Maryland CORE/Trend Water Quality Monitoring Program – 2019

Metadata:

Identification_Information:
Citation:
Citation_Information:
Originator: Maryland Department of Natural Resources (MD DNR), Resource Assessment Service.
Publication_Date: 20200420
Title: MD DNR 2019 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, 2019 - June 30, 2020 [http://eyesonthebay.dnr.maryland.gov/eyesonthebay/documents/WQ_chemical.physical_QAPP2019.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].

Methods and Quality Assurance for Chesapeake Bay Water Quality Monitoring Programs. Chesapeake Bay Program, May 2017, CBP/TRS-319-17 [https://www.chesapeakebay.net/documents/CBPMethodsManualMay2017.pdf].

Time_Period_of_Content:
Time_Period_Information:
Range_of_Dates/Times:
Beginning_Date: 20190102
Ending_Date: 20191211
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). 2020. GCMD Keywords, Version 9.1 Greenbelt, MD: Earth Science Data and Information System, Earth Science Projects Division, 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>OCEANS>SALINITY/DENSITY>PYCNOCLINE

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

Theme_Keyword: EARTH SCIENCE>TERRESTRIAL HYDROSPHERE>SURFACE WATER>SURFACE WATER PROCESSES/MEASUREMENTS>WATER DEPTH

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

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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

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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: Acknowledgement of the MD Department of Natural Resources, Resource Assessment Service as a data source, in products developed from these data, would be appreciated. Please use the following citation: Maryland Department of Natural Resources, Resource Assessment Service. Eyes on the Bay. URL: [http://www.eyesonthebay.net].

Point_of_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Scott Stranko
Contact_Position: Monitoring and Nontidal Assessment Director, Resource Assessment Service
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 2018 Station Map: [http://eyesonthebay.dnr.maryland.gov/eyesonthebay/documents/metadata/MdDNR_2019_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 (MDH) analyzed samples for most of the CORE Trend sites.

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

The USGS Ohio-Kentucky-Indiana 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 are 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, 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 (MDH) 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 2019: River levels were high at stations: MON0155, CAC0031, POT1596, POT1595, MON0020, POT1472 and POT1471. Water was flowing through open Conowingo Dam floodgates when samples were collected at station CB1.0. High water levels were noted at stations POT2386, ANT0366 and CON0180. Signs of recent bank flooding were evident at station ANT0366. The bridge at station CON0005 was almost completely blocked with trash and debris. A portable toilet was seen among the flotsam. The water was clear at station BDK0000. Snow fell over the weekend and the day prior to sampling at station NBP0534. The station POT2386 sample collection area was underwater when samples were collected. Rain fell the night before station TF1.0 was sampled. Soil boring activities, related to new pump station construction, were underway upstream during sample collection at station WIL0013.

February 2019: Ice was noted along the shorelines when samples were collected at stations DER0015 and GUN0476. Ice extended 15 feet from the shore upstream of station MON0528. Bridge construction continued while station MON0020 was sampled. Due to equipment issues, station POT1184 gage and discharge values were acquired an hour after sampling. Snowmelt was noted to have occurred during the days prior to sampling at station NBP0461.

March 2019: Rain fell heavily two days prior to sample collection at station ET.5.0. Ice affected discharge at stations BPC0035, CAC0148 and MON0528. The air temperature was cool enough to freeze sample water in filtration frits at station MON0528. When stations POT2386 and ANT0366 were sampled the ground was snow covered and air temperatures during the preceding days was noted to be very cold. The majority of the upstream side of the bridge at station CON0005 was blocked with debris. The water level was high when station NBP0023 samples were collected and notable snowmelt occurred during the days prior to sampling.

April 2019: The effects of heavy rainfall two days before sampling were noted at the following stations BDK0000, GEO0009, NBP0023, NBP0103, NBP0326, NBP0461, NBP0534, NBP0689, POT2766, SAV0000, and TOW0030. Construction activities continued at the bridge at station MON0020 where the sample bucket was filled by the construction crew. Fish-stocking was occurring nearby when samples were collected at station WIL0013.

May 2019: Heavy rain fell in the days preceding sampling at station POT2386 where the water was dirty and the river level was high. Weekend storms were thought to be have resulted in high water levels at stations ANT0203, ANT0366, CON0180 and CON0005. Two thirds of the bridge at station CON0005 Bridge were blocked by debris and the water was dirty. Rain showers fell during the morning before station TF1.0 was sampled. The waters at station BDK0000 were characterized as being relatively clear for Braddock Run. Lots of rain fell during the week before station SAV0000 sampling was conducted.

June 2019: Debris blocked the majority of the bridge at station CON0005 and waters were murky. Light rains occurred in the hours prior to sampling at station ET5.0. Overnight rains preceded sample collection at stations NBP0689 and SAV0000.

July 2019: Bridge work at station ANT0203, with an estimated completion date of February 2020, was close to starting. Most of the bridge at station CON0005 was blocked with debris but both ends were open. The MON0020 water sample was collected by wading and processed at the Dickerson post office. Station POT1471 samples were collected from the river bank. At station POT2386 the water level was high and the water color was brown. Braddock Run waters at station BDK0000 were clear. Station YOU1139 samples were collected from the bank.

August 2019: Station ANT0366 samples were collected from the bank. Water flowed past both ends of the bridge at station CON0005 but the majority of the bridge was blocked with debris. A large dog swimming at station CAC0148 may have affected the water quality. Station MON0020 water samples were collected under the bridge and processed at the Dickerson Post

Office. There was lots of algae in the creek at station TOW0030. A duplicate water sample was collected at the surface at station XGG8251. The water was low at station LY0004.

September 2019: The station DER0015 gage height was estimated due to equipment malfunction. Overnight thunderstorms preceded water sample collection at station GUN0476 where the water color was brown. The river level at station CAC0031 was very low. Station CJB0005 samples were processed at Lock 6. The river was very low at station POT1471. Bridge construction was ongoing upstream and geese were in the water when station ANT0203 samples were collected from the bank. A USGS field crew was recording flow readings when the DNR field crew collected samples at station CAS0479. There was lots of algae in the creek at station TOW0030. The water at station NBP0689 was very low and ultra-clear.

October 2019: The water level was low at station GUN0258. Rainfall preceded sampling at stations POT2386, CON0180, CON0005 and ANT0366. The station MON0020 water sample was collected by wading in fast flowing water. The hydrograph was rising due to rain at station CAS0479. Rain fell early on the morning station NBP0023 samples were collected. Station NBP0103 samples were collected at the ramp. Rainfall preceded sampling at station POT2766. The water level at station YOU0925 was rising due to rain. The river water level was low at station LYO0004 and samples were collected from the river bank. Station NBP0326 samples were collected from the river bank upstream of the bridge. The water at station NBP0461 was very clear. There were fishermen upstream when station NBP0534 samples were collected. The water at station NBP0689 was super clear. When samples were collected at station SAV0000, the water was not clearing and appeared to have been stirred up upstream.

November 2019: The water at station ANT0366 was crystal clear. The dam was discharging when samples were collected at station CB1.0. The station MON0020 water sample was collected by wading into the river. The station POT1471 sample was collected from the bank. The station POT1472 samples were collected from the ferry. Two gates were open at the dam at station PXT0809 and the water was brown. The water was orange at station BDK0000 and there was lots of algae. There was ice around rocks and on the edges of the creek at station CAS0479. Sediment buildup at station NBP0023 resulted in no flow on the Maryland side. The Braddock River heavily influenced the creek when sampling was conducted at station WIL0013.The air at station NBP0326 was dusty due to corn harvesting and smelled fishy. There was algae on rocks at station SAV0000.

December 2019: Light overnight showers fell prior to sampling at stations CB1.0, DER0015 and GUN0258. Early morning showers preceded sampling at station GUN0476. Two thirds of the bridge at station CON0005 was blocked by debris. There was dredging in the river when station ANA0082 samples were collected. Overnight rain fell before sampling at stations CAC0031, MON0020, MON0155, POT1184, POT1471, POT1472, POT1595, POT1596 and SEN0008. Station MON0020 samples were collected from the bridge. Rain fell the day and night prior to sampling at station BDK0000 and the water was orange and without sediment from the rain. Station NBP0023 and station NBP0103 waters were clear. The water at station TOW0030 was clear. Rain fell all the previous day and overnight prior to station YOU0925 sample collection. Two days of rainfall preceded sampling at stations LYO0004, NBP0689, SAV0000 and YOU1139.

Logical_Consistency_Report:

The coordinates of station NBP0534 samples were changed. Prior to September 2019 samples were collected at 39.479227035, -79.068023937. September 2019 and later monthly samples were collected at 39.479942, -79.068339.

January 2019: Station MON0020 water samples were collected from the construction platform under the bridge. The station CB1.0 gate was locked and samples were collected from the trail. Station POT2766 samples were collected under the bridge.

February 2019: Station CON0180 samples were collected slightly downstream of the gage. The sample water collection bucket was filled by a construction crew at station MON0020.

March 2019: The sample water collection bucket was filled by a construction crew at station MON0020. Station NBP0326 water samples were collected from the bank just upstream of the bridge.

April 2019: The sample water collection bucket was filled by a construction crew at station MON0020. Station NBP0326 water samples were collected just upstream of the bridge. The station POT2766 water samples were also collected upstream of the bridge.

May 2019: Bridge construction was not underway at station MON0020 and samples were collected from under the bridge on the South bank. Water samples were collected from the center of the WIL0013 Bridge. Station POT2766 samples were collected upstream from the bridge. Station NBP0534 were collected from the bank upstream on the opposite side from the usual sample collection site.

June 2019: Station MON0020 water samples were collected from the construction catwalk on the downstream side of the bridge. Station POT2766 samples were collected from the pebble beach area upstream of the bridge. Station NBP0534 samples were collected from bank of river, on the opposite side of normal sampling area. Station NBP0326 water samples were taken from under the bridge.

July 2019: Samples were taken from under the bridge at station NBP0326. Station NBP0534 water samples were collected from the river bank on the opposite side from the normal sampling location. The station POT2766 water samples were collected upstream of the bridge at Pebble Beach. Due to bridge work at station YOU0925, the samples were collected on the upstream side of the bridge.

August 2019: Station NBP0534 samples were collected from the bank at Bloomington on the opposite side from the normal sampling site. Due to construction activities, station ANT0203 water samples were collected from the river bank downstream of the bridge. Station CON0180 samples were collected from the weir. Station POT1471 was sampled from Pebble Beach. Station POT1471 was sampled from the ramp. The water level was low at station YOU0925 and, due to bridge construction, water samples were collected from the river bank downstream of the bridge. Station NBP0326 samples were collected from the riverbank under the bridge. Station YOU1139 water samples were collected from the riverbank.

September 2019: Station NBP0534 sample collection was conducted on the opposite side of the river from the normal site. Station MON0020 samples were collected on the other side of the bridge above the debris field and construction. Debris extended across the creek at station CON0005 where samples were collected at a small opening on the lower eastern shore. Water samples at stations CON0180, POT2386 and BDK0000 were collected at the weirs. The water levels under the bridges at stations NBP0023 and LYO0004 were low and samples were collected from the bank. Station POT2766 samples were collected upstream of the bridge. Bridgework at station YOU0925 necessitated downstream sample collection from the river bank. Station NBP0326 samples were collected from the river bank under the bridge.

October 2019: Station NBP0534 samples were collected at coordinates: 39 479942,-79.068339. Bridge construction continued at station ANT0203 and samples were collected from the creek bank in clear water downstream of the bridge. Station ANT0366 samples were collected from the bank. The river was very low at station CB1.0 and samples were collected at the dam. Debris stretched across the creek at Station CON0005 and waters samples were collected at a small opening on the lower eastern shore. Station POT1471 samples were collected on the Maryland side from the boat ramp. Station POT2766 samples were collected from Pebble Beach upstream of the bridge.

November 2019: Station NBP0534 samples were collected at coordinates 39.479942 -79.068339. Station ANT0203 water samples were collected downstream of the bridge from the bank due to continuing bridge construction. Debris extended across the river at station CON0005 and the sample was collected at an opening on the left side of the bridge. Station XGG8251 samples were taken from the boat ramp area. Station POT2766 was sampled upstream of the bridge from the Pebble Beach area. The station WIL0013 sample was taken on the lower eastern shore to lessen the influence of The Braddock River.

December 2019: Station NBP0534 samples were collected at coordinates 39.479942 -79.068339. Station ANT0203 water samples were collected downstream of the bridge from the bank due to continuing bridge construction. Station CON0180 samples were collected slightly downstream of the gage. The station POT2386 sample was collected downstream from the ramp because the bridge to the park was closed to vehicles until further notice. The station POT2766 sample was collected upstream of the bridge at the Pebble Beach area.

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 2019: Station CB1.0 was not sampled due to ice and snow on the boat ramp and rocks.

March 2019: Station POT2766 gage height and flow were not logged due to gage equipment failure.

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

HydroLab and YSI sondes were maintained and calibrated before and after each survey in accordance with manufacturer's recommendations.

WATER COLUMN 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 MDH DES ECL LABORATORY ANALYSIS

Maryland Department of Health, Division of Environmental Sciences, Environmental Chemistry 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 MD Center for Environmental Science Chesapeake Biological Laboratory (CBL), Nutrient Analytical Services Laboratory (NASL), Solomons, MD, analyzed chlorophyll, Phaeophytin, 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 (MDH) laboratory in Baltimore, MD. Sulfate analyses were performed by DHMH Western Maryland Regional Laboratory 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 Brady
Contact_Position: Physical Scientist
Contact_Address:
Address_Type: mailing and physical
Address: Ohio-Kentucky-Indiana Water Science Center, 6460 Busch Blvd Suite 100
City: Columbus
State_or_Province: Ohio
Postal_Code: 43229-1753
Country: USA
Contact_Voice_Telephone: 614.430.7760
Contact_Electronic_Mail_Address: ambrady_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 MDH 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 2019.

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

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 Optical_Density is comprised of the attributes: Agency, BiasPC, Cruise, Depth, Details, EventId, HUC8, Lab, Latitude, Layer, Longitude, LowerPycnocline, MeasureValue, Method, Parameter, PrecisionPC, Problem, Program, Project, Qualifier, SampleDate, SampleReplicateType, SampleTime, SampleType, Source, Station, TotalDepth, Unit and UpperPycnocline.

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 Water_Quality_Data is comprised of the attributes: Agency, BiasPC, Cruise, Depth, Details, EventId, HUC8, Lab, Latitude, Layer, Longitude, LowerPycnocline, MeasureValue, Method, Parameter, PrecisionPC, Problem, Program, Project, Qualifier, SampleDate, SampleReplicateType, SampleTime, SampleType, Source, Station, TotalDepth, Unit and UpperPycnocline.

Entity_and_Attribute_Detail_Citation:

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 version of the 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, 2019 - June 30, 2020 [http://eyesonthebay.dnr.maryland.gov/eyesonthebay/documents/WQ_chemical.physical_QAPP2019.pdf].

Methods and Quality Assurance for Chesapeake Bay Water Quality Monitoring Programs. Chesapeake Bay Program, May 2017, CBP/TRS-319-17 [https://www.chesapeakebay.net/documents/CBPMethodsManualMay2017.pdf].

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 _no_spam_ 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: Monitoring Event, Optical Density, Station Information and Water Quality data.
File_Decompression_Technique: No compression applied
Transfer_Size: 3.4
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: 20200421
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