MARYLAND CHESAPEAKE BAY PROGRAM PHYTOPLANKTON AND PICOPLANKTON MONITORING SURVEY DATA DICTIONARY

Maryland Chesapeake Bay Water Quality Monitoring Program: Phytoplankton Component
- Phytoplankton Taxonomic Composition Data Dictionary
- Phytoplankton Event Data Dictionary
- Picoplankton Abundance Data Dictionary
- Picoplankton Event Data Dictionary

NOTE
1) THIS DICTIONARY WAS REVISED ON 01/22/2010 AND SUPERSEDES ALL OTHER CBP DICTIONARIES FOR THE MARYLAND PHYTOPLANKTON DATA.

2) THIS PROGRAM WAS CONDUCTED BY THE ACADEMY OF NATURAL SCIENCES (ANS) FROM AUGUST 1984 THROUGH AUGUST 2004. MORGAN STATE UNIVERSITY (MSU) TOOK OVER THE ANS LABORATORY IN SEPTEMBER, 2004, BUT THE PROGRAM AND PERSONNEL REMAINED THE SAME.

3) THIS PROGRAM WAS TERMINATED AS OF 30 SEPTEMBER 2009

The state of Maryland, in cooperation with the US EPA Chesapeake Bay Program, has monitored phytoplankton species abundances in the Maryland Chesapeake Bay mainstem and tributaries since August 1984. The program is designed to give comprehensive spatial and temporal information on phytoplankton. Sampling is performed in conjunction with the Maryland C14 primary production, fluorometry, 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
Maryland Chesapeake Bay Water Quality Monitoring Program: Phytoplankton Component

CURRENT PRINCIPAL INVESTIGATORS

THIS PROGRAM WAS TERMINATED AS OF 30 SEPTEMBER 2009; THE FOLLOWING WERE THE INVESTIGATOR AND PROJECT MANAGERS AT TIME OF PROJECT TERMINATION.

>PROGRAM MANAGER: Bruce Michaels, Renee Kahrr, Maryland Department of Natural Resources
>PRINCIPAL INVESTIGATORS: Richard V. Lacouture, Morgan State University Estuarine Research Laboratory.
>TECHNICAL STAFF: Data collected by staff of Morgan State University Estuarine Research Laboratory. Counts performed by Ann-Marie Hartsig and R. V. Lacouture of Morgan State University Estuarine Research Laboratory.
>STATISTICIAN: Elgin Perry-C/o Morgan State University Estuarine Research Laboratory,
>PROGRAMMER/ANALYST: T. D. Wohlford, Morgan State University Estuarine Research Laboratory.
>DATA COORDINATOR: T. D. Wohlford, Morgan State University Estuarine Research Laboratory.

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
07/02/1984-10/01/2009

ABSTRACT

The overall phytoplankton-monitoring program is designed to detect and monitor changes in phytoplankton abundances and species composition in relation to changing water quality conditions in the Chesapeake Bay. They are presently the dominant primary producers in Chesapeake Bay and are the base of the food chain for many higher trophic levels. Excessive blooms of phytoplankton species are considered evidence of eutrophication in the bay and are known to degrade water quality and block light from submerged aquatic vegetation. Phytoplankton samples are collected in conjunction with the Maryland Chesapeake Bay water quality, C14 primary production, fluorometry, and water quality monitoring programs.

Phytoplankton counts were obtained from replicate surface layer and bottom layer composite samples taken at 16 stations in the Maryland portion of the Chesapeake Bay and its tributaries. After March 1985, replicate samples were combined for each station, yielding one above-pycnocline and one below-pycnocline sample. After June 1986, stations ET4.2 and EE3.1 were no longer sampled. Beginning July 1989, whole water column samples were enumerated from stations RET2.2, TF1.7, TF1.5, ET5.1, CB1.1 and CB2.2. Beginning in January 1996, stations CB1.1 and CB5.2 were no longer sampled. Sampling at CB5.2 was re-instituted in March, 1998.

Samples are currently collected 13 times during the course of the year. Monthly sampling occurs in March, June, September, October and December while twice monthly sampling takes place in April, May, July and August. Between 1984 and 1994, monthly sampling occurs from October-March while twice monthly sampling takes place from April-September. The stations in the Choptank River (ET5.1) and (ET5.2) and the station in Baltimore Harbor (WT5.1) are not sampled in January and February.) Beginning in July 1995, only surface composite samples were enumerated for those stations where a surface layer and bottom layer sample are collected. Bottom composite samples were collected until August 2003 and archived if future funds for sample enumeration become available. After June 1986, stations TF4.2 and EE3.1 were no longer sampled. Beginning in January 1996, the Patuxent River is the only sampling during January. All sampling in February and November was discontinued and sampling in June and September was reduced to a single cruise. Beginning in May 2002, additional samples were collected for the enumeration of picoplankton during the months of June-September at the following stations: CB3.3C, CB4.3C, CB5.2, ET5.2, LE1.1, LE2.2, and WT5.1. Note, that the data for XEA6596 from 4/24/00 and 5/22/00 are for the bottom composite, since the surface composite was not collected. A new counting technique was instituted in 2005. Beginning in April, 2007, four new stations were sampled during spring

and summer months: ET3.1 (Sassafras R.), ET 4.2 (Chester R.), WT6.1 (Magothy R.), and WT8.1 (South R.).

STATION NAMES AND DESCRIPTIONS

STATION	DESCRIPTION
CB1.1	Mouth Of Susquehanna River; Head Of Bay; Mid-Channel
CB2.2	West Of Still Pond Near Buoy R-34; Middle Of Transition Zone; Mid-Channel
CB3.3C	North Of Bay Bridge; Characterizes Mid-Channel
CB4.3C	East Of Dares Beach Near Buoy R-64; Characterizes Mid-Channel
CB5.2	East Of Point No Point; Mid-Channel
EE3.1	North Tangier Sound; Northwest Of Haines Point; 100 Yards North Of Buoy R-16; Characterizes Embayment
ET3.1	Sassafras River Near Route 213 Bridge; Tidal Fresh Water Station
ET4.2	Lower Chester River; South Of Eastern Neck Island At Buoy Fig-9; Characterizes Lower Estuarine
ET5.1	Upper Choptank River At Ganey Wharf; Downstream Of Confluence; Tuckahoe Circle; Tidal Fresh Water Station
ET5.2	Lower Choptank River Near Route 50 Bridge At Cambridge; Characterizes Lower Estuarine
LE1.1	Mid-Channel; Ssw Of Jack Bay Sandspit And Northeast Of Sandgates; Characterizes Lower Estuarine
LE2.2	Potomac River Off Ragged Point At Buoy 51b; Lower Estuarine Zone
RET2.2	Bouy 19 Mid-Channel Off Maryland Point; Characterizes Transition Zone
TF1.5	Mid-Channel At Nottingham; Characterizes Tidal Fresh Zone
TF1.7	Mid-Channel On A Transsect Of Approximate 115 Degree From Jack's Creek; Characterizes Transition Zone
TF2.3	Bouy N 54 Mid-Channel Off Indianhead; Characterizes Tidal Fresh Zone
WT5.1	Patapsco River; East Of Hawkins Point At Buoy 5m; Characterizes Lower Estuarine
WT6.1	Magothy River; North Of South Ferry Point At Buoy Fl R12; Characterizes Lower Estuarine
WT8.1	South River; South Of Poplar Point At Day Marker R-"16"; Characterizes Lower Estuarine

STATION NAMES, LATITUDES (decimal degrees), LONGITUDES (decimal degrees), TOTAL DEPTHS (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 ANS 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	39.54484	-76.0813	6.1	39 32' 41.407"	-77 55' 7.18"
CB2.2	39.34678	-76.1747	12.1	39 20' 48.395"	-77 49' 31.172"
CB3.3C	38.99595	-76.3597	23.7	38 59' 45.403"	-77 38' 25.154"
CB4.3C	38.55651	-76.4347	26.1	38 33' 23.437"	-77 33' 55.176"
CB5.2	38.13679	-76.228	30.1	38 8' 12.448"	-77 46' 19.206"
EE3.1	38.20012	-75.9747	13.7	38 12' 0.443"	-76 1' 31.237"
ET3.1	38.19685	-75.97321	8.8	38 11’ 48.66”	-75 58’ 23.56”
ET4.2	38.99178	-76.2163	14.6	38 59' 30.404"	-77 47' 1.172"
ET5.1	38.80706	-75.9119	5.3	38 48' 25.411"	-76 5' 17.229"
ET5.2	38.58012	-76.058	14.3	38 34' 48.426"	-77 56' 31.217"
LE1.1	38.42512	-76.6016	12.0	38 25' 30.447"	-77 23' 54.15"
LE2.2	38.16679	-76.583	11.0	38 10' 0.461"	-77 25' 1.153"
RET2.2	38.35207	-77.2044	9.5	38 21' 7.452"	-78 47' 44.077"
TF1.5	38.71012	-76.7014	10.3	38 42' 36.421"	-77 17' 55.125"
TF1.7	38.58179	-76.6802	2.3	38 34' 54.434"	-77 19' 11.134"
TF2.3	38.60817	-77.1739	12.7	38 36' 29.426"	-78 49' 34.073"
WT5.1	39.20844	-76.5247	15.7	39 12' 30.39"	-77 28' 31.134"
WT6.1	39.07851	-76.51005	5.8	39 04’ 42.64”	-76 30’ 36.18”
WT8.1	38.9496	-76.5461	7.9	38 56’ 58.56”	-76 32’ 45.96

Station depths are based on a ten-year average (1984-1994) of Maryland Department of the Environment water quality hydrographic data collected concurrently with the plankton.

METHODOLOGY DESCRIBING CHAIN OF CUSTODY FOR LAB SAMPLES

Members of the Benedict Estuarine Research Laboratory plankton section collected phytoplankton samples. At the end of each sampling cruise, the samples are transferred to the phytoplankton taxonomist. Phytoplankton counts and identifications are then made and sample concentrates are subsequently archived.

BIOLOGICAL ENUMERATION TECHNIQUES

-Chesapeake Bay Program Analytical Method Code PH101

Samples are gently mixed and a 1-25 milliliter aliquot is transferred to a settling chamber. The aliquot is made up to 10-50 milliliter with deionized water (depending on the volume of the settling chamber). After a settling period of 2-48 hours (depending on the volume of the settling chamber), the settled material is examined at 400X or 500X and 250X or 312X using a Leitz Diavert inverted microscope. Identification and enumeration of the dominant taxa, including detailed counts of the species, are made yielding densities (cells/liter) of individual taxa as well as the total assemblage. A minimum of twenty random fields and 200 individual cells (not including blue-green spheres: 815 5) are counted at 500X-400X. The 312X-250X count consists of the examination of twenty random fields. For the rarer forms not encountered in the high magnification counts. In 1989 after doing a comparison with epifluorescence microscopy 815 5, or unidentified blue green spheres were no longer enumerated due to the inaccuracy of the Utermohl method in estimating numbers of these cells.

The remainder of the sample is permitted to settle for at least 72 hours before concentration to a volume of 20-25 milliliters for archiving.

-Chesapeake Bay Program Analytical Method Code PH103

Beginning in 2005, the following enumeration technique was instituted for all Chesapeake Bay Program supported phytoplankton enumerations. Samples are gently mixed and a 1-25 milliliter aliquot is transferred to a settling chamber. The aliquot is made up to 10-50 milliliter with deionized water (depending on the volume of the settling chamber). After a settling period of 2-48 hours (depending on the volume of the settling chamber), the settled material is examined at 400X or 500X and 250X or 312X using a Leitz Diavert inverted microscope. Identification and enumeration of the dominant taxa, including detailed counts of the species, are made yielding densities (cells/liter) of individual taxa as well as the total assemblage.

(1) At 312X magnification, a minimum of ten random fields and 200 cells of taxa > 5 microns in largest dimension will be counted. If 200 cells are not tallied in 10 fields, cells in additional fields will be enumerated until 200 cells have been enumerated. All colonies, trichomes, & filaments are counted at this magnification. Very large (>60 Microns) or rare species (less than 1 cell in less than 10 Grids) not counted in this scan.

(2) At 500X magnification, twenty random fields will be counted for taxa >=3 and <=5 microns in diameter. No colonies, trichomes or filaments counted.

(3) At 125X magnification, the entire chamber will be scanned for taxa which were not enumerated at the other two magnifications.

-Chesapeake Bay Program Analytical Method Code PP102

Samples are gently mixed and an appropriate (1-5ml) sub-sample is pipetted from the collection bottle. This aliquot is filtered through a 0.2 um pore size Irgalan black-stained polycarbonate filter on top of a glass-fiber backing filter at low (< 5 psi) vacuum pressure. The polycarbonate filter is removed from the base and placed atop a drop of Cargille Type A immersion oil in the center of a glass slide. Another drop of immersion oil is placed atop the filter and a cover slip is placed atop the filter. The sample is enumerated at a magnification of 1250X with a Leitz Laborlux compound microscope fitted with a 100W Mercury bulb. Two filter cubes are used in order to enumerate the picoplankton - one in the excitation range of 420-490 nm and the other in the excitation range of 515-560 nm. A minimum of twenty random fields and 200 individual cells are counted.

FORMULAS, CALCULATIONS, AND CONVERSIONS

The following equation is used to convert raw counts to density for each taxon identified:

DENSITYV = RAWCNT * (NUMCHFLD / NUMCTFLD) * (1 / FRAC_CNT) * 2

where DENSITYV = density in number per liter
RAWCNT = number of individuals counted
NUMCHFLD = number of fields in entire counting chamber
NUMCTFLD = number of field counted
FRAC_CNT = fraction of sample counted

NOTE: NUMCHFLD is a constant, either 2955.2, 3086.4 or 3489.7 when counting at 500X or 400X and 1141.9, 1189.1 or 1319.8 when counting at 312X or 250X, which is dependent on the specific microscope used for the enumeration.

NOTE: DENSITYV is now reported as DEN_L. Variables to calculate DEN_L are no long reported but are preserved in SAS data sets originally submitted to CBPO and MDDNR.

MONITORING VARIABLES QA/QC PLAN FOR PROJECT

Random sample recounts of previously counted phytoplankton samples are undertaken in order to determine counting error. One in every 20 samples is blindly selected and recounted with the C.V. between total counts in the two samples recorded and stored at the laboratory.

VARIABLE NAMES, MEASUREMENT UNITS, AND DESCRIPTIONS (Names, measurement units and descriptions of physiochemical variables, e.g. LAYER. Found in ASCII data sets or the relational database)

>PARAMETER: COUNT (# of a Phytoplankton Taxon per Liter)
-COLLECTION METHODS: After replicate sampling was curtailed in March 1985, 500 ml aliquots from the two surface composites are combined into a 1-liter bottle as are the two bottom composites, and a phytoplankton sub-sample is decanted into a 500 milliliters polyethylene bottle and fixed immediately with Acid Lugol's solution. The whole water column samples are taken by decanting 500 milliliters from a 30-liter composite sample, which is collected from ten discrete depths evenly, space throughout the water column.
-SAMPLE PRESERVATIVES: Acid Lugol's iodine solution and 37% buffered formalin
-SAMPLE STORAGE ENVIRONMENT: Laboratory
-TIME IN STORAGE: 1-6 months
-LAB TECHNIQUES WITH REFERENCES:
Utermohl, H. 1931. Neue Wege in der quantitativen Erfassung des Planktons (mit besonderer Berucksichtigung des Ultraplanktons). Verh. int. Ver. theor. angew. Limnol. 5(2):567-596.

>PARAMETER: COUNT (# of Picoplankton per liter)
-COLLECTION METHODS: 125-ml aliquots are removed from the above pycnocline composite samples (15 l) and placed in polyethylene bottles containing 10 ml of 25% glutaraldehyde. The samples are placed on ice and returned to the laboratory for enumeration.
-SAMPLE PRESERVATIVES: 25% glutaraldehyde to a final volume of 2.5%.
-SAMPLE STORAGE ENVIRONMENT: Refrigerator or cooler on ice until the sample is filtered, then the slide is frozen.
-TIME IN STORAGE: < 1 week
-LAB TECHNIQUES WITH REFERENCES

>PARAMETER: LATITUDE (in Decimal Degrees), LONGITUDE (in Decimal Degrees)
-COLLECTION METHODS: Loran-C using NAD27 from July 1984 to June 1997; GPS from June 1997 to present. All position 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 or GPS receiver and sampling begins when boat reaches pre-programmed coordinates. Loran-C is accurate to ± 1500 ft. 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) 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. TOTAL_DEPTH is based on a ten-year average of Maryland Department of the Environment Water Quality Hydrographic data collected concurrently with the plankton samples.

>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) 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. TDEPTH is based on a ten year average of Maryland Department of the Environment Water Quality Hydrographic data collected concurrently with the plankton samples.

>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 total depth are measured prior to the phytoplankton sample collections. Salinity values are averaged for above P_DEPTH and below P_DEPTH and salinity classifications are determined. If sample is a whole water column sample, then salinity is averaged over the entire water column. P_DEPTH is set at 0.5 meters above the pycnocline. 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 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 total depth are measured prior to the phytoplankton sample collections.
>DATA ENTRY METHOD: Computerized phytoplankton counting automatically produces data sheet and data file. Field data is Key punched from field data sheets.
>DATA VERIFICATION: Visual inspection and computer verification program.

SPECIES INHOUSE CODES AND SCIENTIFIC NAMES

The in-house code used by the Academy of Natural Sciences, Benedict Estuarine Research Laboratory consists of a three digit species code followed by a one or two digit phylum/group code:

1 - Bacillariophyceae: Diatoms
2 - Dinophyceae: Dinoflagellates
3 - Coccolithophores
4 - Silicoflagellates
5 - Cyanophyceae (Blue-Green algae)
6 - Euglenophyceae
7 - Chlorophyceae
8 - Cryptophyceae
9 - Xanthophyceae
10 - Chrysophyceae - except silicoflagellates
11 - Haptophyceae - except coccolithophores
12 - Prasinophyceae
13 - Choanoflagellates and unidentified flagellates.

>INHOUSE SPECIES LIST UPDATES:

During the 6 month period (7/91-12/91) the species list was overhauled in an attempt to standardize the descriptive language (i.e. UNK. and UNI. were changed to UNID. in describing an unidentified cell; CYCLOTELLA SP#1 <10D and all similar size descriptions were standardized to a form similar to CYCLOTELLA SP#1 DIAM <10 MICRONS). The other major change, which was made to the species list, was the addition of asterisks by a number of genera. This asterisk denotes a genus, which has been subdivided into various size categories. These genera will no longer be used in the counts since the creation of more specific categories for these genera have been formulated. These size categories were added to the species list in 7/91 thereby producing changes as in the following example:

Early species list - 058 1 COSCINODISCUS SP. *
Post 7/91 species list - 023 1 COSCINODISCUS SP#1 DIAM <40 MICRONS
026 1 COSCINODISCUS SP#2 DIAM 40-100 MICRONS
030 1 COSCINODISCUS SP#3 DIAM >100 MICRONS

In January, 1993, taxonomic nomenclature was updated for all taxa in the species list according to:
1) Parke, M. and Dixon, P.S. 1976. Check list of British marine algae - third revision. J. mar. biol. Ass. U.K. 56,527-594.
2) Hartley, B. 1986. A check list of the freshwater, brackish and marine diatoms of the British Isles and adjoining coastalwaters. J. mar. biol. Ass. U.K. 66, 531-610.

In November, 1998, several new taxa were added to the species list - 234 , 270 , 562 , were used for the first time largely in response to improve the carbon estimate for these new taxa relative to similar existing taxa. In July, 1999, two new taxa were added to the species list - 271 , 306 , were used for the first time also to improve carbon estimates. In April, 2002, two new taxa were added to species list - 244, 463 . In April, 2003, two new taxa were added to the species list - 345 , 346 . In December, 2006, one new taxon was added to the species list - 283 . In October 2007, three new taxa were added to the species list - 246, 247, and 328.

>INHOUSE SPECIES LIST: On the updated species list below, the new name appears on the left of the page while the old name appears on the right-hand side of the page.

SPEC_CODE	SOURCE_LBL
1	ACTINOPTYCHUS SP.
2	AMPHIPRORA SP.
3	AMPHORA SP.
4	CHAETOCEROS SP#1 DIAM
5	ASTERIONELLA GLACIALIS
6	ASTEROLAMPRA MARYLANDICA
7	ASTEROMPHALUS SP.

SPEC_CODE	SOURCE_LBL
8	RAPHIDIOPSIS CURVATA
9	CHAETOCEROS SP#2 DIAM 10-30 MICRONS
10	BACTERIASTRUM DELICATULUM
11	BACTERIASTRUM ELONGATUM
12	BACTERIASTRUM HYALINUM
13	BIDDULPHIA SP.
14	BIDDULPHIA ALTERNANS

SPEC_CODE	SOURCE_LBL
15	ODONTELLA AURITA
16	ODONTELLA LONGICRURIS
17	ODONTELLA SINENSIS
18	CERATAULINA PELAGICA
19	LEPOCINCLIS SP.
20	CHAETOCEROS SP.
21	CHAETOCEROS AFFINIS
22	GOMPHONEMA ACUMINATUM
23	COSCINODISCUS SP#1 DIAM
24	CHAETOCEROS BOREALIS
25	CHAETOCEROS BREVIS
26	COSCINODISCUS SP#2 DIAM 40-100 MICRONS
27	CHAETOCEROS COMPRESSUS
28	CHAETOCEROS CONCAVICORNIS
29	TRACHELOMONAS INTERMEDIA
30	COSCINODISCUS SP#3 DIAM >100 MICRONS
31	CRYPTOMONAS SP#1 LENGTH
32	CHAETOCEROS COSTATUS
33	CHAETOCEROS CRINITUS
34	CHAETOCEROS DANICUS
35	CHAETOCEROS DEBILIS
36	CHAETOCEROS DECIPIENS
37	CHAETOCEROS NEOGRACILIS
38	CHAETOCEROS DIDYMUS
39	CHAETOCEROS DIDYMUS V. PROTUBERANS
40	CRYPTOMONAS SP#2 LENGTH >10 MICRONS
41	CYCLOTELLA SP#1 DIAM
42	CHAETOCEROS LACINIOSUS
43	CYCLOTELLA SP#2 DIAM 10-30 MICRONS
44	CHAETOCEROS PENDULUS
45	CHAETOCEROS PERUVIANUS
46	CYCLOTELLA SP#3 DIAM >30 MICRONS
47	CHAETOCEROS RADICANS
48	CHAETOCEROS SOCIALIS
49	CHLORELLA MARINA
50	TETRASTRUM GLABRUM
51	FRAGILARIA SP#1 LENGTH
52	CLIMACODIUM SP.
53	FRAGILARIA SP#2 LENGTH 30-60 MICRONS
54	FRAGILARIA SP#3 LENGTH >60 MICRONS
55	COCCONEIS SP.
56	CORETHRON SP.
57	CORETHRON CRIOPHILUM
58	COSCINODISCUS SP.
59	COSCINODISCUS CENTRALIS
60	THALASSIOSIRA ECCENTRICA
61	COSCINODISCUS GRANII
62	THALASSIOSIRA LEPTOPA
63	COSCINODISCUS MARGINATUS
64	PSAMMODISCUS NITIDUS
65	COSCINODISCUS PERFORATUS
66	COSCINODISCUS RADIATUS

SPEC_CODE	SOURCE_LBL
67	COSCINODISCUS STELLARIS
68	CHLORELLA SALINA
69	DETONULA CONFERVACEA
70	DIATOMA ELONGATUM
71	DIATOMA HYEMALE
72	DIPLONEIS SP.
73	FRAGILARIA CONSTRUENS
74	DITYLUM BRIGHTWELLII
75	EUCAMPIA CORNUTA
76	EUCAMPIA ZOODIACUS
77	FRAGILARIA SP.
78	FRAGILARIA CROTONENSIS
79	GOMPHONEMA SP.
80	GRAMMATOPHORA MARINA
81	GUINARDIA FLACCIDA
82	GYROSIGMA SP.
83	HEMIAULUS HAUCKII
84	GYRODINIUM SP#1 5-20UM W 10-20UM L
85	HEMIAULUS SINENSIS
86	PYRAMIMONAS AMYLIFERA
87	LAUDERIA BOREALIS
88	LEPTOCYLINDRUS DANICUS
89	LEPTOCYLINDRUS MINIMUS
90	COELOSPHAERIUM SP.
91	GYRODINIUM SP#2 21-40UM W 21-50UM L
92	MASTOGLOIA SP.
93	MELOSIRA SP.
94	AULACOSEIRA GRANULATA
95	AULACOSEIRA GRANU. V. ANGUST. F. SPIRALIS
96	PARALIA SULCATA
97	NAVICULA SP.
98	NITZSCHIA PARADOXA
99	NITZSCHIA SP. *
100	CYLINDROTHECA CLOSTERIUM
101	NITZSCHIA DELICATISSIMA
102	NITZSCHIA LONGISSIMA
103	GYRODINIUM SP#3 41-70UM W 51-70UM L
104	NITZSCHIA PUNGENS
105	NITZSCHIA SERIATA
106	PLAGIOGRAMMA VANHEURCKII
107	PLANKTONIELLA SOL
108	PLEUROSIGMA SP.
109	PLEUROSIGMA ANGULATUM
110	PLEUROSIGMA ELONGATUM
111	GYRODINIUM SP#4 71-100UM W 71-120UM L
112	MELOSIRA SP#1 DIAM
113	RHIZOSOLENIA ALATA
114	KIRCHNERIELLA SUBSOLITARIA
115	RHIZOSOLENIA ALATA F. GRACILLIMA
116	RHIZOSOLENIA ALATA F. INDICA
117	NAVICULA GRANULATA
118	RHIZOSOLENIA CALCAR AVIS

SPEC_CODE	SOURCE_LBL
119	PLEUROSIGMA MACRUM
120	SCENEDESMUS ARMATUS
121	RHIZOSOLENIA DELICATULA
122	PYRAMIMONAS PLURIOCULATA
123	RHIZOSOLENIA FRAGILISSIMA
124	CHROOMONAS SALINA
125	CRYPTOMONAS PSEUDOBALTICA
126	MELOSIRA SP#2 DIAM >20 MICRONS
127	NAVICULA SP#1 LENGTH
128	RHIZOSOLENIA HEBETATA F. SEMISPINA
129	RHIZOSOLENIA IMBRICATA
130	NAVICULA SP#2 LENGTH 20-60 MICRONS
131	NAVICULA SP#3 LENGTH >60 MICRONS
132	RHIZOSOLENIA SETIGERA
133	RHIZOSOLENIA STOLTERFOTHII
134	RHIZOSOLENIA STYLIFORMIS
135	DETONULA PUMILA
136	SKELETONEMA COSTATUM
137	STEPHANOPYXIS SP.
138	STEPHANOPYXIS PALMERIANA
139	STRIATELLA UNIPUNCTATA
140	SURIRELLA SP.
141	SYNEDRA ULNA
142	THALASSIONEMA SP.
143	THALASSIONEMA NITZSCHIOIDES
144	THALASSIOSIRA DECIPIENS
145	NITZSCHIA SP#1 LENGTH
146	UNID. PENNATE DIATOM
147	THALASSIOSIRA GRAVIDA
148	UNID. PENNATE DIATOM >20 UM LENGTH
149	THALASSIOSIRA NORDENSKIOLDII
150	THALASSIOSIRA ROTULA
151	THALASSIOTHRIX DELICATULA
152	THALASSIOTHRIX FRAUENFELDII
153	NITZSCHIA SP#2 LENGTH 30-70 MICRONS
154	TROPIDONEIS SP.
155	UNID. CENTRIC DIAM
156	THALASSIOSIRA SP.
157	UNID. CENTRIC DIAM 20-100 MICRONS
158	UNID. CENTRIC DIAM >100 MICRONS
159	UNID. DINOFLAGELLATE
160	NITZSCHIA SP#3 LENGTH >70 MICRONS
161	OSCILLATORIA CELLS #1 DIAM <5UM
162	RHIZOSOLENIA SHRUBSOLEI
163	LAUDERIA SP.
164	ASTERIONELLA FORMOSA
165	PLAGIOGRAMMA SP.
166	AULACOSEIRA DISTANS
167	MELOSIRA ARENARIA
168	THALASSIOSIRA AESTIVALIS
169	ANABAENA SP. 1
170	OSCILLATORIA CELLS #2 DIAM >5UM

SPEC_CODE	SOURCE_LBL
171	THALASSIOSIRA SP#1 DIAM
172	UNID. DINOFLAGELLATE CYST
173	THALASSIOSIRA SP#2 DIAM >20 MICRONS
174	UNID. CENTRIC DIATOM DIAM
175	STEPHANOPYXIS TURRIS
176	ACTINOPTYCHUS SENARIUS
177	COSCINODISCUS OCULUS IRIDIS
178	ULOTHRIX SP.
179	RHIZOSOLENIA SP.
180	BIDDULPHIA BIDDULPHIANA
181	GRAMMATOPHORA SP.
182	AULACOSEIRA GRANULATA V. ANGUSTISSIMA
183	OSCILLATORIA SP. (TRICHOME)
184	RHIZOSOLENIA MINIMA
185	ODONTELLA RHOMBUS
186	UNID. CENTRIC DIATOM DIAM 10-30 MICRONS
187	COSCINOSIRA SP.
188	ACHNANTHES SUBSALSOIDES
189	GLENODINIUM SP.
190	GRAMMATOPHORA ANGULOSA
191	TETRASTRUM SP.
192	TABELLARIA SP.
193	ACHNANTHES SP.
194	ODONTELLA AURITA
195	MELOSIRA NUMMULOIDES
196	UNID. CENTRIC DIATOM DIAM 31-60 MICRONS
197	UNID. CENTRIC DIATOM DIAM >60 MICRONS
198	ACHNANTHES TAENIATA
199	BACTERIASTRUM SP.
200	PROTOPERIDINIUM HIROBIS
201	UNID. PENNATE DIATOM
202	GYRODINIUM FUSIFORME
203	UNID. PENNATE DIATOM 10-30UM LENGTH
204	LICMOPHORA SP.
205	AMPHIDINIUM LACUSTRE
206	MELOSIRA MONILIFORMIS
207	UNID. PENNATE DIATOM 31-60UM LENGTH
208	UNID. PENNATE DIATOM 61-100UM LENGTH
209	CHAETOCEROS DENSUS
210	NITZSCHIA VITREA
211	AULACOSEIRA ISLANDICA
212	DINOPHYSIS HASTATA
213	PLEUROSIGMA NAVICULACEUM
214	ACHNANTHES DELICATULA
215	PROROCENTRUM TRIESTINUM
216	MELOSIRA VARIANS
217	SYNEDRA SP.
218	UNID. CHLOROPHYCEAN SPHERE
219	UNID. CHLOROPHYCEAN FILAMENT (CELL)
220	CHROOCOCCUS SP.
221	UNID. BLUE GREEN TRICHOME (CELL) LARGE
222	GONIUM SOCIALE

SPEC_CODE	SOURCE_LBL
223	DIATOMA SP.
224	SYNEDRA UNDULATA
225	ULOTHRIX SUBTILISSIMA
226	WESTELLA SP.
227	CLOSTERIUM SETACEUM
228	MICRACTINIUM PUSILLUM
229	ODONTELLA MOBILENSIS
230	ACHNANTHES LEMMERMANNI
231	COSMARIUM SP.
232	RAPHIDIOPSIS SP.
233	NOSTOC SP.
234	CHAETOCEROS FRAGILE
235	SCENEDESMUS QUADRICAUDA V. MAXIMUS
236	EPITHEMIA TURGIDA
237	MERIDION SP.
238	ODONTELLA GRANULATA
239	KERATOCOCCUS SP.
240	STEPHANODISCUS SP.
241	UROGLENA SP.
242	GRAMMATOPHORA SERPENTINA
243	PROROCENTRUM ROTUNDATUM
244	HETEROSIGMA AKASHIWO
245	HYMENOMONAS SP.
246	QUADRICOCCUS EURYHALINICUS
247	CHAETOCEROS WIGHAMI
248	CHAETOCEROS SUBTILIS
249	ACHNANTHES LONGIPES
250	MICRACTINIUM SP.
253	RHAPHONEIS SP.
255	DACTYLIOSOLEN MEDITERRANEUS
258	OLISTHODISCUS SP.
259	RHOICOSPHENIA ABBREVIATA
260	COELASTRUM SPHAERICUM
261	CYCLOTELLA STRIATA
262	AULACOSEIRA ITALICA
263	COSCINOSIRA POLYCHORDA
264	MELOSIRA LINEATA
265	CALONEIS FUSIOIDES
266	CHODATELLA LONGISETA
267	PROROCENTRUM NANUM
269	COELASTRUM RETICULUM
270	UNID. BLUE GREEN TRICHOME (CELL) SMALL
271	UNID. BLUE GREEN TRICHOME (CELL) SM TAPER
272	AMPHIPRORA ALATA
273	HEMIDISCUS CUNEIFORMIS
275	STAURASTRUM CHAETOCEROS
276	CAMPYLODISCUS SP.
277	CAMPYLODISCUS LIMBATUS
278	CYCLOTELLA MENEGHINIANA
279	THALASSIOSIRA PSEUDONANA
282	EUDORINA SP.
283	Polykrikos hartmannii

SPEC_CODE	SOURCE_LBL
284	PYRAMIMONAS TETRARHYNCHUS
285	CYMATOSIRA BELGICA
286	CYCLOTELLA BODANICA
288	APHANOCAPSA ELACHISTA
289	EUTONIS SP.
290	EUNOTIA BIDENTULA
291	RHABDOSPHAERA HISPIDA
293	RHIZOSOLENIA ERIENSIS
295	SYNEDRA GAILLONII
296	SYNEDRA FULGENS
297	CRUCIGENIA TETRAPEDIA
298	OPHIOCYTIUM SP.
299	SYNEDRA CRYSTALLINA
300	AMPHIDINIUM SP.
301	CERATIUM SP.
303	LICMOPHORA INFLATA
306	CERATIUM FURCA
307	CERATIUM FUSUS
308	CERATIUM LINEATUM
309	CERATIUM LONGIPES
310	CERATIUM MACROCEROS
311	CERATIUM MASSILIENSE
315	CERATIUM TRIPOS
316	ORNITHOCERCUS SP.
318	RHAPHONEIS GEMMIFERA
320	DINOPHYSIS SP.
321	DINOPHYSIS ACUMINATA
322	DINOPHYSIS ACUTA
323	STAURASTRUM AMERICANUM
324	DINOPHYSIS CAUDATA
326	DINOPHYSIS OVUM
327	DINOPHYSIS PUNCTATA
328	MICRACANTHODINIUM
329	AGMENELLUM THERMALE
330	PROROCENTRUM COMPRESSUM
331	EUTREPTIA SP.
332	GONYAULAX DIGITALIS
333	GONYAULAX POLYGRAMMA
334	GONYAULAX SPINIFERA
335	AMYLAX TRIACANTHA
336	GONYAULAX SP.
337	GYMNODINIUM SP.
338	GYMNODINIUM COSTATUM
339	NAVICULA NORTHUMBRICA
340	GYMNODINIUM SIMPLEX
341	GYRODINIUM SP.
342	GYRODINIUM LACRYMA
343	NOCTILUCA MILIARIS
344	FRAGILARIA STRIATULA
345	GYRODINIUM UNCATENUM
346	KARLODINIUM MICRUM
349	OXYTOXUM SCOLOPAX

SPEC_CODE	SOURCE_LBL
350	OXYTOXUM SPHAEROIDEUM
351	OXYTOXUM VARIABILE
352	DISSODIUM ASYMMETRICUM
353	PYROPHACUS SP.
354	COELASTRUM MICROPORUM
355	PROTOPERIDINIUM SP.
356	PROTOPERIDINIUM BREVE SYN. PYRIFORME
357	CLOSTERIOPSIS SP.
358	PROTOPERIDINIUM CONICOIDES
359	PROTOPERIDINIUM DEPRESSUM
360	PROTOPERIDINIUM LEONIS
361	GLOEOCYSTIS SP.
362	PROTOPERIDINIUM OVATUM
363	PROTOPERIDINIUM PALLIDUM
364	PROTOPERIDINIUM PELLUCIDUM
365	PROTOPERIDINIUM PENTAGONUM
366	SCENEDESMUS DENTICULATUS V. RECURVATUS
367	THALASSIOSIRA SUBTILIS
368	CRUCIGENIA IRREGULARIS
369	PODOLAMPAS BIPES
370	COELASTRUM SP.
371	CHLOROGONIUM SP.
372	PROROCENTRUM SP.
373	PROROCENTRUM DENTATUM
374	PROROCENTRUM MICANS
375	PROROCENTRUM MINIMUM
376	PROROCENTRUM ROSTRATUM
377	UNID. CHRYSOPHYTE
378	MOUGEOTIA SP.
379	GLOEOTHECE SP.
380	ANACYSTIS SP.
381	PROTOPERIDINIUM SP.#2 31-75W 41-80L
382	AGMENELLUM SP.
384	DINOPHYSIS FORTII
387	LICMOPHORA TINCTA
388	LINGULODINIUM POLYEDRA
389	MERIDION CIRCULARE
390	AMPHIDINIUM SCHROEDERI
391	AMPHIDINIUM BIPES
392	RHIZOSOLENIA STYLIFORMIS V. LONGISPINA
393	PROTOPERIDINIUM CONICUM
395	PODOLAMPAS SP.
398	OXYTOXUM MITRA
399	PEDIASTRUM BORYANUM
400	ECHINOSPHAERELLA SP.
401	DIPLOPSALIS SP.
402	MONODUS SP.
405	PROTOPERIDINIUM BREVIPES
406	PROROCENTRUM BALTICUM
410	SCENEDESMUS PARISIENSIS
411	GYMNODINIUM SPLENDENS
412	KATODINIUM ROTUNDATUM

SPEC_CODE	SOURCE_LBL
415	SORASTRUM SP.
417	KIRCHNERIELLA SP.
418	AMPHIDINIUM TURBO
421	DINOBRYON SP.
422	AMPHIDINIUM STEINII
423	OOCYSTIS SP.
424	DINOBRYON SERTULARIA
425	MURRAYELLA SP.
426	GYMNODINIUM MARINUM
427	PYROCYSTIS FUSIFORMIS
428	EUNOTIA MAJOR
429	DIMORPHOCOCCUS SP.
431	CHLORELLA SP.
432	PEDIASTRUM BIRADIATUM
433	APHANIZOMENON SP. 2
434	MALLOMONAS SP.
435	GLOEOCAPSA SP.
436	OXYTOXUM CRASSUM
438	DINOPHYSIS PARVULA
439	CERATONEIS SP.
442	ANKISTRODESMUS BRAUNII
443	AMPHIDINIOPSIS KOFOIDII
444	GLENODINIUM GYMNODINIUM
446	ACTINOPTYCHUS SPLENDENS
447	HETEROCAPSA TRIQUETRA
448	APHANIZOMENON SP. 1
449	CERATIUM TRICHOCEROS
450	BIDDULPHIA REGIA
451	TETRASTRUM CAUDATUM
452	GLENODINIUM DANICUM
454	SCHROEDERIA SP.
456	MINISCULA BIPES
458	COCHLODINIUM SP.
460	COCCOCHLORIS SP.
461	PROTOPERIDINIUM PYRIFORME
462	SCRIPPSIELLA TROCHOIDEA
463	SCRIPPSIELLA PRECARIA
465	PYRAMIMONAS OBOVATA
467	AMPHIDINIUM OVOIDEUM
468	GYMNODINIUM PUNCTATUM
470	AMPHORA TURGIDA
471	LAGERHEIMIA SP.
473	PROROCENTRUM GRACILE
475	AMPHIDINIUM ACUTUM
476	GONYAULAX VERIOR
477	PYROCYSTIS LUNULA
478	PROTOPERIDINIUM GRANII
480	STAURASTRUM CURVATUM
481	PROTOPERIDINIUM DIABOLUM
482	COCHLODINIUM HETEROLOBATUM
483	COCHLODINIUM CONSTRICTUM
484	DIPLOPSALIS LENTICULA

SPEC_CODE	SOURCE_LBL
485	GYRODINIUM SPIRALE
486	POLYKRIKOS SP.
487	TETRADESMUS SP.
488	AMPHIDINIUM CRASSUM
490	PROTOPERIDINIUM STEINII
492	DINOPHYSIS SPHAERICA
495	DINOPHYSIS EXIGUA
496	PROTOPERIDINIUM MINUTUM
500	ACANTHOICA SP.
501	PEDIASTRUM DUPLEX
502	CRYPTOMONAS OVALIS
503	PEDIASTRUM DUPLEX V. RETICULATUM
504	SCRIPPSIELLA FAEROEENSE CYST
505	COSMOCLADIUM SP.
506	CHILOMONAS MARINA
507	PEDIASTRUM DUPLEX V. CLATHRATUM
508	CHODATELLA SP
509	CHROOMONAS VECTINSIS
510	CRYPTOMONAS STIGMATICA
511	PEDIASTRUM DUPLEX V. GRACILIMUM
513	EPITHEMIA SP.
514	NITZSCHIA VITREA V. RECTA
515	EMILIANIA HUXLEYI
516	NITZSCHIA VITREA V. SALINARUM
518	XANTHIDIUM SP.
519	GOLENKINIA RADIATA
520	TERPSINOE SP.
521	AMPHIPRORA ORNATA
522	COELASTRUM CAMBRICUM
523	SKELETONEMA POTOMAS
525	PYRAMIMONAS SP.
526	SPIRULINA SP.
528	ACTINASTRUM HANTZSCHII V. FLUVIATILE
529	DIDYMOCYSTIS SP.
530	DISPORA CRUCIGENIODES
531	RHABDOSPHAERA CLAVIGER
533	RHABDOSPHAERA STYLIFER
534	CRUCIGENIA SP.
535	FRANCEIA SP.
536	AMPHIPRORA PALUDOSA
537	STAURASTRUM QUADRICUSPIDATUM
538	PYRAMIMONAS TORTA
539	COSMARIUM CONTRACTUM
540	SURIRELLA ROBUSTA
541	ERRERELLA SP.
542	AMPHIPRORA CHOLNOKYI
543	SYRACOSPHAERA PULCHRA
544	SCHIZOTHRIX TENERRIMA
546	DICTYOSPHAERIUM SP.
548	UNID. COCCOLITHOPHORE
549	KATODINIUM SP.
550	THALASSIOSIRA NANA

SPEC_CODE	SOURCE_LBL
551	SYRACOSPHAERA SP.
552	RHABDOSPHAERA SP.
553	CYCLOTELLA ATOMUS
557	CAMPYLODISCUS RUTILIS
558	SURIRELLA OVATA V. CRUMENA
559	HANTZSCHIA MARINA
560	CALYCOMONAS WULFII
562	PHACUS SP.
563	TRIBONEMA MONOCHLORON
564	GONIUM SP.
566	TETRASELMIS MACULATA
567	PYRAMIMONAS MICRON
568	PHACUS CURVICAUDA
569	PHACUS SP. >50UM L
570	PHACUS LONGICAUDA
571	PHACUS LEMMERMANNI
572	EUGLENA PROXIMA
573	EUGLENA MUTABILIS V. MAINXI
574	EUGLENA PUMILA
575	PEDIASTRUM BORYANUM V. LONGICORNE
576	PROTOPERIDINIUM CRASSIPES
577	SURIRELLA RECEDENS
578	OCHROMONAS CAROLINIANA
579	GYRODINIUM DOMINANS
580	TETRASELMIS GRACILIS
581	HISTONEIS VARIABILIS
584	NITZSCHIA LINEARIS
585	MICROCYSTIS SP.
587	AULISCUS SCULPTUS
589	PLAGIOTROPIS LEPIDOPTERA
590	PEDIASTRUM MUTICUM
592	POLYKRIKOS KOFOIDII
593	PROROCENTRUM MAXIMUM
594	SCENEDESMUS DIMORPHUS
595	LAUTERBORNIELLA ELEGANTISSIMA
599	CARTERIA SP.
600	TETRASELMIS SP.
601	TRICERATIUM FAVUS
603	CHRYSOCHROMULINA SP.
604	ACTINOPTYCHUS VULGARIS
613	AMPHORA OVALIS
616	AMPHORA ROBUSTA
619	GEMINELLA SP.
620	BACILLARIA PAXILLIFER
621	BACTERIASTRUM FURCATUM
622	CALONEIS STAUROPHORA
623	CALONEIS WARDII
625	OCHROMONAS SP.
629	CENTRONELLA SP.
632	ATTHEYA DECORA
633	PANDORINA SP.
634	CYMATOSIRA LORENZIANA

SPEC_CODE	SOURCE_LBL
635	FRAGILARIA ARCUS
638	MELOSIRA DUBIA
641	NAVICULA RETUSA V. CANCELLATA
643	MICROSPORA SP.
645	LYRELLA LYRA
647	EUNOTIA SP.
650	NAVICULA NOTABLIS
653	POLYEDRIOPSIS SP.
655	NITZSCHIA PALEACEA
656	ELAKATOTHRIX SP.
657	NITZSCHIA ACICULARIS
658	NITZSCHIA SIGMA
660	MARSSONIELLA ELEGANS
662	NITZSCHIA TRYBLIONELLA
663	PINNULARIA TREVELYANA
664	PINNULARIA RECTANGULATA
665	PLAGIOGRAMMA STAUROPHORUM
666	PLEUROSIGMA AESTUARII
667	PLEUROSIGMA HAMULIFERUM
668	PLEUROSIGMA FASCIOLA
671	GOMPHONEMA SPHAEROPHORUM
672	HANTZSCHIA SP.
673	RHAPHONEIS AMPHICEROS
674	DELPHINEIS SURIRELLA
675	SCENEDESMUS ANOMALUS
677	NITZSCHIA PLANA
678	CYMATOPLEURA SP.
679	STAURONEIS AMPHIOXYS
680	STEPHANODISCUS SUBSALSUS
681	SURIRELLA PATELLA V. NEUPAUERI
682	CLOSTERIUM SP.
683	SYNEDRA ROBUSTA
684	AMPHORA COSTATA
685	SURIRELLA ANCEPS
686	TETRAEDRON TRIGONUM
688	ACTINASTRUM HANTZSCHII
690	COSCINODISCUS WAILESII
691	ACHNANTHES FIMBRIATA
692	DIMEREGRAMMA SP.
694	GOMPHONEMA GEMINATUM
695	SCENEDESMUS ARCUATUS V. PLATYDISCA
697	SYNEDRA ULNA V. LONGISSIMA
699	COCCONEIS SCUTELLUM
700	SCENEDESMUS IRREGULARIS
701	DICTYOCHA FIBULA
703	SCENEDESMUS ABUNDANS
704	DACTYLOCOCCOPSIS RHAPHIDIODES
706	DISTEPHANUS SPECULUM
707	ASTERIONELLA SP.
708	ACTINASTRUM SP.
709	UNID. SILICOFLAGELLATE
710	UNID. CHLOROPHYTE

SPEC_CODE	SOURCE_LBL
711	CRUCIGENIA QUADRATA
712	CRUCIGENIA APICULATA
713	SKELETONEMA SP.
714	STREPTOTHECA TAMESIS
715	GOMPHOSPHAERIA SP.
716	PLATYDORINA SP.
717	PODOSIRA SP.
718	EBRIA TRIPARTITA
719	STAURONEIS SALINA
720	SYNURA SP.
721	CERATAULUS RADIATUS
722	ANKISTRODESMUS FALCATUS V. TUMIDUS
723	STAURONEIS SP.
724	BOTRYOCOCCUS SP.
725	TRACHELOMONAS ACANTHOSTOMA
726	TRACHELOMONAS CHARKOWIENSIS
727	TRACHELOMONAS HISPIDA
728	TRACHELOMONAS VOLVOCINA V. PUNCTATA
729	TRACHELOMONAS SP.
732	PROTOPERIDINIUM PAULSENI
733	SPHAEROCYSTIS SP.
734	OXYRRHIS MARINA
735	CLADOPYXIS SP.
736	CLADOPYXIS SETIFERA
737	GYMNODINIUM VARIABILE
738	THALASSIOTHRIX SP.
739	PROTOPERIDINIUM SP.#1 10-30W 10-40L
740	MASTIGOCOLEUS TESTARUM
741	QUADRIGULA SP.
742	TETRAEDRON REGULARE
743	TETRASTRUM HETERACANTHUM
744	OXYTOXUM PARVUM
745	ANABAENOPSIS SP.
746	GLOEOCYSTIS VISICULOSA
747	DINOPHYSIS PULCHELLA
748	HEMIAULUS SP.
749	PROTOPERIDINIUM DIVERGENS
750	AMPHISOLENIA SP.
751	ANKISTRODESMUS SP.
752	PYROPHACUS HOROLOGIUM
753	PEDIASTRUM TETRAS
754	OXYTOXUM TURBO
758	AMPHIDINIUM SPHENOIDES
759	GONYAULAX MONOCANTHA
760	TRICERATIUM SP.
761	SCHIZOCHLAMYS COMPACTA
762	ANKISTRODESMUS CONVOLUTUS
763	NITZSCHIA OBTUSA
764	AMPHIDINIUM ACUTISSIMUM
766	NITZSCHIA SPATHULATA
767	STRIATELLA SP.
769	MICROCYSTIS AERUGINOSA

SPEC_CODE	SOURCE_LBL
770	GYMNODINIUM FLAVUM
771	SCENEDESMUS OBLIQUS
774	GYMNODINIUM STELLATUM
775	GYMNODINIUM DANICANS
776	GYRODINIUM ESTUARIALE
777	OXYTOXUM SP.
779	NAVICULA LATA
781	GYMNODINIUM NELSONII
783	SCENEDESMUS DENTICULATUS
785	SCENEDESMUS BERNARDII
787	UNID. PENNATE DIATOM >100 MICRONS LENGTH
789	DIATOMA ANCEPS
790	STAURONEIS OBLIQUE
791	PEDIASTRUM TETRAS V. TETRAODON
793	PEDIASTRUM OBTUSUM
794	AMPHIDINIUM LONGUM
795	GONYAULAX DIEGENSIS
796	ANABAENA SP. 2
797	GYMNODINIUM BREVE
798	CRUCIGENIA RECTANGULARIS
799	DENTICULA SP.
800	OSCILLATORIA ERYTHRAEA
801	LITHODESMIUM SP.
802	NAVICULA INTERRUPTA
803	UNID. CHOANOFLAGELLATE
804	UNID. MICRO-PHYTOFLAG LENGTH
805	UNID. MICRO-PHYTOFLAG LENGTH >10 MICRONS
806	RICHELIA INTRACELLULARIS
808	SCENEDESMUS ARCUATUS
809	ANABAENA SP.
810	SPIRULINA SUBSALA
811	PYROCYSTIS SP.
812	AMPHIDINIUM TATRAE
813	ANACYSTIS CYANEA
814	ANACYSTIS DIMIDIATA
815	UNID. BLUE GREEN SINGLE SPHERE
816	UNID. BLUE GREEN TRICHOME
817	AGMENELLUM QUADRUPLICATUM
818	GOMPHOSPHAERIA APONINA
819	JOHANNESBAPTISTIA PELLUCIDA
820	NOSTOC COMMUNE
821	PHORMIDIUM SP.
822	ANACYSTIS MARINA
823	OSCILLATORIA SUBMEMBRANACEA
824	SCHIZOTHRIX CALCICOLA
825	NODULARIA HARVEYANA
826	OSCILLATORIA LUTEA
828	ANACYSTIS MONTANA F. MINOR
829	MICROCOLEUS LYNGBYACEUS
830	SCHIZOTHRIX ARENARIA
831	ANACYSTIS THERMALIS
832	CHARACIUM LIMNETICUM

SPEC_CODE	SOURCE_LBL
834	CYCLOTELLA GLOMERATA
835	DIPLOPELTOPSIS MINOR
836	CHRYSOCAPSA SP.
837	CHATTONELLA
838	CHATTONELLA SUBSALSA
840	CHRYSAMOEBA RADIANS
841	MONORAPHIDIUM SP.
850	EUGLENA SP.
851	EUTREPTIA MARINA
852	EUTREPTIA VIRIDIS
854	EUTREPTIA LANOWII
855	EUGLENA ACUS
856	EUGLENA AGILIS
857	EUGLENA EHRENBERGII
858	EUGLENA DESES
859	EUGLENA FUSCA
860	CHILOMONAS SP.
861	CHROOMONAS SP.
862	CRYPTOMONAS SP.
863	OLISTHODISCUS LUTEUS
865	CHROOMONAS AMPHIOXEIA
866	CRYPTOMONAS ROSTRELLA
870	SCENEDESMUS ECORNIS
871	PEDIASTRUM SP.
872	SCENEDESMUS SP.
873	SCENEDESMUS QUADRICAUDA
874	STAURASTRUM MANFELDTII V. FLUMENENSE
875	STAURASTRUM LEPTOCLADUM V. INSIGNE
876	SCENEDESMUS ACUMINATUS
877	STAURASTRUM SP.
878	CRUCIGENIA FENESTRATA
879	APEDINELLA RADIANS
880	TETRAEDRON MINIMUM
881	CRUCIGENIA CRUCIFERA
882	NEPHROCYTIUM AGARDHIANUM
883	TETRAEDRON TRIGONUM V. GRACILE
884	KIRCHNERIELLA LUNARIS
885	TETRASTRUM STAUROGENIAEFORME
886	ARTHRODESMUS SP.
887	CHLORELLA VULGARIS
888	CHLORELLA ELLIPSOIDEA
889	NANNOCHLORIS SP.
890	ENTEROMORPHA INTESTINALIS
892	OEDOGONIUM SP.
893	TETRAEDRON SP.
895	CHRYSOCHROMULINA MINOR
896	OCHROMONAS VARIABILIS
897	OCHROMONAS MINISCULA
898	CHROMULINA PARVULA
899	CALYCOMONAS OVALIS
900	PEDIASTRUM SIMPLEX
901	CYCLOTELLA STYLORUM

SPEC_CODE	SOURCE_LBL
903	DIATOMA VULGARE
904	SYNEDRA LONGISSIMA
905	MICRASTERIAS SP.
906	SYNECHOCOCCUS SP.
907	TABELLARIA FENESTRATA
910	PINNULARIA NOBILIS
912	DIMEREGRAMMA MINOR
913	NITZSCHIA INCURVA V. LORENZIANA
915	GYROSIGMA FASCIOLA
916	PINNULARIA SP.
920	ENCYONEMA SP.
924	TETRACYCLUS SP.
928	AMPHORA SPECTABILIS
929	CALONEIS SUBSALINA
930	CAMPYLOSIRA CYMBELLIFORMIS
932	FRAGILARIA HYALINA
936	PALMODICTYON SP.
938	PLAGIOGRAMMA INTERRUPTUM
942	SYNEDRA PROVINCIALIS
943	EUASTRUM SP.
944	NAVICULA SALINARUM
945	LITHODESMIUM UNDULATUM
946	SYNEDROSPHENIA GOMPHONEMA
948	STAURASTRUM PENTACERUM
953	NAVICULA BEYRICHIANA
955	CYCLOTELLA SP.
956	CYCLOTELLA CASPIA
957	EPITHEMIA ARGUS
958	EUNOTIA PRAERUPTA
959	THALASSIOPHYSA HYALINA
961	SURIRELLA FASTUOSA
962	RHABDONEMA MINUTUM
966	BIDDULPHIA TURGIDA
969	CALONEIS WESTII
970	RHOPALODIA OPERCULATA
973	SYNEDRA FASCICULATA
974	NEIDIUM AFFINE
975	CYMBELLA SP.
976	Unid. Dinoflaggelate Cyst
977	NAVICULA BOMBUS
978	PEDIASTRUM GLANDULIFERUM
979	OXYTOXUM TESSELATUM
980	TRIBONEMA MINUS
982	PSEUDOPEDINELLA PYRIFORME
983	MERISMOPEDIA SP.
985	PROTOPERIDINIUM SP.#3 76-150W 81-150L
986	SELENASTRUM SP.
987	SCENEDESMUS BIJUGA
988	ANKISTRODESMUS FALCATUS
989	ANKISTRODESMUS FALCATUS V. ACICULARIS
990	TETRAEDRON TRIG V. SETIG
991	CHLAMYDOMONAS SP.

SPEC_CODE	SOURCE_LBL
992	TETRAEDRON CAUDATUM
993	LYNGBYA SP.
994	PSEUDOTETRAEDRON NEGLECTUM
996	GYMNODINIUM SP.#1 5-20UM W 10-20UM L
997	GYMNODINIUM SP.#2 21-40UM W 21-50UM L
998	GYMNODINIUM SP.#3 41-70UM W 51-70UM L
999	GYMNODINIUM SP.#4 71-100UM W 71-120UM L

#VARIABLE NAMES AND DESCRIPTIONS FOR DATA FILES
Structure for data files on: http://www.chesapeakebay.net

>PHYTOPLANKTON AND PICOPLANKTON ABUNDANCE AND COMPOSITON FILES

Field Name	Type	Width	Variable Descriptions
SOURCE	Text	10	Data Collection Agency
SAMPLE_TYPE	Text	2	Sample Collection Type
CRUISE	Text	6	Chesapeake Bay Program Cruise Number
STATION	Text	15	Sampling Station
SAMPLE_DATE	Date/Time	8	Sampling Date (YYYYMMDD)
LAYER	Text	3	Layer of Water Column in Which Sample Was Taken
SAMPLE_NUMBER	Number	4	Sample Replicate Number
GMETHOD	Text	3	Chesapeake Bay Program Gear Method Code
TSN	Text	7	ITIS Taxon Serial Number
LATIN_NAME	Text	45	Species Latin Name
SIZE	Text	30	Cell Size Groupings when taken
METHOD	Text	8	Chesapeake Bay Program Sample Analysis Code
PARAMETER	Text	15	Sampling Parameter Name
VALUE	Number	8	Sampling Parameter Value
UNITS	Text	15	Sampling Parameter Reporting Units
NODCCODE	Text	12	National Oceanographic Data Center Species Code
SPEC_CODE	Text	14	In House Species Code
SER_NUM	Text	12	Sample Serial Number
R_DATE	Date/Time	8	Version Date of Data (YYYYMMDD)

>PHYTOPLANKTON SAMPLING EVENT FILES

Field Name	Type	Width	Variable Description:
SOURCE	Text	10	Data Collection Agency
SAMPLE_TYPE	Text	2	Collection Type
CRUISE	Text	6	Chesapeake Bay Program cruise number
SAMPLE_DATE	Date/Time	8	Sampling date (YYYYMMDD)
LATITUDE	Number	8	Latitude in decimal degrees
LONGITUDE	Number	8	Longitude in decimal degrees
P_DEPTH	Number	4	Composite Sample Cut Off Depth
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	Reporting Units of Sample Volume
STATION	Text	15	Sampling Station
TOTAL_DEPTH	Number	4	Total Station Depth (meters)
SAMPLE_TIME	Date/Time	8	Sample Collection 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/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 TAXONOMIC SPECIES KEY
These tables cross references Academy of Natural Sciences species codes and spellings with current National Oceanographic Data Center taxonomic codes and spellings. Web address: http://www.chesapeakebay.net/

File of name format: MDPHKYyy.TXT

Field	Type	Width	Variable Definition
ANSCODE	Text	14	Academy of Natural Sciences Species Code
ANS_LBL	Text	45	Academy of Natural Sciences Species Latin Name
LBL	Text	45	National Oceanographic Data Center Species Latin Name with Size Class Information if Collected
NODC_LBL	Text	45	National Oceanographic Data Center Species Latin Name
NODCCODE	Text	12	National Oceanographic Data Center Species Code
TSN	Text	7	National Oceanographic Data Center Taxon Serial Number
R_DATE	Text	8	Version date of data (YYYYMMDD)

REFERENCE CODES IN DATA FILES AND TAXONOMIC KEY
See 2000 Users Guide to Chesapeake Bay Program Biological and Living Resources Data for full listing.

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

>SOURCE: Data Collecting Agency
MSU - Academy of Natural Sciences, Benedict Estuarine Research Laboratory

>SAMPLE_TYPE: Collection Type
C - Composite Sample

>CRUISE: Chesapeake Bay Program Cruise Number
For a complete listing of CBP cruise numbers please see 2000 Users Guide to Biological and Living Resources Data.

>GMETHOD: Sampling Gear Code
7 - unspecified plankton pump

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

>NODCCODE: National Oceanographic Data Center Species Code Based on NODC Version 8.

>SALZONE: Salinity zone
F - Tidal fresh (0 - 0.5 ppt)
O - Oligohaline (>0.5 - 5.0 ppt)
M - Mesohaline (>5.0 - 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 a week of the biological sampling event. Used only when no actual salinity data available.

>TSN: ITIS Taxon Serial Number
NOTE: For current listing of Chesapeake Bay species and their codes, see The 1997 Chesapeake Bay Basin Species list.

>BASIN: Tributary Code
BAY - Chesapeake Bay
CHS - Chester River
PAX - Patuxent River
BAL - Baltimore Harbor
CHP - Choptank River
POT - Potomac River
TAN - Tangier River

>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

CBSEG_1998: 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

>METHOD: Chesapeake Bay Program Lab Method Code Designation
PH101
PH103
PP102

>PARAMETER and UNIT: Measured Parameter and reporting units.

PARAMETER	UNITS
COUNT	NUMBER/LITER

NUMERIC WARNING AND ERROR BOUNDS
Variable valid ranges:

COUNT	3172 - 102224636
LATITUDE	See STATION NAMES, LATITUDES, LONGITUDES, TOTAL DEPTHS
LONGITUDE	See STATION NAMES, LATITUDES, LONGITUDES, TOTAL DEPTHS
P_DEPTH	>0.5 and <TDEPTH Note this is a composite cut off, not pycnocline depth!
R_DATE	19950301 - 20041231
SAMPLE_DATE	19840801- 20031231
SAMPLE_NUMBER	1 - 7
SAMVOL_L	12 - 200
SER_NUM	01001 - xxxxxx
STATION	See # STATION NAMES AND DESCRIPTIONS
TDEPTH	1.8 - 33
TIME	0651 – 1935, 0000 INDICATES A MISSING VALUE

IMPORTANT DATA REVISIONS
THE LIVING RESOURCES DATA MANAGER RECOMMENDS THAT ALL DATA ANALYSES BE 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.

The following stations have alternate names appearing in previous Living resources Data sets:

OLD LR NAME	CURRENT CBP NAME
MEE3.1	EE3.1
MET4.2	ET4.2
MET5.1	ET5.1
MET5.2	ET5.2
MLE2.2	LE2.2
MLE2.3	LE2.3
MWT5.1	WT5.1
PXT0402	TF1.5
XCF8747	LE1.4
XCF9575	CB5.1W
XCG8613	CB5.1
XDA1177	RET2.2
XDE2792	LE2.1
XDE5339	LE1.1
XDE9401	RET2.1
XDF0407	LE3.1
XEA6596	TF2.3
XED4892	TF1.7
XED9490	TF1.6

5/31/1995 - 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 ANS trip numbers. This prevents the occurrence of two sampling events for one station during a Bay Cruise period.

5/31/1995 - GMETHOD was changed to 7 to agree with Table 17, PAGE F-9 APPENDIX F, of the Living Resources Data Management Plan, 1989. This is a change in reporting of GMETHOD in previous versions of the data set, not a change in collection method.

5/31/1995 - REP_NUM 5,6,7 WERE PREVIOUSLY REPORTED AS T,B,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

5/31/1995 - Spelling of species Latin Names in LBL have been corrected to the National Oceanographic Data Center accepted spelling. In a few cases ANS Species Latin Names were changed to the currently accepted NODC Species Latin name.

5/31/95 - P_DEPTH is a composite sample cut off depth. This depth is not the pycnocline depth!

SUMMER 1997 - Salinity zone, station depth, and in some cases sampling time parameters have been provided from the Maryland Department of the Environment Water Quality Hydrographic data collected concurrently with the mesozooplankton, when not provided by the Principal Investigator.

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

01/01/1998 - 1997 Phytoplankton monitoring data is being released without salinity zones. Salinity zones will be filled in when the corresponding Water Quality monitoring data becomes available.

01/01/1999- Due to the 1998 CBP Living Resources split sampling program it was determined that the there was a nomenclature difference between laboratories in Maryland and Virginia. The species Merismopedia (VA species name) and Agmenellum (MD species name) were determined to be synonymous. After a literature review both states agreed to use the genera designation Merismopedia. Please contact the Living resources data manager for details.

05/01/2002- Beginning in May 2002, additional samples were collected for the enumeration of picoplankton during the months of June-September at the following stations: CB3.3C, CB4.3C, CB5.2, ET5.2, LE1.1, LE2.2, and WT5.1. This data is delivered annually for the previous calendar year in April.

01/01/2000- All Latitudes and Longitudes converted to NAD83 coordinates.

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

01/01/2005- All data enumerated using new uniform bay wide counting technique. There will be a significant increase in the number of taxa identified in Maryland samples counted after 1/1/2005. Please be aware of this potential source of step trend in the data.

10/23/2006- Most data for sampling on May 22, 2006 and on June 19, 2006, is missing. The data was lost due to a computer failure.

10/30/2009-Due to engine troubles on the research vessel, the upper four stations of the Patuxent River were sampled 2 days earlier than the rest of the river, 7 and 9 April 2009, respectively. Phytoplankton samples for these stations were collected from the Above and Below Pycnocline depths (where applicable) as well as the Surface and Bottom depths collected by MDDNR and were therefore not the composite of 5 depths typically collected. Engine trouble on 22 June 2009 also resulted in the upper four stations of the Patuxent River being collected on a separate date (23 June); however phytoplankton samples collected on the following day were collected per the usual method.

Inclement weather during the first day of the Main Bay cruise on 26 – 28 May 2009 caused the sampling schedule to be rearranged such that stations were not sampled on the typical days or times.

KEY WORDS (EXCLUDING VARIABLE NAMES)
Inverted microscope
Phytoplankton densities
Phytoplankton monitoring
Phytoplankton species
Phytoplankton counts

THIS IS THE END OF THE MARYLAND CHESAPEAKE BAY PROGRAM PHYTOPLANKTON DATA DICTIONARY