Maryland CORE/Trend Water Quality Monitoring Program – 2017

Metadata:

Identification_Information:
Citation:
Citation_Information:
Originator: Maryland Department of Natural Resources (MD DNR), Resource Assessment Service
Publication_Date: 20180630
Title: MD DNR 2017 CORE/Trend Water Quality Monitoring Project
Geospatial_Data_Presentation_Form: Spatial database
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 stations located in the Chesapeake Bay and Ohio River watersheds. The data are collected from fifty-six stations for a time period beginning January 1986 and extending to the present. Fifty-five of the stations are in non-tidal waters. One station (XGG8251) is in tidal waters.

Purpose:
The Maryland Department of Natural Resources Section 106 Ambient Water Quality Monitoring Program (CORE\Trend) is part of a cooperative effort between the Federal government and State and local governments in the Chesapeake Bay watershed to assess the status and trends of nutrient concentrations in Maryland's waters.

The information is integrated with data from other Chesapeake Bay water quality stations and living resources monitoring projects and used to understand linkages, temporal variation and long-term trends.

Water quality data are used to refine, calibrate and validate Chesapeake Bay ecological models. The models are used to develop and assess water quality criteria with the goal of removing the Chesapeake Bay and its tributaries from the list of impaired waters.

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). Copies of the reports may be downloaded. [http://www.chesapeakebay.net/documents/Completed_DAITS_as_of_9-21-10.pdf].

Data users who desire very detailed information about Water Quality Monitoring data definition, sampling procedures and data processing are encouraged to refer to 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]. An updated data dictionary is a Chesapeake Bay Program work in progress.

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, 2017 - June 30, 2018 [http://eyesonthebay.dnr.maryland.gov/eyesonthebay/documents/MdDNR_MTQAPP2017.pdf].

Guide to Using Chesapeake Bay Program Water Quality Monitoring Data, EPA 903-R-12-001, February 2012, CBP/TRS 304-12 [http://www.chesapeakebay.net/documents/3676/wq_data_userguide_10feb12_mod.pdf].

Time_Period_of_Content:
Time_Period_Information:
Range_of_Dates/Times:
Beginning_Date: 20170104
Ending_Date: 20171212
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: USGS Thesaurus
Theme_Keyword: hydrologic processes
Theme_Keyword: watershed management
Theme_Keyword: ecological processes
Theme:
Theme_Keyword_Thesaurus: Global Change Master Directory (GCMD). 2018. GCMD Keywords, Version 8.6. Greenbelt, MD: Global Change Data Center, Science and Exploration Directorate, Goddard Space Flight Center (GSFC) National Aeronautics and Space Administration (NASA). URL (GCMD Keyword Forum Page): [https://earthdata.nasa.gov/gcmd-forum]

Theme_Keyword: EARTH SCIENCE>BIOSPHERE>ECOLOGICAL DYNAMICS>ECOSYSTEM FUNCTIONS>NUTRIENT CYCLING

Theme_Keyword: EARTH SCIENCE>BIOSPHERE>ECOLOGICAL DYNAMICS>ECOSYSTEM FUNCTIONS>PRIMARY PRODUCTION

Theme_Keyword: EARTH SCIENCE>TERRESTRIAL HYDROSPHERE>SURFACE WATER>SURFACE WATER FEATURES>RIVERS/STREAMS

Theme_Keyword: EARTH SCIENCE>TERRESTRIAL HYDROSPHERE>WATER QUALITY/WATER CHEMISTRY>WATER CHARACTERISTICS>ALKALINITY

Theme_Keyword: EARTH SCIENCE>TERRESTRIAL HYDROSPHERE>WATER QUALITY/WATER CHEMISTRY>WATER CHARACTERISTICS>BIOCHEMICAL OXYGEN DEMAND (BOD)

Theme_Keyword: EARTH SCIENCE>TERRESTRIAL HYDROSPHERE>WATER QUALITY/WATER CHEMISTRY>WATER CHARACTERISTICS>CHLOROPHYLL CONCENTRATIONS

Theme_Keyword: EARTH SCIENCE>TERRESTRIAL HYDROSPHERE>WATER QUALITY/WATER CHEMISTRY>WATER CHARACTERISTICS>CONDUCTIVITY

Theme_Keyword: EARTH SCIENCE>TERRESTRIAL HYDROSPHERE>WATER QUALITY/WATER CHEMISTRY>GASES>DISSOLVED NITROGEN

Theme_Keyword: EARTH SCIENCE>TERRESTRIAL HYDROSPHERE>WATER QUALITY/WATER CHEMISTRY>GASES>DISSOLVED OXYGEN

Theme_Keyword: EARTH SCIENCE>TERRESTRIAL HYDROSPHERE>WATER QUALITY/WATER CHEMISTRY>NUTRIENTS>NITROGEN

Theme_Keyword: EARTH SCIENCE>TERRESTRIAL HYDROSPHERE>WATER QUALITY/WATER CHEMISTRY>NUTRIENTS>NITROGEN COMPOUNDS

Theme_Keyword: EARTH SCIENCE>TERRESTRIAL HYDROSPHERE>WATER QUALITY/WATER CHEMISTRY>WATER CHARACTERISTICS>NITROGEN COMPOUNDS

Theme_Keyword: EARTH SCIENCE>TERRESTRIAL HYDROSPHERE>WATER QUALITY/WATER CHEMISTRY>WATER CHARACTERISTICS>pH

Theme_Keyword: EARTH SCIENCE>TERRESTRIAL HYDROSPHERE>WATER QUALITY/WATER CHEMISTRY>NUTRIENTS>PHOSPHOROUS

Theme_Keyword: EARTH SCIENCE>TERRESTRIAL HYDROSPHERE>WATER QUALITY/WATER CHEMISTRY>WATER CHARACTERISTICS>PHOSPHOROUS COMPOUNDS

Theme_Keyword: EARTH SCIENCE>TERRESTRIAL HYDROSPHERE>WATER QUALITY/WATER CHEMISTRY>WATER CHARACTERISTICS>SALINE CONCENTRATION

Theme_Keyword: EARTH SCIENCE>TERRESTRIAL HYDROSPHERE>WATER QUALITY/WATER CHEMISTRY>SOLIDS>SUSPENDED SOLIDS

Theme_Keyword: EARTH SCIENCE>TERRESTRIAL HYDROSPHERE>WATER QUALITY/WATER CHEMISTRY>SOLIDS>TOTAL DISSOLVED SOLIDS

Theme_Keyword: EARTH SCIENCE>TERRESTRIAL HYDROSPHERE>WATER QUALITY/WATER CHEMISTRY>WATER CHARACTERISTICS>TURBIDITY

Theme_Keyword: EARTH SCIENCE>TERRESTRIAL HYDROSPHERE>WATER QUALITY/WATER CHEMISTRY>WATER CHARACTERISTICS>WATER TEMPERATURE

Place:
Place_Keyword_Thesaurus: User Defined Keyword List
Place_Keyword: Chesapeake Bay
Place_Keyword: Hydrologic Unit
Place_Keyword: Major Watershed/Basin
Place_Keyword: Subbasin
Place_Keyword: Tributary
Place:
Place_Keyword_Thesaurus: Common geographic areas
Place_Keyword: United States
Place_Keyword: Maryland
Place_Keyword: Allegany County
Place_Keyword: Baltimore County
Place_Keyword: Carroll County
Place_Keyword: Caroline County
Place_Keyword: Frederick County
Place_Keyword: Garrett County
Place_Keyword: Harford County
Place_Keyword: Howard County
Place_Keyword: Montgomery County
Place_Keyword: Prince George's County
Place_Keyword: Queen Anne's County
Place_Keyword: Washington County
Temporal:
Temporal_Keyword_Thesaurus: USGS Thesaurus
Temporal_Keyword: autumn
Temporal_Keyword: spring (season)
Temporal_Keyword: summer
Temporal_Keyword: winter
Access_Constraints: NONE
Use_Constraints: Use At Your Own Risk

Point_of_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Scott Stranko

Contact_Position: Natural Resources Biologist
Contact_Address:
Address_Type: Mailing and physical
Address: 580 Taylor Avenue, C-2
City: Annapolis
State_or_Province: Maryland
Postal_Code: 21401
Contact_Voice_Telephone: 410.260.8603

Contact_Electronic_Mail_Address: scott.stranko_no_spam_@maryland.gov [remove _no_spam_ for valid email address]

Browse_Graphic:
Browse_Graphic_File_Name: MDDNR Core\Trend Monitoring Project 2017 Station Map: [http://eyesonthebay.dnr.maryland.gov/eyesonthebay/documents/metadata/MdDNR_2017_CORE_TrendStns.pdf]. If the map URL raises a file not found error, drill down from [http://eyesonthebay.net].
Browse_Graphic_File_Description: Fifty-six Maryland Department of Natural Resources CORE/Trend water quality monitoring stations.
Browse_Graphic_File_Type: PDF
Data_Set_Credit:
Survey and calibration data were collected by MD DNR Resource Assessment Service (RAS) Annapolis Field Office staff.

The Maryland Department of Health and Mental Hygiene (DHMH) analyzed samples for most of the CORE Trend sites.

The Nutrient Analytical Services Laboratory (NASL) at the Chesapeake Biological Laboratory (University of Maryland) analyzed samples collected at stations: PIS0033, TF1.0 and XGG8251. NASL analyzed CORE\Trend station chlorophyll a, phaeophytin, chloride and sulfate samples.

The USGS Kentucky Water Science Center Sediment Laboratory analyzed sediment samples collected at stations: ANT0366, CAC0148, CON0180, DER0015, GEO0009, GUN0258, GWN0115, NPA0165, PXT0972, TOW0030 and WIL0013. Sediment samples also collected at the stations during sampling operations of the Storm and Base-flow projects which are components of Maryland's non-tidal network water quality monitoring program.

The project was made possible with funding provided by the State of Maryland and the United States Environmental Protection Agency Chesapeake Bay Program.

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 used 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) and Maryland Department of Health and Mental Hygiene (DHMH) 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. The Chesapeake Bay Program Data Integrity Workgroup (formerly AMQAW) oversees the CSSP. 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.

January 2017: The station POT1596 sample was collected in a sediment plume that extended 75 feet from shore. Rain fell two days before sampling at stations CB1.0 and DER0015. Morning rain preceded sampling at stations GEO0009 and NBP0461. Lots of trash, from rainfall on the day preceding sampling, was noted at station ANA0082. There was streamside ice at stations ANT0366 and CON0180. Jumpy pH readings were noted at stations GWN0115, NPA0165 and PAT0285. High water levels were observed at stations: GEO0009, NBP0103, NBP0461, NBP0534, NBP0689, POT2766, SAV0000, TOW0030 and WIL0013. The Secchi disk measurement at station XGG8251 was greater than the station total depth. Waters at stations GEO0009 SAV0000, TOW0030, and WIL0013 were clear. Waters at stations POT2036, NBP0103, NBP0609 and NBP0534 were slightly murky.

February 2017: Rainfall and snowmelt, two days preceding sampling, were noted at stations: GEO0009, NBP0326, NBP0461, NBP0534, NBP0689 and SAV0000. A Jersey wall on the new bridge at station NBP0326 complicated sample collection. High water levels were noted at stations POT2766 and POT2386. Water at station POT2386 was murky.

March 2017: The water at station GEO0009 was clearer than normal. Dead carp were present in the water and on the bank at the time station POT1830 samples were collected. Conductivity results at station MON0269 were questionable and a switch was made to meter P. Conductivity measurements obtained using meter T at stations BPC0035 and MON0528 were deemed bad and censored in the data set. When station PXT0809 was sampled, demolition was occurring upstream and water was discharging above the site. At station POT2766, the water level was high and the beach area was flooded. Snowmelt and rainfall occurred the weekend before sampling at stations GEO0009, LYO0004, NBP0689, TOW0030, WIL0013 and YOU0925. Scattered showers fell the day prior to sample collection at stations: CB1.0,

DER0015, GUN0258 and GUN0476. It rained the night before the following stations were sampled: ANT0044, BPC0035, CAC0031, CAC0148, LYO0004, MON0020, MON0155, MON0269, MON0528, POT1471, POT1472, POT1595, POT1596, POT1830, SEN0008 and YOU1139.

April 2017: When samples were collected at station BDK0000, lots of algae, possibly filamentous, were noted. The Secchi disk depth measurement at station XGG8251 exceeded the total water depth at the site. Station ANT0203 waters were slightly murky. Debris blocked the right edge of the stream when station CON0005 was sampled. Construction was ongoing when stations PAT0176 and PXT0809 were sampled. Didymo was not visible at station SAV0000. High water levels were noted at stations: CON0180, LYO0004, NBP0023, NBP0103, NBP0461, NBP0534, NBP0689, POT2386, TOW0030, YOU0925 and YOU1139. Heavy rain and snow melt occurred during the week preceding sampling at stations LYO0004, NBP0023, NBP0103 and NBP0461. Heavy rain upstream occurred the day prior to sample collection at station POT2386. Overnight rain showers occurred prior to sampling at station ET5.0.

May 2017: Water dripped off the bridge into the bucket as it was being collected from the bank at station ANT0366. Didymo was not visible at station SAV0000. There was a large pile of debris upstream of the station CON0005 bridge. Station NBP0534 waters were clear. Ending sample time at stations POT1595 and SEN0008 were estimated. Water levels at stations POT02766, NBP0461 and NBP0534 were very high. High water levels were noted at stations BDK0000, CON0180, GEO0009, LYO0004, NBP0023, NBP0103, NBP0689 and WIL0013. Rains occurred during the week before samples were collected at stations CAS0479, NBP0103, NBP0689 and WIL0013.

June 2017: Didymo was not visible at station SAV0000. Submerged aquatic vegetation was present at station TOW0030. Scattered drizzle preceded sampling at stations CAC0031, MON0020, POT1471, POT1472, POT1595, POT1596 andSEN0008.

July 2017: Braddock Run waters were unusually clear when samples were collected at station BDK0000. Didymo was not visible at station SAV0000. Heavy rain fell over the weekend prior to sampling at stations CAS0479 and YOU0925. The creek was high and muddy at station LYO0004. There were heavy downpours the day before sample collections at stations LYO0004 and YOU1139. Light rain fell the night before and steadier rain fell in the morning preceding station ET5.0 sampling. It rained during the morning station JON0184 was sampled. Scattered showers fell during sampling operations at stations CAC0031, MON0020, MON0155, POT1471, POT1472, POT1595, POT1596, PXT0809 and SEN0008.

October 2017: Station GEO0009 water was dark orange. The water at station PIS0033 appeared stagnant. At station CON0005, no algae were visible from the bridge and the water and creek bed were clear. Algae, possibly filamentous, covered station CON0180 rocks and the water was very clear. Station NBP0534 waters were slightly murky. Water at station SAV0000 was murky. Construction was on-going at station PXT0809. Dissolved oxygen was checked with meter Y at station SEN0008. USGS staff members were on site when samples were collected at station ET5.0. The water levels at stations CB1.0, GUN0125 and GUN0115 were very low. The river levels were low at stations JON0184, MON0020, POT1472, POT1595,

POT1596 and SEN0008. Rain fell the over the weekend before station WIL0013 was sampled. Morning rain preceded sampling at stations NBP0326 and YOU1139. Heavy rain, prior to station NBP0534 sample collection, was noted. Rain ceased as station GEO0009 sampling began.

November 2017: One Conowingo Dam flow gate was open when station CB1.0 waters were sampled. Station YOU0925 was sampled during dam release and the gage heights were fluctuating. The left side of the station CON0005 bridge was blocked by debris from a recent storm. The water level at station POT2386 was higher than normal. There was evidence of Braddock Run waters, on the right eastern shore, when station WIL0013 samples were collected. Didymo was not visible at station SAV0000. The Secchi disk measurement at station XGG8251 exceeded station total depth.

December 2017: Debris and logs blocked the entire right Eastern shore when station CON0005 samples were collected. When station WIL0013 was sampled, the effect of Braddock Creek waters was evident along the Eastern shore. Staff from the USGS were conducting flow surveys upstream when Station PAT0285 was sampled. Station SEN0008 dissolved oxygen results were checked with meter J. The reaction time of the water quality sonde pH sensor was observed to be slow at stations PXT0972 and NBP0326. Didymo covered approximately 70 percent of the station SAV0000 sampling location water bottom. Rain fell the night before sampling at the following stations: CAC0031, MON0020, MON0155, POT1471, POT1472, POT1595, POT1596 and SEN0008.

Logical_Consistency_Report:

January 2017: At station CON0005, the creek was mostly frozen. The station CAC0005 sample was collected from lower Eastern shore waters that remained open and flowing. The station CAC0031 sample was collected from the bridge. The beach area of station POT2766 was under water and samples were collected upstream of the bridge. Station NBP0326 were collected from the stream bank upstream of the bridge.

February 2017: The station POT2766 sample was collected from the bank.

March 2017: Station CB1.0 samples were collected from the fishing pier. Samples were collected from the bank at station POT2766.

April 2017: Station POT2466 water samples were collected from under the bridge.

May 2017: Samples were collected from the banks at stations ANT0366 and NBP0326. The station POT2766 sample was collected from the bank upstream of the bridge. Station CON0005 samples were collected on the right edge of the stream (looking downstream).

June 2017: The station POT2766 sample was collected from the bridge. Bridge construction was on-going at station NBP0326 and the water sample was collected from the bridge.

July 2017: Station NBP0326 samples were collected from the riverbank. Station POT2766 sampling occurred at the beach area downstream of the bridge.

October 2017: The water level at station CB1.0 was very low when the samples were collected at the fishing area. Station POT1471 samples were collected from the ramp. Station POT2766 samples were collected upstream of the bridge. Station NBP0326 samples were collected from the bank downstream of the bridge.

November 2017: The station CB1.0 water sample was collected at the viewing area. Station NBP0326 was collected from the riverbank. Samples at station POT2766 were taken upstream of the bridge, off of the pebble beach area.

December 2017: Station CB1.1 samples were collected at the viewing area. Station WIL0013 sample collection was conducted on the lower Eastern shore in order to avoid the effect of Braddock Creek waters. Station POT2766 samples were collected at the beach upstream of the bridge.

Completeness_Report:

Biological Oxygen Demand samples are collected at a subset of CORE\Trend project stations: ANA0082, ANT0044, BPC0035, CAC0031, CAC0148, CJB0005, MON0020, MON0155, MON0269, MON0528, PIS0033, POT1184, POT1471, POT1472, POT1595, POT1596, POT1830, RCM0111 and SEN0008. When the Monday following Biological Oxygen Demand sample collection was a holiday, samples were not collected.

Chloride and sulfate sample are collected at the following subset of CORE\Trend stations: GEO0009, NBP0023, NBP0103, NBP0461, NBP0534 and TOW0030.

February 2017: There are no dissolved oxygen results for station MON0155 due to probe failure.

June 2017: Station PXT0809 was not sampled due to construction-related lack of access.

August 2017: Air temperature was not measured.

December 2017: Secchi disk depth was not recorded at station XGG8251. Samples were not collected at station PXT0809 because construction prevented station access.

Lineage:

Process_Step:

Process_Description:

SONDE CALIBRATION and POST-CALIBRATION

HydroLab sondes 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: Kristen Heyer
Contact_Position: Manager, Water Quality Monitoring
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: kristen.heyer_nospam_@maryland.gov [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 CORE/Trend stations.

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: 1770 Ashland Ave.
City: Baltimore
State_or_Province: Maryland
Postal_Code: 21205
Country: USA
Contact_Voice_Telephone: 433.681.3855

Contact_Electronic_Mail_Address: shahla.ameli_nospam_@maryland.gov [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, Pheophytin, sulfate and chloride for 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: Jerry Frank
Contact_Position: Manager Nutrient Analytical Services Laboratory
Contact_Address:
Address_Type: mailing and physical
Address: Chesapeake Biological Laboratory, Center for Environmental and Estuarine Studies, The University of Maryland System, 146 Williams St; P.O. Box 38
City: Solomons
State_or_Province: Maryland
Postal_Code: 20688
Country: USA
Contact_Voice_Telephone: 443.681.3855
Contact_Electronic_Mail_Address: frank _nospam_@umces.edu [Remove _nospam_ for valid email address]

Process_Step:
Process_Description:
CORE/Trend USGS-KDSL ANALYSIS

Kentucky Water Science Center Sediment Laboratory, 9818 Bluegrass Parkway, Louisville, KY analyzed sediment samples collected at CORE/Trend stations. Sediment samples are co-sampled under the non-tidal network program.

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: Aimee Downs
Contact_Position: Physical Scientist
Contact_Address:
Address_Type: mailing and physical
Address: USGS Kentucky Water Science Center, Sediment Lab, 9818 Bluegrass Parkway
City: Louisville
State_or_Province: Kentucky
Postal_Code: 40299
Country: USA
Contact_Voice_Telephone: 502.493.1944
Contact_Electronic_Mail_Address: acdowns _nospam_@usgs.gov [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 DHMH and CBL 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: Data Analyst
Contact_Address:
Address_Type: mailing
Address: 580 Taylor Ave., D2
City: Annapolis
State_or_Province: MD
Postal_Code: 21401
Contact_Voice_Telephone: 410.260.8630
Contact_Electronic_Mail_Address: diana.domotor_nospam_@maryland.gov[Remove _nospam_ for valid email address]

Spatial_Data_Organization_Information:
Indirect_Spatial_Reference: Anacostia River, Antietam Creek, Big Pipe Creek, Braddock Run, Cabin John Branch, Catoctin Creek, Chester River, Choptank River, Conococheague Creek, Deer Creek, Georges Creek, Gunpowder River, Monocacy River, North Branch Patapsco River, North Branch Potomac River, Patapsco River, Patuxent River, Piscataway Creek, Potomac River, Rock Creek, Savage River, Seneca Creek, Susquehanna River, Town Creek, Wills Creek
Direct_Spatial_Reference_Method: point

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Geographic:
Latitude_Resolution: 0.0001
Longitude_Resolution: 0.0001
Geographic_Coordinate_Units: Decimal degrees
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137
Denominator_of_Flattening_Ratio: 298.257

Entity_and_Attribute_Information:
Overview_Description:
Entity_and_Attribute_Overview:
This metadata record is a description of the Maryland Department of Natural Resources Chesapeake Bay Water Quality Monitoring Program - Chemical and Physical Properties Component Database for the Maryland Chesapeake Bay Tributaries. Project data are an aggregation of data collected at Maryland CORE Trend project stations during 2017.

The data are contained in three related entities (tables): Station_Information, Monitoring_Event_Data and Water_Quality_Data. Each table contains attributes (fields).

The entity Station_Information is comprised of the attributes: CBSeg2003, CBSeg2003Description, CBSegmentShed2009, CBSegmentShed2009Description, CountyCity, FallLine, FIPS, HUC12, HUC8, Latitude, LLDatum, Longitude, State, Station, StationDescription, USGSGage, UTMX, and UTMY.

The entity Monitoring_Event_Data is comprised of the attributes: Agency, CloudCover, Cruise, Details, EventId, FieldActivityEventType, FieldActivityRemark, FlowStage, GaugeHeight, Latitude, Longitude, LowerPycnocline, MonitoringStation, PrecipType, Pressure, Program, Project, SampleDate, SampleTime, Source, Station, TideStage, TotalDepth, UpperPycnocline, WaveHeight, WindDirection, and WindSpeed.

The entity Water_Quality_Data is comprised of the attributes: Agency, BiasPC, Cruise, Depth, Details, EventId, Lab, Latitude, Layer, Longitude, LowerPycnocline, MeasureValue, Method, MonitoringStation, Parameter, PrecisionPC, Problem, Program, Project, Qualifier,

SampleDate, SampleReplicateType, SampleTime, SampleType, Source, Station, TotalDepth, Unit, and UpperPycnocline.

Entity_and_Attribute_Detail_Citation:
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, 2017 - June 30, 2018 [http://eyesonthebay.dnr.maryland.gov/eyesonthebay/documents/MdDNR_MTQAPP2017.pdf].

An updated data dictionary is a Chesapeake Bay Program work in progress.

Distribution_Information:
Distributor:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Mike 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: 71403
Country: USA
Contact_Voice_Telephone: 410.267.5785
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: 3.6
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 through the Chesapeake Bay Programs CIMS data hub. Select Water Quality Database (1984-Present). Access the data by following instructions on the web site (see Network Resource Name).
Fees: None

Metadata_Reference_Information:
Metadata_Date: 20180719
Metadata_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Ben Cole
Contact_Organization: Maryland Department of Natural Resources, Resource Assessment Service
Contact_Position: Natural Resource Biologist
Contact_Address:
Address_Type: Mailing and Physical
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: benjamin.cole_nospam_@maryland.gov [Remove _nospam_ for valid email address]
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998