Maryland CORE/Trend Water Quality Monitoring Program – 2024

Metadata:

Identification_Information:
Citation:
Citation_Information:
Originator: Maryland Department of Natural Resources (MD DNR), Resource Assessment Service.
Publication_Date: 20250508
Title: MD DNR 2024 Core/Trend Water Quality Monitoring Project
Geospatial_Data_Presentation_Form: Spatial database
Online_Linkage:
[https://www.chesapeakebay.net/what/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-two stations for a time period beginning January 1986 and extending to the present. Fifty-one 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:
Core/Trend stations GEO0009, WIL0013, TOW0030, ANT0366, CAC0148, PXT0972, NPA0165, GWN0115, GUN0258, and DER0015 are also used as sampling locations for the Maryland Non-Tidal Network Monitoring Program. The Non-Tidal Network Monitoring

Program collects baseflow and stormflow samples to aid in the determination of nutrient and sediment loads to the Chesapeake Bay. Details of the Non-Tidal Network Monitoring Program can be found here:
[https://eyesonthebay.dnr.maryland.gov/eyesonthebay/documents/MD117eQAPPSept2023.pdf]

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. [https://d18lev1ok5leia.cloudfront.net/chesapeakebay/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. [https://d18lev1ok5leia.cloudfront.net/chesapeakebay/documents/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
[https://d18lev1ok5leia.cloudfront.net/chesapeakebay/documents/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://d38c6ppuviqmfp.cloudfront.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, May 2023
[https://eyesonthebay.dnr.maryland.gov/eyesonthebay/documents/MdDNR_MTQAPP_May2023.pdf].

Maryland Department of Natural Resources Quality Assurance Project Plan for the Chesapeake Bay Tidal and Non-tidal Monitoring Programs Long-term Trends Analysis Methods Version 1, July 2023
[https://eyesonthebay.dnr.maryland.gov/eyesonthebay/documents/MD117e_QAPP_TrendsAnalysis_July2023.pdf].

Time_Period_of_Content:
Time_Period_Information:
Range_of_Dates/Times:
Beginning_Date: 20240103

Ending_Date: 20241211
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). 2025. GCMD Keywords, Version 21, 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://forum.earthdata.nasa.gov/app.php/tag/GCMD+Keywords].
Theme_Keyword: EARTH SCIENCE>BIOSPHERE>ECOLOGICAL DYNAMICS>ECOSYSTEM FUNCTIONS>NUTRIENT CYCLING
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Theme_Keyword: EARTH SCIENCE>TERRESTRIAL HYDROSPHERE>SURFACE WATER>SURFACE WATER FEATURES>RIVERS/STREAMS
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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>WATER CHARACTERISTICS>PHOSPHOROUS COMPOUNDS
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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_Keyword: Ohio River
Place:
Place_Keyword_Thesaurus: USGS 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.
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, C2
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 2024 Station Map: [https://eyesonthebay.dnr.maryland.gov/eyesonthebay/documents/metadata/MdDNR_2024_Core_TrendStns.pdf]. If the map URL raises a file not found error, drill down from [https://eyesonthebay.dnr.maryland.gov/].
Browse_Graphic_File_Description: Fifty-two 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, pheophytin, chloride and sulfate samples.

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 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 2024: There was significant snowfall on Monday and Tuesday prior to sampling ANT0203, ANT0366, CON0180, and POT2386; with snow still reported to be on the ground at these stations during sampling. Similarly, heavy snow fell the Friday and Saturday before

sampling the remainder of the Core stations, and snow melt was evident at these stations. The water at BDK0000 was described as being dark orange, however CCR0001 was reported to be less tannic in appearance than usual.

February 2024: A sewage smell was detected at station CB1.0. United States Geological Survey (USGS) was on site at station GUN0258. Very cloudy water was reported at station GWN0115, and hair was seen in the water at ANT0366. Bridge construction and water pumping were in progress at CJB0005 while sampling. It rained Monday night, followed by overnight snow on Tuesday prior to sampling stations LYO0004, NBP0461, NBP0534, NBP0689, SAV0000, YOU1139, POT2766, and TOW0030. Thin and wispy clouds were recorded for stations ANT0203, ANT0366, CON0005, CON0180, POT2386, BDK0000, NBP0023, NBP0103, and POT2766. Hazy conditions were noted at WIL0013 and CCR0001.

March 2024: Noisy geese were on the riverbank upstream from station ANT0203. Rain fell prior to sampling all Core stations this month, with high river water due to the rain recorded for stations CAC0031, MON0155, POT1471, POT1595, and POT1596. Foggy conditions were also reported at those stations, and also at PXT0809, PXT0972, and SEN0008. The water was murky at POT2386 and NBP0326, and described as being high and dirty at NBP0103 and LYO0004.

April 2024: It rained earlier in the day prior to sampling stations ANT0203, ANT0366, CON0005, CON0180, CAS0479, YOU0925, LYO0004, SAV0000, and YOU1139; and heavy rain fell all week prior to sampling stations ANA0082, ANT0044, BPC0035, CAC0031, CAC0148, CJB0005, MON0155, MON0269, MON0528, POT1184, POT1471, POT1595, POT1596, POT1830, RCM0111, SEN0008, DER0015, ET5.0, GUN0125, GUN0258, GUN0476, GWN0115, JON0184, NPA0165, PAT0176, PAT0285, PXT0809, and PXT0972, with high flow was reported at those stations. Thin clouds and hazy conditions were noted at stations BDK0000, CCR0001, NBP0023, NBP0103, POT2766, TOW0030, and WIL0013. The area upstream directly above station SAV0000 was reported to be clearcut, with the water at this station being murky.

May 2024: Very foggy conditions were noted at stations CB1.0 and DER0015; while hazy conditions were reported at stations ANT0366, CON0005, POT2386 and YOU1139. Rain was reported earlier in the day before sampling CAS0479, YOU0925, and CCR0001, and rain fell overnight prior to sampling stations LYO0004 and YOU1139. Clouds were thin and wispy at stations BDK0000, TOW0030, and POT2766. The water was described as being tannic at station CCR0001, murky at YOU0925, and dirty at NBP0103. Pollen was visible in the air at TOW0925.

June 2024: USGS was noted as being on-station while sampling PXT0809. An egg mass was seen on rocks at station POT2386, with small fish visible in the water. Severe storms with heavy rainfall occurred the evening before sampling stations CB1.0, DER0015, GUN0258, GUN0476, GWN0115, JON0184, NPA0165, PAT0176, and PAT0285; high flow was reported at most of these stations. Station BDK0000 was sampled five days later and here the water was reported as shallow, with the water collection bucket hitting the bottom during sample collection.

July 2024: Specific conductivity post-calibrated outside of Quality Assurance/Quality Control range for stations ANT0044, BPC0035, CAC0148, MON0269, MON0528, and POT1830, but the recorded values were deemed reasonable and acceptable. Elodea sp. was seen on both sides of the boat ramp at station NBP01013, filamentous algae was evident at BDK0000, algae was seen in the water at POT2766, and the river was reported to have a green tinge at POT1184. Thin and wispy clouds were noted at stations WIL0013, YOU0925, and POT2766. A sprinkle of rain fell for 20 seconds immediately before the sample was taken at NBP0326. The water level at GUN0125 was very low.

August 2024: The instrument employed for sampling stations RCM0111, ANA0082, CJB0005, PXT0809, and PXT0972 failed prior to post-calibration, however all readings appear normal and acceptable. Hazy conditions were noted at stations NBP0023, XGG8251, and NBP0534. It began to rain while collecting the sample at station POT2386, and at station CON0005 plant matter was reported in the water, presumed to be due to a downpour upstream. The water level was low at BDK0000, CAS0479, and CCR0001, with clearer water conditions being noted at BDK0000 and CCR0001.

September 2024: Low water conditions were reported at stations CAC0031, MON0155, SEN0008, GUN0125, GWN0115, JON0184, NPA0165, CCR0001, YOU0925, LYO0925, and YOU1139. Very clear water conditions were noted at NBP0689 and YOU0925. Algae, snails, and submerged aquatic vegetation (SAV) were observed at POT2766; a large bed of hydrilla was reported at the sampling site at POT2386; and Elodea sp. was visible on both sides of the boat ramp at NBP0103.

October 2024: At station CON0005, half of the bridge was blocked with debris, with an additional foamy build-up of algae and submerged aquatic vegetation (SAV). The remnants of Tropical Depression Helene hit the Potomac watershed over the previous weekend, and water levels were reported to be high at MON0155 and SEN0008, and at minor flood stage at POT1184, POT1471, POT1596, POT1830, and POT1595. A swift water rescue was in progress during sampling POT1595, with many watercraft on-site.

November 2024: Clouds were noted to be hazy at stations GEO0009, NBP0326, NBP0461, and SAV0000. The water was reported to be crystal clear at NBP0689. At station CON0005, all but 10ft of the bridge was blocked by debris. The filter pads from station SAV0000 were noted to be dark green in color.

December 2024: The sampling pads at station BDK0000 were noted to be bright orange. Algae was visible growing on the rocks at station BDK0000, and algae covered the bottom in slow-moving areas at station CON0180 with ice along the edges. Notes report rain while the sample was collected at station POT2766. The bridge at station CON0005 had debris and a foamy build-up blocking three-quarters of the bridge. The water at station YOU0925 was noted to be murky, a plume was seen along the shoreline at POT1471, and at WIL0013 a pipe located on the right shoreline downstream was overflowing into the creek.

Logical_Consistency_Report:

For logistical reasons, station XGG8251, a tidal monitoring station, is routinely sampled as part of the Chesapeake Bay tributary monitoring program. The station is sampled using Core protocols.

ADDITIONAL COMMENTS

January 2024: USGS was reported to be on-station with a chainsaw at CAS0479, and was therefore sampled upstream. Station WIL0013 was sampled from the left eastern streambank due to the presence of brown water stratification from Braddock Run.

February 2024: The sample collected at station BPC0035 was filtered off-site. Station CON0005 was sampled from the left eastern streambank. The sample collected at station CJB0005 was processed off-site at Lock #6.

March 2024: Station CON0180 was sampled from the right streambank, looking upstream. POT2766 was sampled just upstream of the boat ramp. The air temperature reading at station NBP0326 was obtained from a thermometer attached to the guardrail.

April 2024: Station CON0005 was sampled from the left eastern streambank. Station MON0155 was sampled downstream because the park was closed due to flooding from the heavy rains. The sampled collected at station WIL0013 was taken from shore on the lower eastern side, looking downstream. The sample collected at station CJB0005 was processed off-site at Lock #6, and the sample collected at POT1184 was processed at station RCM0111. POT2766 was sampled from under the bridge.

May 2024: Due to bridge construction at CON0005, this station was sampled upstream on Kemps Mill Rd. Stations POT2766 and NBP0326 were both sampled from beneath the bridge.

June 2024: The sample collected at station CJB0005 was processed off-site at Lock #6.

July 2024: Sampling was conducted under the bridge at station POT2766.

August 2024: Sampling was conducted from the streambank at station LYO0004 due to shallow water. NBP0326 was sampled from the streambank under the bridge.

September 2024: The sample from station CJB0005 was processed off-site at Lock #6. Station CON0005 was sampled on the left eastern streambank, looking upstream, as there was a large volume of debris and logs built-up against the bridge. The water was very low at station CCR0001, so sampling occurred on the right streambank downstream from the bridge. The water at CCR0001 was reported to not be very tannic, but there was a lot of sediment on the bottom. Station WIL0013 was sampled from the left eastern streambank, looking downstream, and clothes were seen in the creek during sampling.

November 2024: The parking lot was closed at station ANA0082, so there was a longer walk with the sample bucket than usual. The sample collected at station CJB0005 was processed off-site at Lock #6. Sampling occurred on the downstream side of the bridge at station

BDK0000, due to the low water level. The air temperature reading at station SAV0000 was obtained from a thermometer attached to the guardrail. Discharge data was estimated by USGS at station JON0184.

December 2024: Sampling occurred on the downstream side at station BDK0000, and Station CON0005 was sampled from the lower eastern streambank.

Completeness_Report:

Biological Oxygen Demand samples were 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. However, BOD samples were discontinued in November 2023.

Chloride and sulfate samples were collected at the following subset of Core\Trend stations: CCR0001, GEO0009, LYO0004, NBP0023, NBP0103, NBP0461, NBP0534, TOW0030, and YOU0925 through September 2023, and discontinued thereafter.

Station POT1472 was dropped from the Core monitoring program in October 2022. The station had not been sampled since December 2020 after White's Ferry closed down and access to the Virginia shoreline became unavailable.

Sampling was discontinued at station MON0020 in October 2022. At station MON0020, bridge restoration deleted the roadway shoulders, making sampling from the bridge unsafe. Collecting wading samples at this station was not a viable alternative due to dangerous stream conditions.

ADDITIONAL COMMENTS

February 2024: The whole water bottle was accidentally not filled at CB1.0.

April 2024: Station CB1.0 was unable to be sampled because the road was closed due to flooding from the heavy rains.

August 2024: Discharge data for station PAT0285 was not available at collection time as the values were affected by backflow.

October 2024: Specific conductance was accidentally not recorded at station CB1.0.

November 2024: Due to a broken thermometer, air temperature was not recorded at stations CAC0031, MON0155, POT1471, POT1595, POT1596, and SEN0008.

December 2024: No air temperature was recorded at station NBP0326, as the thermometer was accidentally left behind. No discharge data could be recorded at MON0528 or BPC0035 because the gage was affected by ice.

There were no known completeness issues in January, March, May, June, July, or September 2024.

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, Laboratories Administration, Division of Environmental Sciences, Inorganics 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.

The Maryland Department of Health, Laboratories Administration, Western Maryland Regional Laboratory, Cumberland, MD, analyzed total alkalinity and turbidity for the following stations: CCR0001, CCR0001, YOU0925, CAS0479, WIL0013, BDK0000, NBP0103,

NBP0023, POT2766, TOW0030, YOU1139, LYO0004, NBP0689, NBP0534, SAV0000, GEO0009, NBP0461, NBP0326, ANT0203, ANT0366, CON0180, CON0005, and POT2386.

Process_Date: Unknown
Process_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Lara Phillips
Contact_Position: Supervisor, Inorganics Laboratory
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: 443.681.3863
Contact_Electronic_Mail_Address: lara.johnson_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, 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 (MDH) laboratory in Baltimore, MD. Sulfate analyses were performed by MDH 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 (Jerome) Frank
Contact_Position: Manager, Nutrient Analytical Services Laboratory
Contact_Address:
Address_Type: mailing and physical
Address: University of Maryland Center for Environmental Science, Chesapeake Biological Laboratory, 146 Williams Street, P.O. Box 38
City: Solomons
State_or_Province: Maryland

Postal_Code: 20688
Country: USA
Contact_Voice_Telephone: (410)326-7252
Contact_Electronic_Mail_Address: frank_nospam_@umces.edu[Remove_nospam_for valid email address]

Process_Step:
Process_Description:
VERIFICATION AND DATA MANAGEMENT
Each month DNR Tawes Office and Field Office personnel conducted data QA/QC procedures. All of the water quality calibration "grab" sample data were plotted. Outliers and anomalous values were thoroughly researched. Staff compared unusual values to historic values from the site and values from nearby sites. Weather events were considered, event logs were reviewed and 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: 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]

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, Section 106 Ambient Water Quality Monitoring Program. Project data are an aggregation of data collected at Maryland Core/Trend project stations during 2024.

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, AirTemp, CBSeg2003, CBSegmentShed2009, CloudCover, Cruise, Details, EventId, FieldActivityEventType, FieldActivityRemark, FieldActivitySiteTypeCodeDescription, FIPS, FlowStage, GaugeHeight, HUC8, HUC12, 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, CBSeg2003, CBSegmentShed2009, Cruise, Depth, Details, EventId, FIPS, HUC8, HUC12, 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, CBSeg2003, CBSegmentShed2009, Cruise, Depth, Details, EventId, FIPS, HUC8, HUC12, 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. [https://d18lev1ok5leia.cloudfront.net/chesapeakebay/documents/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, May 2023 [https://eyesonthebay.dnr.maryland.gov/eyesonthebay/documents/MdDNR_MTQAPP_May2023.pdf].

Methods and Quality Assurance for Chesapeake Bay Water Quality Monitoring Programs. Chesapeake Bay Program, May 2017, CBP/TRS-319-17 [https://d38c6ppuviqmfp.cloudfront.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: 1750 Forest Drive, Suite 130
City: Annapolis
State_or_Province: Maryland
Postal_Code: 21401
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 or 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: 3.10
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name:
[https://www.chesapeakebay.net/what/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: 20250618
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