Maryland CORE/Trend Water Quality Monitoring Program – 2020

Metadata:

Identification_Information:
Citation:
Citation_Information:
Originator: Maryland Department of Natural Resources (MD DNR), Resource Assessment Service.
Publication_Date: 20210413
Title: MD DNR 2020 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-four stations for a time period beginning January 1986 and extending to the present. Fifty-three of the stations are in non-tidal waters. One station (XGG8251) is in tidal waters.

Due to the COVID-19 pandemic and associated state of emergency in the State of Maryland, all field-related activities were suspended by MD DNR on 13-Mar-2020, including sampling surveys planned by the CORE/Trend Water Quality Monitoring Project. MD DNR resumed monitoring and field activities on 26-May-2020, and CORE/Trend sampling resumed in June 2020 as scheduled.

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.
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.

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].

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, 2020 - June 30, 2021
[http://eyesonthebay.dnr.maryland.gov/eyesonthebay/documents/QAPP_MT_2020-2021_wApp.pdf].

Maryland Department of Natural Resources. Section 106, Ambient Water Quality Monitoring (CORE/Trend Monitoring), Quality Assurance Project Plan. May 24, 2019.
[http://eyesonthebay.dnr.maryland.gov/eyesonthebay/documents/MDNR106draftQAPP_1920.pdf].

Time_Period_of_Content:
Time_Period_Information:
Range_of_Dates/Times:
Beginning_Date: 20200106
Ending_Date: 20201214
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). 2021. GCMD Keywords, Version 10.1. 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://wiki.earthdata.nasa.gov/display/gcmdkey].
Theme_Keyword: EARTH SCIENCE>BIOSPHERE>ECOLOGICAL DYNAMICS>ECOSYSTEM FUNCTIONS>NUTRIENT CYCLING
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Place:
Place_Keyword_Thesaurus: User Defined Keyword List
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Place_Keyword: Hydrologic Unit
Place_Keyword: Major Watershed/Basin
Place_Keyword: Subbasin
Place_Keyword: Tributary
Place:
Place_Keyword_Thesaurus: Common geographic areas
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Place_Keyword: Harford County
Place_Keyword: Howard County
Place_Keyword: Montgomery County
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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 2020 Station Map: [http://eyesonthebay.dnr.maryland.gov/eyesonthebay/documents/metadata/MdDNR_2020_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 station 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.

ADDITIONAL COMMENTS
January 2020: Snow flurries were reported during sampling at station BPC0035. One inch of snow was on the ground at sample sites CAC0031, POT1471, and POT1472, and one half inch of snow was present at stations MON0155, POT1595, POT1596. Bridge work continued at station ANT0203, and the clouds were thin. Thin clouds were also reported at stations ANT0366 and POT2386. Snow fell on 7-Jan, two days before sampling took place at stations CB1.0, DER0015, GUN0258, GUN0476, GWN0115, JON0184, NPA0165, PAT0176, and PAT0285. At station CON0005, two-thirds of the bridge area was blocked by debris. Possible sample contamination by road salt was reported at station GWN0115. It rained the weekend prior to sampling at stations CAS0479, POT2766, YOU0925, and YOU1139. In addition to the weekend rain, rain fell the day before sampling at station YOU1139, and the day of sampling at station

POT2766. Low fog was also present at station YOU1139. It was raining during sampling at station CAS0479, and drizzling at station CCR0001. At stations GEO0009 and SAV0000, the water was described as clear. Station LYO0004 was sampled during foggy conditions, and the water level was high. At station NBP0461, beautiful spring-like weather conditions were reported.

February 2020: At station ANT0203, the bridge was under construction and geese were on site during sampling. Logs and debris blocked two-thirds of the bridge area at station CON0005, a condition that was noted as having been present for over a year. At stations ANA0082, CJB0005, POT1184, PXT0809, PXT0972, and RCM0111, an uncalibrated meter was used to collect readings, however the meter post-calibrated within acceptable limits upon returning to the office. The water was brown at stations GWN0115 and NPA0165, and conditions were reported as storm impacted. Rain the day before sampling caused high water levels at stations CAS0479 and YOU0925. While sampling at station CCR0001, very foggy conditions were noted around the lake area. The water level was high during sampling at stations CCR0001, NBP0023, NBP0103, POT2766, WIL0013, and NBP0689. At stations NBP0023, NBP0103, POT2766, WIL0013, LYO0004, and YOU1139, snowmelt and rain occurred in the days prior to sampling. Dirty water was reported at station YOU0925, and the water was clear at station GEO0009. At station XGG8251, the Secchi disk depth measurement was greater than the total depth.

March 2020: Bridge work was ongoing at station ANT0203 and geese were present upstream during sampling. Foggy conditions were reported at stations CB1.0 and DER0015. The bridge at station CON0005 was blocked by debris. Rain fell earlier in the day at stations ANT0203 and CON0180. Rain occurred the night before samples were collected at stations CB1.0, DER0015, GUN0125, GUN0258, GUN0476, GWN0115, JON0184, NPA0165, PAT0176, PAT0285, ANT0044, BPC0035, CAC0148, MON0269, MON0528, POT1830, and NBP0689. The land at station CAC0031 showed evidence of recent landscaping work. It was unseasonably warm during sampling at station SEN0008. Algae were present in the creek at station BDK0000. Stations BDK0000, CCR0001, and TOW0030 were sampled during drizzling rain. Station NBP0023 reported the sounds of spring peepers in the distance. The area near station NBP0103 was closed to the public due to tree work. The ground was wet at stations POT2766 and NBP0689 due to earlier rain. At station WIL0013, the inflowing water from Braddock Run was visibly evident along the right side of the stream. The wind was picking up when station YOU0925 was sampled. The water was clear at station GEO0009. Possible Didymo was observed covering the rocks at station SAV0000. At station YOU1139, morning fog and dirty water were reported, with rain having occurred the day before.

April 2020: No sampling due to the COVID-19 pandemic.

May 2020: No sampling due to the COVID-19 pandemic.

June 2020: Most of the turbines were on during sampling at station CB1.0, and the stream gage was reported as 12.42ft at 9:15am EST. Bridge work was complete at station ANT0203. A ProDSS instrument was used to measure pH at stations ANT0203 and CON0180. Kayaks were reported nearby during sampling at station ANT0366. At stations CON0005, POT2386, and ANT0366, instrument post-calibration for pH was outside of acceptable limits, but the data

appeared normal. At station CON0005, the large pile of debris that was present during the previous sampling had been removed, with just a small pile of debris remaining at the center of the bridge. A construction crew was on site at station MON0020, and the foreman collected the sample. There was sediment in the bottom of the bucket with the sample collected at station MON0020. When station POT2386 was sampled, there was pollen on the water surface. Algae were observed covering the rocks at station BDK0000. Thin clouds were reported at stations BDK0000, CAS0479, CCR0001, NBP0023, NBP0103, and POT2766. The water appeared tannic at station CCR0001. The water at station GEO0009 appeared clearer than usual. An earlier rain shower had tapered to a sprinkle at the time station NBP0326 was sampled. Weather conditions were hot at station NBP0534.

July 2020: USGS personnel were on site during sampling at station ANT0044. Rain occurred the night before samples were collected at stations CAC0031, MON0020, MON0155, POT1471, POT1595, POT1596, and SEN0008. The water surface appeared foamy at station CB1.0. Stations GUN0125, JON0184, NPA0165, PAT0176, and PAT0285 reported thunderstorms earlier in the day. Early morning rain was reported at stations PXT0809, PXT0972, and RCM0111. Low water levels and slow currents were observed at stations CCR0001 and YOU0925. At station NBP0103, the water appeared murky. The water level was very low at station LYO0004. At station NBP0326, erosion near the bridge abutments created thick, loose sediments along the shore. Fishermen were in the area during sample collection at station NBP0461. Bright sunshine and very clear water were reported at station NBP0534. A low water level and clear water were observed at station NBP0689.

August 2020: Sampling occurred the day after (5-Aug) tropical storm Isaias at stations BPC0035, CAC0148, ANT0044, POT1830, MON0528, POT1184, CON0180. ANT0366, POT2386, CON0005, ANT0203, and MON0269. Overnight rain occurred at stations GWN0115, NPA0165, PAT0285, JON0184, PAT0176, GUN0125, and were sampled two days after tropical storm Isaias. Clear water and algae were observed on nearby rocks at BDK0000. Inflow from Braddock Run was observed influencing water across the creek at station WIL0013. The current was slow and water level low at CCR0001, and mowing was occurring nearby. There was a slow moving current and SAV in the water at TOW0030. Water level was low at YOU1139, while water was crystal clear at NBP0689. Abundant algae was observed, possibly filamentous, at GEO0009. Hazy weather conditions existed at station ET5.0.

September 2020: Morning rain was observed at stations PXT0972, POT1595, POT1184, CAC0031, MON0155, POT1596, SEN0008, MON0020, POT1471, and POT1472. The Park Service broke up a homemade dam near station PXT0972 immediately prior to sampling. The bucket sample at MON0020 appeared contaminated by bottom sediment. The sample at NBP0023 was processed in the C&O Canal parking area. Station NBP0103 was sampled at boat ramp amongst many fish, and station NBP0534 was sampled at its original location. Heavy fog was observed at YOU1139. Water was shallow at SAV0000 making it difficult to get a full bucket without touching the rocks. Air temperature was taken from a thermometer hung from the guardrail at NBP0326.

October 2020: An abundance of trash was observed at station CON0180. The thermometer was hung from the back door of the van to obtain temperature readings at stations POT2386 and

ANT0203. The sample was collected in person (not by construction personnel) at MON0020. Shallow water was seen at CAC0031. The river level was high at station ET5.0 with a tree fallen downstream. Rocks were covered in algae at BDK0000. There was a smell of sewage, and a fisherman in the area at station CAS0479. Secchi disk depth was greater than total depth at XGG8251. Water was clear at NBP0689 with many leaves floating on the surface. Algae were observed at GEO0009. Station NBP0326 had windy conditions during sampling.

November 2020: A Hydrolab pH of 7.9 was recorded at station GUN0476. Fog was observed at stations DER0015 and CB1.0. Windy conditions existed during sampling at CAS0479, CCR0001, NBP0689, and NBP0461, and it was snowing when samples were collected at YOU1139. Braddock Run flow was limited to the right edge of the stream at WIL0013. Station WIL0013 was sampled close to the bridge abutment. A green tint was seen in the water at BDK0000. Station NBP0534 was sampled at its original location. Algae were observed on the rocks at CON0180.

December 2020: Snow flurries were observed at stations CAS0479 and LYO0004. The water was slightly turbid from snowmelt at WIL0013. The water level was high at YOU1139. Algae were observed on the rocks at GEO0009. Dissolved oxygen readings were taken with a Pro DSS YSI instrument at stations ANT0366, POT2386, CON0180, CON0005 and ANT0203. Secchi disk depth was greater than total depth at XGG8251.

Logical_Consistency_Report:

In September 2019, difficulty getting to the sampling area at station NBP0534 prompted the establishment of an alternative sample site on the opposite side of the river. Prior to September 2019, samples were collected at 39.479227035, -79.068023937. The alternative site for station NBP0534 has coodinates 39.479942, -79.068339, and is referred to as the "new location" in the comments below.

ADDITIONAL COMMENTS

January 2020: The sample at station MON0020 was collected in flowing water while standing on the bridge. Station ANT0203 was sampled downstream of the bridge. At station POT2386, the bridge to the park was closed, so the sample was collected downstream of the ramp. Station NBP0534 was sampled at the new location.

February 2020: Station ANT0203 was sampled downstream of the bridge. Station POT2386 was sampled at the boat ramp due to the bridge being closed to vehicular traffic. At station NBP0326, the sample was collected from the bank under the bridge. Station SAV0000 was sampled from the stream bank.

March 2020: Station ANT0203 was sampled downstream. Station CON0005 was sampled on the right side of the bridge, facing upstream. Station CON0180 was sampled downstream from the stream gage. Due to construction activities, station NPA0165 was sampled at the bridge near the entrance to the site. Due to the bridge being closed to vehicles, station POT2386 was sampled next to the large tree downstream of the ramp. The sample at station MON0020 was collected in flowing water from the right side of the stream, facing downstream. Station POT2766 was sampled from the beach area upstream of the bridge. Station WIL0013 was sampled in the center

of the creek. Station NBP0326 was sampled from the bank under the bridge. Station NBP0534 was sampled at the original location.

April 2020: No sampling due to the COVID-19 pandemic.

May 2020: No sampling due to the COVID-19 pandemic.

June 2020: Station ANT0203 was sampled from the streambank. Station ANT0366 was sampled upstream of the bridge. Station CAC0031 was sampled from the bridge. A construction crew was on site at station MON0020, and the construction foreman collected the sample with a bucket. Station POT0236 was sampled from the boat ramp due to the bridge being closed to vehicles. The sample at station POT2766 was collected from upstream of the bridge. At station LYO0004, the sample was collected from the upstream side of the bridge because the water was too shallow downstream.

July 2020: Station ANT0203 was sampled from the bank upstream of the bridge. The park at station POT2386 was closed to vehicles, so the sample was collected from the original sample area. Station NBP0534 was sampled at the new location.

September 2020: CAS0479 was sampled from the rocks in the river's center. Station NBP0689 was sampled upstream near the bridge due to a road block.

November 2020: Station NBP0326 was sampled from the river bank at the bridge. Station CON0180 was sampled downstream of the gage. Station POT2386 was sampled from the rock outcropping because the bridge was closed. At station CON0005, an island was forming in the creek at the center of the bridge, so the sample was taken on the left edge of the stream.

December 2020: The sample at station MON0020 was taken on the upstream side of the bridge because of a debris field blocking the path. The water sample taken at WIL0013 was from water distinctive from nearby Braddock Run, therefore the sample was collected closer to the bridge abutment. Station CON0180 was sampled at the weir. Station ANT0203 was sampled downstream of the bridge from the riverbank.
There were no known logical consistency issues for August and October 2020.

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, 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 samples are collected at the following subset of CORE\Trend stations: CCR0001, GEO0009, LYO0004, NBP0023, NBP0103, NBP0461, NBP0534, TOW0030, and YOU0925.

Due to the COVID-19 pandemic and associated state of emergency in the State of Maryland, all field-related activities were suspended by MD DNR on 13-Mar-2020, including sampling surveys planned by the CORE/Trend Water Quality Monitoring Project. CORE/Trend sampling for March 2020 had already been completed at the time of the interruption and was unaffected. No CORE/Trend samples were collected during April-May 2020. MD DNR resumed monitoring and field activities on 26-May-2020, and CORE/Trend sampling resumed in June 2020 as scheduled.

ADDITIONAL COMMENTS

April 2020: No sampling due to the COVID-19 pandemic.

May 2020: No sampling due to the COVID-19 pandemic.

June 2020: Air temperature was not recorded at stations GUN0125 and JON0184 due to a lost thermometer.

July 2020: Due to lack of funding, gage data were not available at station NPA0165. Station POT1472 was not sampled because the ferry was closed due to high water.

There were no known completeness issues in January, February, March, August, September, October, November, and December 2020.

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 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: Cynthia Stevenson
Contact_Position: Supervisor, Inorganics/Air Quality Laboratories
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: 433.681.3851
Contact_Electronic_Mail_Address: cynthia.stevenson_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 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, TierLevel, TotalDepth, UpperPycnocline, WaveHeight, WindDirection and WindSpeed.

The entity Optical_Density 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, TierLevel, 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, Lab, Latitude, Layer, Longitude, LowerPycnocline, MeasureValue, Method, MonitoringStation, Parameter, PrecisionPC, Problem, Program, Project, Qualifier, SampleDate, SampleReplicateType, SampleTime, SampleType, Source, Station, TierLevel, 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, 2020 - June 30, 2021 [http://eyesonthebay.dnr.maryland.gov/eyesonthebay/documents/QAPP_MT_2020-2021_wApp.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 _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: 20210727
Metadata_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Mark Trice
Contact_Organization: Maryland Department of Natural Resources, Resource Assessment Service
Contact_Position: Program Chief, Water Quality Informatics
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: mark.trice_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