOH | PATUXENT RIVER-OLIGOHALINE REGION |
| PAXTF | PATUXENT RIVER-TIDAL FRESH REGION |
| POTMH | POTOMAC RIVER-MESOHALINE REGION |
| POTOH | POTOMAC RIVER-OLIGOHALINE REGION |
| POTTF | POTOMAC RIVER-TIDAL FRESH REGION |
| TANMH | TANGIER SOUND-MESOHALINE REGION |

>FIPS: Federal Information Processing Codes

| FIPS | STATE | COUNTY |
|---|---|---|
| 24003 | MD | ANNE ARUNDEL |
| 24005 | MD | BALTIMORE |
| 24015 | MD | CECIL |
| 24017 | MD | CHARLES |
| 24019 | MD | DORCHESTER |
| 24025 | MD | HARFORD |
| 24029 | MD | KENT |
| 24033 | MD | PRINCE GEORGES |
| 24037 | MD | SAINT MARYS |
| 24039 | MD | SOMERSET |

>HUC8: USGS Hydrologic Unit Codes

| HUC8 | CATALOGING_UNIT_DESCRIPTION |
|---|---|
| 02050306 | LOWER SUSQUEHANNA |
| 02060001 | UPPER CHESAPEAKE BAY |
| 02060002 | CHESTER-SASSAFRAS |
| 02060003 | GUNPOWDER-PATAPSCO |
| 02060005 | CHOPTANK |
| 02060006 | PATUXENT |
| 02060007 | BLACKWATER-WICOMICO |
| 02070011 | LOWER POTOMAC |

>METHOD: Chesapeake Bay Program Lab Method Code Designation

MI101
MI103

>PARAMETER and UNIT: Measured Parameter and reporting units.

| PARAMETER | UNITS |
|---|---|
| COUNT | NUMBER/LITER |

# NUMERIC VARIABLE NAMES - WARNING AND ERROR BOUNDS

| Variable | Valid Ranges |
|---|---|
| SAMPLING_DATE | 19840801- 20021001 |
| VALUE | 0.05-10000.00 |
| MAXDEPTH | 0.5 - 32.0 |
| R_DATE | 19950301 - 20041231 |
| REP_NUM | 1,2,3,4,5,6,7 |
| SAMVOL_L | 12 - 200 |
| LATITUDE | See section STATION NAMES AND DESCRIPTIONS |
| LONGITUDE | See section STATION NAMES AND DESCRIPTIONS |
| P_DEPTH | >0.5 - <TDEPTH NOTE: Composite sample cut off depth is not pycnocline depth! |
| R_DATE | 19950301-20021230 |
| T_DEPTH | 0.5 - 32.0 |
| SAMPLE_TIME | 06:00-21:00 missing times denoted by 00:00 |

# IMPORTANT DATA REVISIONS

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

The following stations had their names changed to the standard Chesapeake Bay Program Station Names. Previous station names ware as follows:

| LRNAME | CBP NAME |
|---|---|
| XDE5339 | LE1.1 |
| XED4892 | TF1.7 |
| PXT0402 | TF1.5 |
| XEA6596 | TF2.3 |
| XDA1177 | RET2.2 |
| MLE2.2 | LE2.2 |
| MET4.2 | ET4.2 |
| MET5.1 | ET5.1 |
| MET5.2 | ET5.2 |
| MEE3.1 | EE3.1 |
| MWT5.1 | WT5.1 |

5/31/95 - CRUISE NUMBERS BAY004 - BAY211 were supplied by the Chesapeake Bay Program Office and modified by Amy Imirie and Elgin Perry to reflect true start and end dates with corresponding MSU trip numbers. This prevents the occurrence of two sampling events for one station during a Bay Cruise period.

5/31/95 - GMETHOD was changed to 8. Code 8 refers to unspecified plankton net. For an extensive gear code please consult The 2000 Users Guide Chesapeake Bay Program Biological and Living Resources Monitoring Data. This is a change from the GMETHOD code in previous versions of the data set. This does not represent a change in actual sampling gear.

5/31/95 - REP_NUM 5,6,7 WERE PREVIOUSLY REPORTED AS T, B, and W. The change in REP_NUM designation was necessary because REP_NUM is a numeric field.

5 - combined 1 & 3 (above pycnocline)
6 - combined 2 & 4 (below pycnocline)
7 - whole water column

5/31/93 - Spelling of species Latin Names in LBL have been corrected to the National Oceanographic Data Center or IT IS accepted spelling. In a few cases MSU Species Latin Names were changed to the currently accepted NODC Species Latin name.

4/15/92 - The name of species MSUCODE = 4506130200010 has been changed from "Synchaeta sp. A - long horns" to "Synchaeta bicornis" and the name of species MSUCODE = 4506130200020 has been changed from "Synchaeta sp. B - porker" to "Synchaeta baltica."

7/13/1998- The net sample for station LE1.1 was lost, only whole water counts are available for this station and date.

SUMMER 1997 - ICPRB Staff calculated Salinity zones from water quality data provided by the Maryland Department of the Environment. Values were derived from Water Quality Hydrographic data collected concurrently with the plankton when ever possible. 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

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

09/01/2004- This program was conducted by the Academy of Natural Sciences (ANS) from August 1984 through August 2004. Morgan State University (MSU) took over the MSU laboratory in September, 2004, but the program and personnel remained the same. All data previously codes with the data source as ANS was updated to MSU.

# KEY WORDS (EXCLUDING VARIABLE NAMES)
Microzooplankton taxonomic
Microzooplankton monitoring
Microzooplankton species
Microzooplankton densities

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

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