Maryland CORE/Trend Water Quality Monitoring Program – 2011

Metadata:

Identification_Information:
Citation:
Citation_Information:
Originator: Maryland Department of Natural Resources (MD DNR), Resource Assessment Service
Publication_Date: 20120501
Title: MD DNR 2011 CORE/Trend Water Quality Monitoring Project
Online_Linkage:
[http://www.chesapeakebay.net/data/downloads/cbp_water_quality_database_1984_present]

Description:
Abstract: These are water quality monitoring data from a long term fixed location monitoring study of non-tidal stations located in the Chesapeake Bay and Ohio River watersheds. The data are collected from fifty-five stations for a time period beginning January 1986 and extending to the present.

Purpose: Provide metadata record for ongoing Chesapeake Bay Program Activity.

Supplemental_Information:
Two reports contain information that should be considered when CORE/Trend data are used for data analysis. The reports are named: DAITS 043: Comparability of parameter estimates from whole water and filtered samples for MD Department of Health and Mental Hygiene data (June 2006, revised April 2009) and DAITS 046: Comparison of chlorophyll and pheophytin analyzed at DHMH and CBL (May 2009).

The reports may be accessed at
[ftp://ftp.chesapeakebay.net/Monitoring/Huber/DAITS/COMPLETE_DAITS/DAITS043.doc]
and
[ftp://ftp.chesapeakebay.net/Monitoring/Huber/DAITS/COMPLETE_DAITS/DAITS046.doc].

Data users who desire very detailed information about Water Quality Monitoring data-definition, sampling-procedures and data-processing are encouraged to refer to the two documents listed below. The documents may be obtained from The Chesapeake Bay Program Office.

Water Quality Database - Database Design and Data Dictionary, Prepared For: U.S. Environmental Protection Agency, Region III, Chesapeake Bay Program Office, January 2004. [http://archive.chesapeakebay.net/pubs/cbwqdb2004_RB.PDF].

The most current version of the Water Quality Data Dictionary - Online may be found at: [http://archive.chesapeakebay.net/data/data_dict.cfm?DB_CODE=CBP_WQDB].

The Quality Assurance Project Plan for the Maryland Department of Natural Resources Chesapeake Bay Water Quality Monitoring Program - Chemical and Physical Properties Component for the period July 1, 2011 - June 30, 2012
[http://mddnr.chesapeakebay.net/eyesonthebay/documents/MTQAPP2011_draft1v1.pdf]

Time_Period_of_Content:
Time_Period_Information:
Range_of_Dates/Times:
Beginning_Date: 20110101
Ending_Date: 20111231
Currentness_Reference: Ground Condition
Status:
Progress: In Work
Maintenance_and_Update_Frequency: As needed
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -79.4938
East_Bounding_Coordinate: -75.0405
North_Bounding_Coordinate: 39.7425
South_Bounding_Coordinate: 37.8713
Keywords:
Theme:
Theme_Keyword_Thesaurus: CIMS Subject Keyword List
Theme_Keyword: Maryland
Theme_Keyword: Tributary
Theme_Keyword: Monitoring
Theme_Keyword: Data

Place:
Place_Keyword_Thesaurus: User Defined Keyword List
Place_Keyword: Chesapeake Bay
Place_Keyword: Hydrologic Unit
Place_Keyword: Major Watershed/Basin
Place_Keyword: Maryland (MD)
Place_Keyword: Modeling Segment
Place_Keyword: Monitoring Segment
Place_Keyword: Subbasin
Place_Keyword: Tributary
Access_Constraints: NONE
Use_Constraints: Use At Your Own Risk
Point_of_Contact:
Contact_Information:
Contact_Person_Primary:

Contact_Person: William D. Romano
Contact_Position: Natural Resources Biologist
Contact_Address:
Address_Type: Mailing and physical
Address: 580 Taylor Avenue, D-2
City: Annapolis
State_or_Province: Maryland
Postal_Code: 21401
Contact_Voice_Telephone: 410 260 8630
Contact_Electronic_Mail_Address: bromano_no_spam_@dnr.state.md.us [remove _no_spam_ for valid email address]

Data_Quality_Information:
Attribute_Accuracy:
Attribute_Accuracy_Report:
Quality Assurance/Quality Control. Maryland Department of Natural Resources followed specific procedures to ensure that the Tributary component of the Chesapeake Bay Water Quality Monitoring Program design was properly implemented and managed with sufficient accuracy, precision and detection limits. Accuracy (closeness to the true value) of collected data was controlled and assured by proper use, calibration and maintenance of both field and laboratory equipment for the measurement of physical and chemical parameters.

The procedures to control and assure the accuracy of field measurements involved the calibration of field instruments, the verification of calibrations, and equipment maintenance. Most of the details of how data acquired with YSI sondes and Hydrolab sondes were quality assured and quality controlled are described in the process description elements in the Lineage portion of this metadata record.

Daily quality control checks which included the running of blanks and standards were used to control and assure laboratory accuracy.

Accuracy of Chesapeake Biological Laboratory, Nutrient Analytical Services Laboratory (CBL NASL) results was also assessed through DNR's participation in the Chesapeake Bay Coordinated Split Sample Program (CSSP) a split sampling program in which five laboratories involved in Chesapeake Bay monitoring analyze the coordinated split samples. CSSP was established in June 1989 to establish a measure of comparability between sampling and analytical operations for water quality monitoring throughout the Chesapeake Bay and its tributaries. DNR followed the protocols in the Chesapeake Bay Coordinated Split Sample Program Implementation Guidelines (EPA 1991) and its revisions. Split samples were collected quarterly. Results were analyzed by appropriate statistical methods to determine if results differed significantly among labs. If a difference occurred, discussions began regarding techniques and potential methods changes to resolve discrepancies.

February 2011- Field sheet notes for stations ANA0082 and RCM0111 indicated waters were muddy due to rain the night preceding sampling and consequently suggested road salt might be detectable.

March 2011 - Field sheet comments for station CON0005 noted that the downstream side of the bridge was blocked by debris.

July 2011 - The presence of a fallen tree in the sampling area was noted at station CON0180.

August 2011 - Dissolved oxygen and pH readings were double checked using YSI data sonde C at stations CON0005 and POT2386. At station ANA0082 it was noted that the water contained either an algal bloom or a sediment load.

September 2011 - Notes about Tropical Storm Lee were made at stations: ANT0203, ANT0366, CON0005, CON0180, NBP0534 and POT2386. Comments about heavy rains.

Logical_Consistency_Report:

January 2011 - The Western Maryland Regional Laboratory (WMRL) performed sulfate analysis.

February 2011 - Sulfate analyses were not performed.

March 2011 - Due to high water levels, station POT1595 samples were collected at the new boat ramp area. WMRL and Nutrient Analytical Services Laboratory (NASL) participated in a sulfate split-sample comparison study. WMRL sulfate analytical results were input into the Chesapeake Information Management System water quality database.

April 2011 - NASL assumed responsibility for performing sulfate analyses. NASL also performs chlorophyll analyses.

May 2011 - The POT1595 samples were collected at the construction area.

June 2011 - The POT1595 samples were collected downstream of the construction area.

July 2011 - Station NBP0326 was sampled from the bank, upstream of the bridge.

August 2011 - Station NBP0326 was sampled from the bank, upstream of the bridge. Station SAV0000 was sampled from the bank at the bottom of the bridge.

September 2011 - Station POT1595 was sampled from the new boat ramp. The Susquehanna River was still rising when station CB1.0 samples were collected from the top of the ramp. The weir at station CON0180 was completely under water and the samples were collected from the bank. The NPA0165 samples were collected from the bridge leading to the gravel yard. Station GUN0258 was sampled from the road because the normal location was under water.

October 2011 - Station POT1595 samples were collected from the new boat ramp.

November 2011 - Station CON0005 samples were collected from the far right side.

Completeness_Report:
January 2011 - Station POT1595 was not sampled due to a search and rescue operation.

February 2011 - Ice conditions prevented sample collection at stations BPC0035 and MON0528. Similarly, ice and lack of access resulted in no sample collection at POT1595 and POT1596. Due to WMRL personnel changes, sulfate analyses were not performed.

May 2011 - The CORE/Trend project added chloride to parameters measured. Chloride analyses are conducted by NASL.

September 1, 2011 - Air temperature was not measured at station CAC0148 due to a missing thermometer.

Lineage:
Process_Step:
Process_Description:
SONDE CALIBRATION and POST-CALIBRATION

The Yellow Springs Instrument (YSI) 6000 data sondes and HydroLabs were maintained and calibrated before and after each survey in accordance with manufacturer's recommendations.

HYDROLAB PROFILE SAMPLING PROTOCOLS:

Measurements of temperature, specific conductance, dissolved oxygen and pH were obtained from YSI or Hydrolab water quality sensors immersed just below the water surface.

GRAB SAMPLING DEPTH PROTOCOLS:

Grab samples of water for laboratory analysis were collected at stations at a depth of 0.0m.

Process_Date: Unknown
Process_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Sally Bowen
Contact_Position: Project Chief, Monitoring Field Office, DNR
Contact_Address:
Address_Type: mailing and physical
Address: 1919 Lincoln Drive
City: Annapolis
State_or_Province: Maryland
Postal_Code: 21401
Country: USA
Contact_Voice_Telephone: 410 263-3369

Contact_Electronic_Mail_Address: SBOWEN_nospam_@dnr.state.md.us[Remove _nospam_ for valid email address]

Process_Step:
Process_Description:
CORE/Trend DHMH ECDL LABORATORY ANALYSIS

Maryland Department of Health and Mental Hygiene, Environmental Chemistry Division Laboratory, Baltimore, MD, analyzed total dissolved nitrogen, particulate nitrogen, nitrite, nitrite + nitrate, ammonium, total dissolved phosphorus, particulate phosphorus, orthophosphate, dissolved organic carbon, particulate carbon, total suspended solids, biological oxygen demand, total alkalinity and turbidity for the following Potomac Boat stations: MAT0016, MAT0078, PIS0033, RET2.1, RET2.2, RET2.4, TF2.1, TF2.2, TF2.3, TF2.4 and XFB1986.

Process_Date: Unknown
Process_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Shahla Ameli
Contact_Position: Laboratory Scientist Supervisor
Contact_Address:
Address_Type: mailing and physical
Address: 201 West Preston Street
City: Baltimore
State_or_Province: Maryland
Postal_Code: 21201
Country: USA
Contact_Voice_Telephone: 410 767 6190
Contact_Electronic_Mail_Address: AmeliS_nospam_@dhmh.state.md.us[Remove _nospam_ for valid email address]

Process_Step:
Process_Description:
CORE/Trend DHMH WMRL LABORATORY ANALYSIS

Maryland Department of Health and Mental Hygiene, Western Maryland Regional Laboratory (WMRL), Cumberland, MD, analyzed total alkalinity, total dissolved solids, total suspended solids and turbidity for the following stations: BDK0000, CAS0479, CCR0001, GEO0009, LYO0004, NBP0023, NBP0103, NBP0326, NBP0461, NBP0534, NBP0689, POT2766, SAV0000, TOW0030, WIL0013, YOU0925 and YOU1139. Sulfates were analyzed at WMRL through March 2011. No sulfate samples were analyzed in February 2011 due to a reduction in staff. WMRL participated in a sulfate split sample comparison study with CBL NASL in March 2011. Beginning in April 2011 CBL NASL started performing sulfate analyses.

Further information about laboratory analytical procedures may be obtained from the "Process_Contact".

Process_Date: Unknown
Process_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Michael Risoldi
Contact_Position: Laboratory Scientist Lead
Contact_Address:
Address_Type: mailing and physical
Address:
Western Maryland Regional Laboratory
12503 Willowbrook Road
Brook Building, Entrance #6 (Rear)
City: Cumberland
State_or_Province: Maryland
Postal_Code: 21502
Country: USA
Contact_Voice_Telephone: 301 759 5243
Contact_Electronic_Mail_Address: RisoldiM_nospam_@dhmh.state.md.us[Remove _nospam_ for valid email address]

Process_Step:
Process_Description:
CORE/Trend NASL LABORATORY ANALYSIS

University of Maryland's Chesapeake Biological Laboratory (CBL), Nutrient Analytical Services Laboratory (NASL), Solomons, MD, analyzed chlorophyll, sulfate and chlorinity for all CORE/Trend stations.

NASL began performing chlorophyll analyses in the year 2009. Prior to 2009, chlorophyll analyses were performed by the Maryland Department of Health and Mental Hygiene (DHMH) laboratory in Baltimore, MD. Sulfate analyses were performed by DHMH WMRL until March 2011, no sulfate samples were analyzed in February 2011 due to a reduction in staff. NASL began performing sulfate analyses in April 2011 and chloride analyses in May 2011.

Process_Date: Unknown
Process_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Carl Zimmerman
Contact_Position: Director of Chesapeake Biological Laboratory Analytical Services/Quality Assurance Officer
Contact_Address:
Address_Type: mailing and physical

Address: Chesapeake Biological Laboratory, Center for Environmental and Estuarine Studies, The University of Maryland System, 1 Williams St; P.O. Box 38
City: Solomons
State_or_Province: Maryland
Postal_Code: 20688
Country: USA
Contact_Voice_Telephone: 410 326-4281
Contact_Electronic_Mail_Address: carlz _nospam_@cbl.umces.edu[Remove _nospam_ for valid email address]

Process_Step:
Process_Description:
VERIFICATION AND DATA MANAGEMENT:

Each month DNR Tawes Office and Field Office personnel conducted data QA/QC procedures. All of the water quality calibration "grab" sample data were plotted. Outliers and anomalous values were thoroughly researched. Staff compared unusual values to historic values from the site and values from nearby sites. Weather events were considered, event logs were reviewed and CBL, DHMH and WMRL analytical laboratory staff and DNR field staff members were consulted regarding possible legitimate causes for outlying values. In cases where values were not considered to be legitimate, they were masked from the published dataset with the approval of the field staff and the Quality Assurance Officer.

Process_Date: Unknown
Process_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Diana Domotor
Contact_Position: Administrator II
Contact_Address:
Address_Type: Mailing
Address: 580 Taylor Avenue, D2
City: Annapolis
State_or_Province: Maryland
Postal_Code: 21401
Country: USA
Contact_Voice_Telephone: 410 260 8630
Contact_Electronic_Mail_Address: DDomotor_No_Spam_@dnr.state.md.us [Remove _No_Spam_ for valid email address]

Distribution_Information:
Distributor:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Michael Mallonee
Contact_Position: Water Quality Database Manager

Contact_Address:
Address_Type: mailing and physical
Address: 410 Severn Avenue, Suite 109
City: Annapolis
State_or_Province: Maryland
Postal_Code: 21403
Country: USA
Contact_Voice_Telephone: 800-968-5785
Contact_Electronic_Mail_Address: mmallone@_no_spam_chesapeakebay.net[Remove _nospam_ for valid email address]

Resource_Description: Downloadable data
Distribution_Liability: None of the Chesapeake Bay Program partners nor any of their employees, contractors, or subcontractors make any warranty, expressed or implied, nor assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any information or data contained within the web site. Reference to any specific commercial products, processes, or services or the use of any trade, firm, or corporation name is for the information and convenience of the public and does not constitute endorsement, recommendation or favoring by the Chesapeake Bay Program partners.

Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Format_Name: ASCII Text File
Format_Information_Content: Station Information data, Monitoring Event data, and Water Quality data
File_Decompression_Technique: No compression applied
Transfer_Size: 1.9

Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name:
[http://www.chesapeakebay.net/data/downloads/cbp_water_quality_database_1984_present]
Access_Instructions: Data are available though the Chesapeake Bay Programs CIMS data hub. Select Water Quality Database (1984-Present). Access the data by following web site (see network resource name) instructions.
Fees: None

Metadata_Reference_Information:
Metadata_Date: 20120521
Metadata_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Ben Cole

Contact_Position: Natural Resources Biologist
Contact_Address:
Address_Type: mailing and physical
Address: 580 Taylor Avenue, D-2
City: Annapolis
State_or_Province: Maryland
Postal_Code: 21401
Country: USA
Contact_Voice_Telephone: 410 260 8630
Contact_Electronic_Mail_Address: bcole_no_spam_@dnr.state.md.us [remove _no_spam_ for valid email address]
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998