

# Virginia Chesapeake Bay Monitoring Program: Lower Chesapeake Bay Mesozooplankton Study

## Metadata:

- [Identification Information](#)
  - [Data Quality Information](#)
  - [Spatial Data Organization Information](#)
  - [Spatial Reference Information](#)
  - [Entity and Attribute Information](#)
  - [Distribution Information](#)
  - [Metadata Reference Information](#)
- 

### *Identification\_Information:*

#### *Citation:*

##### *Citation\_Information:*

*Originator:* Kenneth Carpenter

*Originator:* Old Dominion University

*Publication\_Date:* 12/31/2002

#### *Title:*

Virginia Chesapeake Bay Monitoring Program: Lower Chesapeake Bay  
Mesozooplankton Study

*Geospatial\_Data\_Presentation\_Form:* tabular digital data

#### *Publication\_Information:*

*Publication\_Place:* Annapolis, Maryland

*Publisher:* U.S. Environmental Protection Agency and Virginia Department of  
Environmental Quality program administered by Virginia Department of  
Environmental Quality

### *Description:*

#### *Abstract:*

The initial objectives of this study were to characterize the composition and abundance, and the spatial and temporal patterns of the mesozooplankton populations in the lower Chesapeake Bay and several major tributaries, and to examine relationships between water quality conditions and observed zooplankton composition and abundance. A major goal of the study is the establishment of a long term data base that is being used to identify trends in zooplankton spatial-temporal patterns of development over time and in relation to changes in Bay water quality conditions and other plankton components (Birdsong, 1992; Mateja et al., 1995). Sampling of tributary stations did not begin until January 1986. Sampling in the Elizabeth River did not begin until January of 1989. Beginning in 1997 a second sampling cruise was added for station in tidal fresh area (TF3.3, TF4.2, TF5.5) to better measure food availability in anadromous fish spawning areas. In 1998 sampling at Elizabeth River station SBE2 was discontinued. Collection of Biomass data at all stations was also discontinued. Sampling for mesozooplankton at all stations ended in October 2002 due to the termination of the zooplankton portion of the monitoring program in December 2002. Note due to contract changes starting in

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

*Purpose:*

The initial objectives of this data set were to characterize the composition and abundance, and the spatial and temporal patterns of the mesozooplankton populations in the lower Chesapeake Bay and several major tributaries, and to examine relationships between water quality conditions and observed zooplankton composition and abundance. A major goal was the establishment of a long term data base that is being used to identify trends in zooplankton spatio-temporal patterns of development over time and in relation to changes in Bay water quality conditions and other plankton components (Birdsong, 1992; Mateja et al., 1995).

*Supplemental\_Information:*

#STATION NAMES AND DESCRIPTIONS:

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

*Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Range\_of\_Dates/Times:*

*Beginning\_Date:* 19850101

*Ending\_Date:* 10/31/2002

*Currentness\_Reference:*

ground condition

*Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* None planned

*Spatial\_Domain:*

*Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -77.233

*East\_Bounding\_Coordinate:* -76.0106

*North\_Bounding\_Coordinate:* 38.019

*South\_Bounding\_Coordinate:* 36.7697

*Keywords:*

*Theme:*

*Theme\_Keyword\_Thesaurus:* None

*Theme\_Keyword:* mesozooplankton

*Theme\_Keyword:* water

*Theme\_Keyword:* biomass

*Theme\_Keyword:* gelatinous zooplankton  
*Theme\_Keyword:* jelly fish  
*Theme\_Keyword:* plankton  
*Theme\_Keyword:* water quality monitoring  
*Theme\_Keyword:* zooplankton

*Place:*

*Place\_Keyword\_Thesaurus:* None  
*Place\_Keyword:* York River  
*Place\_Keyword:* James River  
*Place\_Keyword:* Rappahannock River  
*Place\_Keyword:* Elizabeth River  
*Place\_Keyword:* Chesapeake Bay  
*Place\_Keyword:* USA  
*Place\_Keyword:* virginia  
*Place\_Keyword:* VA

*Stratum:*

*Stratum\_Keyword\_Thesaurus:* None  
*Stratum\_Keyword:* water column  
*Stratum\_Keyword:* Water column

*Temporal:*

*Temporal\_Keyword\_Thesaurus:* None  
*Temporal\_Keyword:* bimonthly

*Access\_Constraints:* None

*Use\_Constraints:*  
 None

*Point\_of\_Contact:**Contact\_Information:**Contact\_Person\_Primary:*

*Contact\_Person:* Jacqueline Johnson

*Contact\_Organization:* Interstate Commission on Potomac River Basin

*Contact\_Position:* Chesapeake Bay Program Living Resources Data Manager

*Contact\_Address:*

*Address\_Type:* mailing and physical address

*Address:*

410 Severn Avenue, Suite 109

*City:* Annapolis

*State\_or\_Province:* Maryland

*Postal\_Code:* 21403

*Country:* USA

*Contact\_Voice\_Telephone:* 1-800-968-7229

*Contact\_Voice\_Telephone:* 410-267-5729

*Contact\_Facsimile\_Telephone:* 410-267-5777

*Contact\_Electronic\_Mail\_Address:* jjohnson@chesapeakebay.net

*Hours\_of\_Service:* 8:00 a.m. to 4:00 p.m. Monday Through Friday

*Contact\_Instructions:*

unavailable

*Data\_Set\_Credit:*

EPA CHESAPEAKE BAY PROGRAM, VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY, OLD DOMINION UNIVERSITY

*Security\_Information:*

*Security\_Classification\_System:* None

*Security\_Classification:* Unclassified  
*Security\_Handling\_Description:* None  
*Cross\_Reference:*  
*Citation\_Information:*  
*Originator:* Jacqueline Johnson  
*Publication\_Date:* 20080301  
*Title:*  
 Chesapeake Bay Program Plankton Database  
*Edition:* Version 3.0  
*Geospatial\_Data\_Presentation\_Form:* database  
*Publication\_Information:*  
*Publication\_Place:* Annapolis, MD  
*Publisher:* US EPA Chesapeake Bay Program  
*Other\_Citation\_Details:*  
 None  
*Online\_Linkage:* [www.chesapeakebay.net](http://www.chesapeakebay.net)

[Back to Top](#)

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*Data\_Quality\_Information:*  
*Attribute\_Accuracy:*  
*Attribute\_Accuracy\_Report:*  
 Current Data Usage Recommendation

After extensive examination of historic Chesapeake Bay Program (CBP) mesozooplankton monitoring data, and in consideration of the known methodological and data quality issues, the Chesapeake Bay Program is issuing the following data usage recommendation: Only mesozooplankton samples enumerated with Hensen-Stempel methodologies are recommended for use in quantitative analyses. These data have method codes MZ101A, MZ101B, MZ101C, and MZ103. Data quality issues have been identified for portions of the Virginia record. Virginia samples collected prior to 1993 and enumerated with method MZ102, as well as those samples collected between 1993 and 2000 and enumerated with method MZ102 or MZ102B, should only be used for qualitative purposes. Species-specific correction factors have been developed for samples collected between 1993 and 1997 and enumerated with MZ102. Data adjusted by these factors have method code MZ102\_C and can be used with discretion in quantitative analysis on a bay wide basis.

*Logical\_Consistency\_Report:*  
 not applicable

*Completeness\_Report:*

Sampling of tributary stations did not begin until January 1986. Sampling in the Elizabeth river did not begin until January of 1989. Beginning in 1997 a second sampling cruise was added for station in tidal fresh area (TF3.3, TF4.2, TF5.5) to better measure food availability in anadromous fish spawning areas. In 1998 sampling at Elizabeth River station SBE2 was discontinued. Collection of Biomass data at all stations was also discontinued. All sampling was terminated in October 2002

The zooplankton field chief was the custodian for all samples collected, verified proper labeling of bottles, complete field data entries, the collection of the samples, preservative used and transport to the laboratory. They also supervises the calibration and availability of field equipment. Samples are turned over to the laboratory chief who oversees the sample

processing, analysis and recording of the raw data. Taxon identifications, raw data sheets and other stages of the collection and analysis procedures are routinely checked by the principal investigator and laboratory chief for quality assurance. Taxon identifications, raw data sheets and other stages of the collection and analysis procedures are routinely checked by the principal investigator and laboratory chief for quality assurance. The principal investigator and laboratory chief for quality assurance routinely check the taxon identifications, raw data sheets and other stages of the collection and analysis procedures. See EPA Quality assurance plan for extensive details on <http://www.chesapeakebay.net>.

*Positional\_Accuracy:*

*Horizontal\_Positional\_Accuracy:*

*Horizontal\_Positional\_Accuracy\_Report:*

Station positions in data set are approximations of actual positions in the field. Station latitudes and longitudes are input into a Loran-C/GPS receiver and sampling begins when boat reaches pre-programmed coordinates. Loran-C is accurate to +/-1500 feet. The actual Loran/GPS coordinates for each sampling event are not currently recorded in data set.

*Vertical\_Positional\_Accuracy:*

*Vertical\_Positional\_Accuracy\_Report:*

The Layer sampled in this study is the whole water column, WC. Total Depth for each station is based on Hydrographic data collected concurrently with the plankton samples. Total Station depths were not reported prior to 1997.

*Lineage:*

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* Kenneth Carpenter

*Originator:* Old Dominion University

*Publication\_Date:* 1999

*Title:*

Virginia Chesapeake Bay Monitoring Program: Lower Chesapeake Bay Mesozooplankton Study

*Publication\_Information:*

*Publication\_Place:* Annapolis, Maryland

*Publisher:* U.S. Environmental Protection Agency and Virginia Department of Environmental Quality program administered by Virginia Department of Environmental Quality

*Type\_of\_Source\_Media:* digital database file

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Range\_of\_Dates/Times:*

*Beginning\_Date:* 19850101

*Ending\_Date:* Present

*Source\_Currentness\_Reference:*

ground condition

*Source\_Citation\_Abbreviation:*

None

*Source\_Contribution:*

None

*Process\_Step:*

*Process\_Description:*

Samples will be collected with paired 202um mesh , 0.5 m diameter, 2 m long

plankton nets (Earnest A. Case, P.O. Box 45, Andover, NJ 07821) each fitted with a calibrated flowmeter (General Oceanics model 2030) attached within the opening to provide an estimation of sampling effort. Flow meter readings are taken prior to setting the net and recorded in the field log. Nets are then towed in a double-oblique pattern from bottom to surface for approximately five minutes. After retrieval of the nets, any problem with the tow is noted and if warranted the tow is repeated after correcting the problem. Upon successful tow completion the final flow readings are recorded in the field log as well as the tow time. Nets are washed down and codends are decanted into pre-labeled, one liter field bottles (Nalge Company, P.O. Box 20375, Rochester, NY., spiked with 7% formaldehyde (Fisher Scientific, 711 Forbes Ave., Pittsburgh, PA.) Tributary collections are also stained with Rose Bengal (Sigma Chemical Company, P.O. Box 14508, St. Louis, MO) to facilitate future identification of planktonic organisms. The bottles are then placed in storage containers for transport to the laboratory. In the event that gelatinous zooplankton is visible in the nets, total volume is determined for the mesoglea after straining from the normal plankton sample. Care will be taken to ensure that no residual plankton remains clinging to either the strainer or to the mesoglea. Percent composition of gelatinous zooplankton groups (ctenophore, moon jelly, stinging nettle) is determined and recorded on the field log. Mesoglea is then discarded.

#### SAMPLE ENUMERATION METHODS ZOOPLANKTON BIOMASS DETERMINATION

-Chesapeake Bay Program Analytical Method Code-BM102

NOTE: BIOMASS DETERMINATIONS WERE DISCONTINUED IN 1996-  
DATA AVAILABLE BY REQUEST.

The ash-free dry weights are determined following the normal biomass drying and weighing procedures. Following the initial weighing, the dried samples are directly placed into the muffle furnace for incineration. The samples are incinerated in the furnace at a temperature of 550 degrees C for 4 hours. The samples are allowed to cool to room temperature and then transferred to desiccators for storage until weighing. Drying, cooling and weighing are repeated until the successive weights vary by less than 5% over a one-day interval. Exposure from the desiccators never exceeds 5 minutes.

#### GELATINOUS ZOOPLANKTON ENUMERATION

-Chesapeake Bay Program Analytical Method Code-JF103

NOTE: NO JELLYFISH DATA AVAILABLE PRIOR TO 1996

Beroe (BEROE, BEROEVOL), Hydrozoans (HYDRO, HYDROVOL), Mnemiopsis (MNEMIOP, MNEMVOL), and true Jellyfish ((JELLY, JELLYVOL) were removed from samples and sorted in the field after sample preservation, their numbers and settled volumes were recorded from the net that was used as the count sample.

#### ZOOPLANKTON SPECIES COMPOSITION AND ABUNDANCE ENUMERATION

-Chesapeake Bay Program Analytical Method Code-MZ102

From January 1985-February 1998, processing and analysis of samples is conducted by the coefficient of variation stabilizing method (Alden et al. 1982). Size fractionation of each sample produces 5 size classes (200, 300,600, 850, 2000 microns). Size classes in which the organisms are too numerous to count in their entirety are split with a Folsom plankton splitter until an appropriate sample size is reached for statistically valid counts of the dominant species. The chosen error level of 35% requires that each species of interest be counted to achieve a range of between 20 and 42 individuals in any given split. Species observed to be subdominant in the final split are counted until they have achieved the range for the 35% error level. The taxon abundance is recorded as numbers per unit volume.

**-Chesapeake Bay Program Analytical Method Code-MZ102B**

From March 1998 to January 2000, processing and analysis of samples was conducted using a modification of the coefficient of variation stabilizing method (Alden et al. 1982). Size fractionation of each sample produces 6 size classes (75, 200, 300, 600, 850, 2000 microns). Size classes in which the organisms are too numerous to count in their entirety are split with a Folsom plankton splitter until an appropriate sample size is reached for statistically valid counts of the dominant species. The chosen error level of 35% requires that each species of interest be counted to achieve a range of between 20 and 42 individuals in any given split. Species observed to be subdominant in the final split are counted until they have achieved the range for the 35% error level. Taxon abundance is recorded as numbers per unit volume.

**-Chesapeake Bay Program Analytical Method MZ103**

From February 2000 to 2002, a hierarchical counting technique is employed to obtain density estimates. This procedure consists of first counting at least 60 individuals of the most dominant forms (e.g. *Acartia tonsa*) in a small sub sample (usually 1 - 2 milliliters), followed by 5- and 10- milliliter sub samples from which all species that had counts less than 60 in the previous sub sample are counted. Macro zooplankton (amphipods, shrimp, etc.) are identified when observed in sub samples. In addition, all samples, after the standard hierarchical counting technique, were filtered through an 850-micrometer sieve. Mesozooplankton that were retained in the 850-micrometer sieve that were not previously identified in the sub samples and/or macro zooplankton were counted and identified.

**# FORMULA, CALCULATIONS AND CONVERSION**

>SAMPLE VOLUME

The following formula is used to calculate distance traveled by the bongo net during a tow.

$$\text{DISTANCE}=(\text{STOP}-\text{START})\times\text{BLADE CONSTANT}$$

Where

STOP is the number of revolutions recorded on the bongo net flow meter at the end of the tow,

START is the number of revolutions on the meter at the beginning of the tow,

DISTANCE is the distance traveled by the bongo net during the tow.  
The blade constant is equal to 26873/999999.

The sample volume is calculated using the following equation:

SAMPLE VOLUME= DISTANCE\*AREA

Where AREA + 0.18776 square meters.

>ZOOPLANKTON DENSITY

-For Variance Stabilization techniques MZ102A an MZ102B  
Densities are first calculated for each size class and then a total density is calculated. The size classes range from 200 to 2000 microns and represent the sieve sizes used to separate organisms into categories prior to identification and enumeration.

SC2000= ((2\*\*SC2000S)\*SC2000C)/VOL

SC850 = ((2\*\*SC850S)\*SC850C)/VOL

SC600 = ((2\*\*SC600S)\*SC600C)/VOL

SC300 = ((2\*\*SC300S)\*SC300C)/VOL

SC200 = ((2\*\*SC200S)\*SC200C)/VOL

\*SC75 = ((2\*\*SC75S)\*SC75C)/VOL

T\_DENS= SC2000+SC850+SC600+SC300+SC200+SC75

\*SC75- for samples collected after March 1998

SC<N>= Density of size class N

SC<N>S= Number of splits for size class N

SC<N>C= Number counted in split for size class N

-For Henson Stemple technique MZ103

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

$$\text{DENSITY} = A * (B / (C * \text{FVOL\_M3}))$$

Where DENSITY = density in numbers per cubic meter

A = number of individuals counted in the sub sample

B = volume in milliliters of sample from which sub samples are taken

C = sub sample volume in milliliters

FVOL\_M3 = volume of water filtered by the bongo nets in cubic meters

*Process\_Date:* Unknown

*Process\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jacqueline Johnson

*Contact\_Organization:* Interstate Commission on Potomac River Basin

*Contact\_Position:* Chesapeake Bay Program Living Resources Data



**Manager***Contact\_Address:**Address\_Type:* mailing and physical address*Address:*

410 Severn Avenue, Suite 109

*City:* Annapolis*State\_or\_Province:* Maryland*Postal\_Code:* 21403*Country:* USA*Contact\_Voice\_Telephone:* 1-800-968-7229*Contact\_Voice\_Telephone:* 410-267-5729*Contact\_Facsimile\_Telephone:* 410-267-5777*Contact\_Electronic\_Mail\_Address:* jjohnson@chesapeakebay.net*Hours\_of\_Service:* 8:00 a.m. to 4:00 p.m. Monday Through Friday*Contact\_Instructions:*

unavailable

*Process\_Step:**Process\_Description:*

Metadata imported.

*Source\_Used\_Citation\_Abbreviation:*

C:\DOCUME~1\jjohnson\LOCALS~1\Temp\xml65E.tmp

*Process\_Date:* 20081124*Process\_Time:* 12311100[Back to Top](#)

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*Spatial\_Data\_Organization\_Information:**Indirect\_Spatial\_Reference\_Method:*

Chesapeake Bay and its tidal tributaries in the Commonwealth of Virginia. Station names based on local reference names.

*Direct\_Spatial\_Reference\_Method:* Point*Point\_and\_Vector\_Object\_Information:**SDTS\_Terms\_Description:**SDTS\_Point\_and\_Vector\_Object\_Type:* Entity point*SDTS\_Terms\_Description:**SDTS\_Point\_and\_Vector\_Object\_Type:* Area point[Back to Top](#)

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*Spatial\_Reference\_Information:**Horizontal\_Coordinate\_System\_Definition:**Geographic:**Latitude\_Resolution:* 30*Longitude\_Resolution:* 30*Geographic\_Coordinate\_Units:* Decimal degrees*Geodetic\_Model:**Horizontal\_Datum\_Name:* North American Datum of 1983*Ellipsoid\_Name:* Geodetic Reference System 80*Semi-major\_Axis:* 6378206.4

*Denominator\_of\_Flattening\_Ratio:* 294.98

*Vertical\_Coordinate\_System\_Definition:*

*Depth\_System\_Definition:*

*Depth\_Datum\_Name:* Chart datum; datum for sounding reduction

*Depth\_Resolution:* .1

*Depth\_Distance\_Units:* meters

*Depth\_Encoding\_Method:* Attribute values

[Back to Top](#)

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*Entity\_and\_Attribute\_Information:*

*Overview\_Description:*

*Entity\_and\_Attribute\_Overview:*

Virginia Chesapeake Bay Water Quality Monitoring Program: Mesozooplankton Study

[https://archive.chesapeakebay.net/pub/living\\_resources/meso/vamzdoc.pdf](https://archive.chesapeakebay.net/pub/living_resources/meso/vamzdoc.pdf) *Entity\_and\_Attribute\_Detail\_Citation:*

6/30/96- All plankton data was resubmitted to the Chesapeake Bay Program office due to discrepancies in sampling dates between synchronously collected samples. Sampling dates were corrected to field logs and resubmitted to the Data Center. Please do not use data with an R\_DATE prior to 06/01/96.

6/30/96- Note that BARNACLE NAUPLII and LARVAE were reported in the Mesozooplankton data from January 1985-December 1992. After January 1993 these organisms were reported in the Microzooplankton data only.

10/11/95- ODU CODE- ODU added the code 9999 to their Species list. This code refers to small plastic beads found in plankton tows on the Elizabeth River. The beads are thought to be used for sandblasting in the nearby shipyards.

8/31/95- GMETHOD was changed to 76. Code 76 refers 202 micron mesh Bongo net with 0.5 meter opening. For an extensive gear code list see Table 17, PAGE F-9 APPENDIX F, of the Living Resources Data management plan, 1989. This is a change from GMETHOD code in previous versions of the data set. This does not represent a change in actual sampling gear.

8/31/93- LBL all Latin Names and spelling for names have been corrected to the National Oceanographic Data Center accepted spelling.

8/31/95- The actual volume of water sampled during zooplankton tows is not available in data sets prior to 1993. The value was collected and used to determine abundances but was not retained in historic data sets.

8/31/95- CRUISE NUMBERS - BAY004-BAY211 were supplied by the Chesapeake Bay Program office. See the Guide to Living Resources Data Sets for complete listing of Cruise periods.

8/31/95- SER\_NUM Old Dominion University did not use a serial number system for sample tracking before 1995 so this variable is not available in prior data.

8/31/95- P\_Depth This variable is not applicable under the current sampling protocol.

JANUARY 1996- collection of all wet weight and ash-free dry weight data has been discontinued.

JANUARY 1997-Sampling at station SBE2 was discontinued.

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

JULY, 1998- An additional sieve screen (75um) was added to the sieve series used for sample processing. The size of the additional screen was changed in august, 1998 to 64 um. This change in protocol was made to assess its ability to estimate abundances of copepod nauplii and other small zooplankton. This change does not significantly affect data collected by the other sieve sizes. The data collected for these size fractions was not included in the totals for this data submittal. It is anticipated that data for the 64 um Size fraction will be included in all data collected after December 1998.

FEBRUARY 2000- The sample enumeration protocol was changed to a Henson Stemple protocol.

SUMMER 2000- All Latitude and Longitude positions converted to NAD83 coordinates.

April 2002

The Maryland and Virginia mesozooplankton monitoring programs implemented modifications to their respective laboratory counting protocols in 1998 in order to better estimate species richness in Maryland and to eliminate large sieving losses of smaller taxa in Virginia. A 1998 - 1999 Mesozooplankton Split Sample Study indicates the desired outcomes of the modifications were only partially accomplished. The "new" Versar counting method (Method code MZ101C) has improved Versar's ability to measure species richness, an important Bay-wide indicator, and the "new" ODU counting method (Method code MZ102B) has increased ODU's taxa counts per sample. However, the "new" ODU method still produces split sample results with significantly lower total counts than those of Versar. It appears to selectively undercount key taxa, particularly the immature (copepodite) life stage of calanoid copepods, a common and frequently dominant taxonomic group. The study determined that counts produced with the "new" ODU protocol have variances that are much higher than counts produced with the Versar protocol, hence the ODU counts are less precise. Furthermore, the number of taxa identified per sample was on average lower in the ODU counts. The "old" (Method Code MZ102A) and "new" (Method code MZ102B) ODU counting protocols should

be discontinued and a counting protocol patterned after the ICES recommended protocol (Harris et al. 2000) should be instated (Method Code MZ103). Backward comparability with the pre-1998 Chesapeake Bay Program mesozooplankton data will unfortunately be lost in Virginia for most mesozooplankton taxa, but Maryland and Virginia results will become comparable and the CBP monitoring programs should be able to calculate and use multiple, Bay-wide mesozooplankton indicators. For extensive details in regards to quality assurance issues please see the CBP Phytoplankton Split sample portion of the Chesapeake Bay Quality Assurance Program at:

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

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

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

January 2007- When all sampling terminated in October 2002, approximately 1,000 archived split samples dating from 1996 to 2002 were in storage at Old Dominion University. In 2005, the Bay Program took formal custody of these sample in hopes that in the future these archived samples could be reprocess with the pipette sub-sampling technique. Funding for recounting a portion of the archive samples became available form CBPO in early 2006. 72 archived Virginia mesozooplankton samples were recounted by Versar, Inc., the contractor to the State of Maryland for the entire historic Maryland zooplankton program. Samples target for recount in this effort were samples collected during the summer (July- September) in mesohaline and polyhaline waters since their was a need for validation samples for the zooplankton Indexes of Biotic integrity in various stages of development at that time. Both the original Old Dominion University count data and the recounted data from Versar appear in the database. Versar recount data will have a method code of MZ101C. Please refer to the Maryland Mesozooplankton monitoring program project documentation for enumeration protocol details. The following samples were part of the 2006 recount effort.

#### STATION SAMPLE\_DATE

CB6.1 7/9/1996  
 CB6.1 7/24/1996  
 CB6.1 8/5/1996  
 CB6.1 8/26/1996  
 CB6.1 9/8/1997  
 CB6.1 7/6/1998  
 CB6.1 7/6/1999  
 CB6.1 9/11/2000  
 CB6.1 8/14/2002  
 CB6.1 9/16/2002

CB6.4 7/24/1996  
CB6.4 8/5/1996  
CB6.4 8/12/1997  
CB6.4 7/6/1998  
CB6.4 8/7/2000  
CB6.4 9/14/2000  
CB6.4 7/15/2002  
CB7.3E 8/7/1996  
CB7.3E 7/15/1997  
CB7.3E 9/3/1998  
CB7.3E 7/6/1999  
CB7.3E 8/5/1999  
CB7.3E 9/21/1999  
CB7.3E 7/11/2000  
CB7.3E 9/19/2002  
CB7.4 7/22/1996  
CB7.4 8/13/1997  
CB7.4 8/10/1998  
CB7.4 9/3/1998  
CB7.4 7/6/1999  
CB7.4 8/5/1999  
CB7.4 9/21/1999  
CB7.4 9/11/2000  
LE3.6 7/9/1996  
LE3.6 7/24/1996  
LE3.6 8/5/1996  
LE3.6 8/26/1996  
LE3.6 7/15/1997  
LE3.6 7/6/1998  
LE3.6 9/1/1998  
LE3.6 7/6/1999  
LE3.6 8/9/2000  
LE5.5 7/22/1996  
LE5.5-W 9/21/1999  
RET3.1 8/5/1998  
RET3.1 7/8/1999  
RET3.1 8/5/1999  
RET3.1 8/9/2001  
RET3.1 9/12/2002  
RET4.3 7/10/1996  
RET4.3 7/24/1996  
RET4.3 8/6/1996  
RET4.3 7/10/1997  
RET4.3 7/23/1997  
RET4.3 7/20/1998  
RET4.3 8/19/1998  
RET4.3 9/9/1998  
RET5.2 9/23/1997  
RET5.2 8/17/1999  
SBE5 7/8/1996  
SBE5 7/23/1996

SBE5 7/8/1997  
 SBE5 9/15/1999  
 SBE5 9/21/2000  
 TF3.3 7/8/1999  
 TF3.3 8/24/1999  
 WE4.2 7/24/1996  
 WE4.2 8/5/1996  
 WE4.2 7/6/1998  
 WE4.2 9/1/1998

[Back to Top](#)

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*Distribution\_Information:*

*Distributor:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jacqueline Johnson

*Contact\_Organization:* Interstate Commission on Potomac River Basin

*Contact\_Position:* Chesapeake Bay Program Living Resources Data Manager

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*Address\_Type:* mailing and physical address

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*State\_or\_Province:* Maryland

*Postal\_Code:* 21403

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*Contact\_Voice\_Telephone:* 410-267-5729

*Contact\_Facsimile\_Telephone:* 410-267-5777

*Contact\_Electronic\_Mail\_Address:* jjohnson@chesapeakebay.net

*Hours\_of\_Service:* 8:00 a.m. to 4:00 p.m. Monday Through Friday

*Contact\_Instructions:*

unavailable

*Distribution\_Liability:*

I, the data requestor, agree to acknowledge the Chesapeake Bay Program and any other agencies and institutions as specified by the Chesapeake Bay Program Office as data providers. I agree to credit the data originators in any publications, reports or presentations generated from this data. I also accept that, although these data have been processed successfully on a computer system at the Chesapeake Bay Program, no warranty expressed or implied is made regarding the accuracy or utility of the data on any other system or for general or scientific purposes, nor shall the act of distribution constitute any such warranty. This disclaimer applies both to individual use of the data and aggregate use with other data. It is strongly recommended that careful attention be paid to the contents of the data documentation file associated with these data. The Chesapeake Bay Program shall not be held liable for improper or incorrect use of the data described and/or contained herein.

*Standard\_Order\_Process:*

*Digital\_Form:*

*Digital\_Transfer\_Information:*

*Format\_Name:* ASCII

*Digital\_Transfer\_Option:**Online\_Option:**Computer\_Contact\_Information:**Network\_Address:**Network\_Resource\_Name:* [www.chesapeakebay.net](http://www.chesapeakebay.net)*Network\_Resource\_Name:* <https://archive.chesapeakebay.net>*Offline\_Option:**Offline\_Media:* CD-ROM*Recording\_Capacity:**Recording\_Density:* 650*Recording\_Density\_Units:* megabyte*Recording\_Format:* ISO 9660*Compatibility\_Information:*

None

*Fees:* None*Ordering\_Instructions:*

All requests for data on media must be made in writing

*Turnaround:* 5 Working Days*Standard\_Order\_Process:**Digital\_Form:**Digital\_Transfer\_Information:**Format\_Name:* ASCII*Digital\_Transfer\_Option:**Online\_Option:**Computer\_Contact\_Information:**Network\_Address:**Network\_Resource\_Name:* <https://archive.chesapeakebay.net>*Network\_Resource\_Name:* [www.chesapeakebay.net](http://www.chesapeakebay.net)*Offline\_Option:**Offline\_Media:* CD-ROM*Recording\_Capacity:**Recording\_Density:* 650*Recording\_Density\_Units:* megabytes*Recording\_Format:* ISO 9660*Compatibility\_Information:*

None

*Fees:* None*Ordering\_Instructions:*All request for data on media must be in received  
in writing*Turnaround:* 5 Working Days*Standard\_Order\_Process:**Digital\_Form:**Digital\_Transfer\_Information:**Format\_Name:* ASCII*Digital\_Transfer\_Option:**Online\_Option:**Computer\_Contact\_Information:**Network\_Address:**Network\_Resource\_Name:*<http://cobia.chesapeakebay.net/plankton/fips.cfm>

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*Time\_Period\_Information:*  
*Range\_of\_Dates/Times:*  
*Beginning\_Date:* 19850101  
*Ending\_Date:* Present

[Back to Top](#)

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*Metadata\_Date:* 20000413  
*Metadata\_Contact:*  
*Contact\_Information:*  
*Contact\_Person\_Primary:*  
*Contact\_Person:* Jacqueline Johnson  
*Contact\_Organization:* Interstate Commission on Potomac River Basin  
*Contact\_Position:* Chesapeake Bay Program Living Resources Data Manager  
*Contact\_Address:*  
*Address\_Type:* mailing and physical address  
*Address:*  
 410 Severn Avenue, Suite 109  
*City:* Annapolis  
*State\_or\_Province:* Maryland  
*Postal\_Code:* 21403  
*Country:* USA  
*Contact\_Voice\_Telephone:* 1-800-968-7229  
*Contact\_Voice\_Telephone:* 410-267-5729  
*Contact\_Facsimile\_Telephone:* 410-267-5777  
*Contact\_Electronic\_Mail\_Address:* jjohnson@chesapeakebay.net  
*Hours\_of\_Service:* 8:00 a.m. to 4:00 p.m. Monday Through Friday  
*Contact\_Instructions:*  
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 Infrastructure Metadata  
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[Back to Top](#)