Maryland Chesapeake Bay Tributary Water Quality Monitoring Program – 2013

Metadata:

Identification_Information:
Citation:
Citation_Information:
Originator: Maryland Department of Natural Resources, Resource Assessment Service
Publication_Date: 20140502
Title: MD DNR Chesapeake Bay Tributary Water Quality Monitoring Program 2013
Geospatial_Data_Presentation_Form: Spatial dataset
Online_Linkage: [http://www.chesapeakebay.net/data/index.htm]

Description:
Abstract:
The physical/chemical component of the Maryland Chesapeake Bay Water Quality Monitoring Program consists of water quality monitoring data collected at sixty-nine tributary stations. Samples at all tributary stations are collected monthly. This program assesses the water quality by evaluating the levels of nutrients and closely related habitat impacts such as dissolved oxygen and water clarity. One of the main goals of the Chesapeake Bay restoration is to reduce the impacts of excess nutrients on the Bay and its tributaries and these measurements provide some of the most direct linkages to management programs that are achieving this goal. The Chesapeake Bay Program jurisdictions have agreed to reduce nitrogen, phosphorus and sediment pollution to the Bay.

Note that the number of tributaries project sampling stations was incorrectly listed as 70 in earlier tributaries metadata records.

Purpose:
The Maryland Department of Natural Resources Chesapeake Bay Water Quality Monitoring Program 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 and sediment concentrations in Maryland's Chesapeake Bay mainstem and its tidal tributaries. The information is integrated with data from other 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 tidal rivers from the list of impaired waters.

Supplemental_Information:
The target audiences for this information include Resource Managers, Technical/Scientific Users, Government, Educators, Students and General Public.

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

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

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

The Quality Assurance Project Plan for the Maryland Department of Natural Resources Chesapeake Bay Water Quality Monitoring Program - Chemical and Physical Properties Component for the period July 1, 2013 - June 30, 2014 [http://mddnr.chesapeakebay.net/eyesonthebay/documents/MdDNR_MT2013QAPPv1.4.pdf]

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

Time_Period_of_Content:
Time_Period_Information:
Range_of_Dates/Times:
Beginning_Date: 20130107
Ending_Date: 20131217
Currentness_Reference: Ground Condition
Status:
Progress: Complete
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: Olsen, L.M., G. Major, K. Shein, J. Scialdone, S. Ritz, T. Stevens, M. Morahan, A. Aleman, R. Vogel, S. Leicester, H. Weir, M. Meaux, S. Grebas, C.Solomon, M. Holland, T. Northcutt, R. A. Restrepo, R. Bilodeau, 2013. NASA/Global Change Master Directory (GCMD) Earth Science Keywords. Version 8.0.0.0.0 [online: http://gcmd.gsfc.nasa.gov/learn/keywords.html]

Theme_Keyword: Biosphere > Aquatic Ecosystems > Estuarine Habitat
Theme_Keyword: Biosphere > Aquatic Ecosystems > Rivers/Stream Habitat
Theme_Keyword: Biosphere > Ecological Dynamics > Ecosystem Functions > Nutrient Cycling
Theme_Keyword: Biosphere > Ecological Dynamics > Ecosystem Functions > Primary Production
Theme_Keyword: Terrestrial Hydrosphere > Surface Water > Rivers/Streams
Theme_Keyword: Terrestrial Hydrosphere > Water Quality/Water Chemistry > Chlorophyll
Theme_Keyword: Terrestrial Hydrosphere > Water Quality/Water Chemistry > Conductivity
Theme_Keyword: Terrestrial Hydrosphere > Water Quality/Water Chemistry > Light Transmission
Theme_Keyword: Terrestrial Hydrosphere > Water Quality/Water Chemistry > Nitrogen Compounds
Theme_Keyword: Terrestrial Hydrosphere > Water Quality/Water Chemistry > Nutrients
Theme_Keyword: Terrestrial Hydrosphere > Water Quality/Water Chemistry > Oxygen
Theme_Keyword: Terrestrial Hydrosphere > Water Quality/Water Chemistry > pH
Theme_Keyword: Terrestrial Hydrosphere > Water Quality/Water Chemistry > Phosphorous Compounds
Theme_Keyword: Terrestrial Hydrosphere > Water Quality/Water Chemistry > Suspended Solids
Theme_Keyword: Terrestrial Hydrosphere > Water Quality/Water Chemistry > Turbidity
Theme_Keyword: Terrestrial Hydrosphere > Water Quality/Water Chemistry > Water Temperature
Place:
Place_Keyword_Thesaurus: Producer Defined
Place_Keyword: Chesapeake Bay
Place_Keyword: Maryland
Place_Keyword: Monitoring Segment
Place_Keyword: Tidal Tributaries
Place_Keyword: Back River
Place_Keyword: Big Annemessex River
Place_Keyword: Bohemia River
Place_Keyword: Bush River
Place_Keyword: Chester River
Place_Keyword: Choptank River
Place_Keyword: Corsica River
Place_Keyword: Eastern Bay
Place_Keyword: Elk River
Place_Keyword: Fishing Bay
Place_Keyword: Gunpowder River
Place_Keyword: Little Choptank River
Place_Keyword: Magothy River
Place_Keyword: Middle River
Place_Keyword: Manokin River
Place_Keyword: Nanticoke River
Place_Keyword: Northeast River

Place_Keyword: Patapsco River
Place_Keyword: Patuxent River
Place_Keyword: Pocomoke River
Place_Keyword: Potomac River
Place_Keyword: Rhode River
Place_Keyword: Sassafras River
Place_Keyword: Severn River
Place_Keyword: South River
Place_Keyword: Wicomico River

Temporal:
Temporal_Keyword_Thesaurus: None
Temporal_Keyword: 2013

Access_Constraints: None
Use_Constraints: None
Point_of_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Renee Karrh
Contact_Position: Program Manager
Contact_Address:
Address_Type: Mailing and physical
Address: 580 Taylor Avenue, D2
City: Annapolis
State_or_Province: Maryland
Postal_Code: 21401
Contact_Voice_Telephone: 410 260-8630
Contact_Electronic_Mail_Address: renee.karrh_nospam_@maryland.gov[Remove _nospam_ for valid email address]
Browse_Graphic:
Browse_Graphic_File_Name:
[http://mddnr.chesapeakebay.net/eyesonthebay/documents/metadata/TribsStns2013.pdf]

Browse_Graphic_File_Description: Map of sixty-nine year 2013 Maryland Chesapeake Bay Tributary Water Quality Monitoring Sites.
Browse_Graphic_File_Type: PDF
Data_Set_Credit:
Maryland Department of Natural Resources (MDDNR) Resource Assessment Service (RAS) staff collected the majority of samples and processed the data. The Nutrient Analytical Services Laboratory (NASL) at the Chesapeake Biological Laboratory (Univ. of MD) analyzed chlorophyll, nutrient and suspended solids samples.

The project was made possible with funding provided by The State of Maryland.

Data_Quality_Information:
Attribute_Accuracy:

Attribute_Accuracy_Report:

QUALITY ASSURANCE/QUALITY CONTROL

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

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

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

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

ADDITIONAL COMMENTS

January 2013 - Station TF1.3 Secchi disk depth measurement was made in the sun.

February 2013 - There was an electrical fire on RV Kerhin in January 2013. The continuing smell of the fire was noted in the February Cruise Report. When station TRQ0203 was sampled, deer skin was observed in the water at the end of the ramp. A very strong current was noted at station ET10.1. Slow pH reading response-time at station ET3.1 was followed up with a reading from a second instrument of 7.4.

May 2013 - The station XDJ9007 Secchi measurement was taken in the sun.

June 2013 - When the LICOR instrument used at station RET1.1, readings were erratic. Green flocks were noted in the water at station ET3.1. Streaks of green running by on a strong ebb flow were observed at station TRQ0146. The bottom sample at station WT6.1 had a H2S odor. Field

sheet notes about heavy rain were made at the following stations: TF1.0, TF1.2, TF1.3, TF1.4 and WXT0001.

July 2013 - Green flocks were noted in the water at station TRQ0146.

August 2013 - Green flocks were observed in station TF2.3 surface water. Passage of a barge and other boats caused the river to be stirred up when station POK0087 was sampled.

September 2013 - Secchi depth measurement at station ET4.1 was made from the bridge.

December 2013 - LICOR readings were recorded by hand instead of being stored and downloaded. Field sheet comments made at station WT5.1 included: weight hit bottom, mud in hose and hose frozen. Readings of pH using meter P at station TRQ0203 would not stabilize. Water was collected at station XGG8251 using a bucket.

There were no known issues in March, April, October and November 2013.

Logical_Consistency_Report:

January 2013 - The station TF1.3 sample was collected from the bridge.

April 2013 - The station TF1.3 sample was collected from the bridge. Station XHH4742 was sampled twice.

May 2013 - The station TF1.3 sample was collected from the Route 4 bridge.

June 2013 - The station TF1.3 sample was collected from the bridge.

July 2013 - Station BXK0031 field sheet notes indicated that reading 1 used YSI instrument U and reading 2 was made using Hydrolab O with a Clark cell.

August 2013 - Station WIW0141 was collected from the ferry using a bucket. Sample water from bottom and below pycnocline depths was obtained from different bottles.

September 2013 - The Secchi measurement for station ET4.1 was taken from the bridge.

October 2013 - Patuxent sampling was conducted in a small boat because RV Kerhin was in the shipyard for maintenance. Station EE1.1 surface sample was collected at start of sampling and the above pycnocline sample was collected at the end of sampling. The station TF1.3 sample was collected from the bridge.

November 2013 - Patuxent sampling was conducted in a small boat because RV Kerhin was in the shipyard for maintenance. The station ET5.2 was collected from the fishing pier. Station XGG8251 was sampled from the Narrows Bridge. The TF2.4 sample was collected a quarter of a mile South of the station in a shallower location.

December 2013 - Due to road closure past the bridge, the TRQ0088 sample was collected from the bridge. The WIW0141 sample was taken from the end of the ferry.

No other known issues during sampling conducted during February or March 2013.

Completeness_Report:

January 2013 - A plankton sample was not collected at station XCI4078.

February 2013 - Stations ET8.1 and MNK0146 were not sampled due to engine trouble.

March 2013 - LICOR was not sampled at stations: CB5.1W, LE1.1, LE1.2, LE1.3, LE1.4, RET1.1, TF1.5, TF1.6 and TF1.7.

April 2013 - Air temperature was not recorded at station XHH4742. Secchi disk depth and total depth were not recorded at station TF1.3.

May 2013 - Stations TF1.7, TF1.6 and TF1.5 were not sampled. Access was prevented due to a mechanical failure at the Benedict Bridge. Secchi disk depth and total depth were not recorded at station TF1.3.

June 2013 - LICOR was not measured at stations: RET1.1, TF1.5, TF1.6 and TF1.7. Due to sensor failure, no dissolved oxygen data were recorded at stations: MAT0016, RET2.1, RET2.2, RET2.4 and TF2.4.

July 2013 - Secchi disk depth and total depth were not recorded at station TF1.3.

August 2013 - Total depth was not measured when station WIW0141 was sampled. Wave height measurements were not logged at station EE2.1.

September 2013 - Secchi disk depth and total depth were not recorded at station TF1.3 due to the shallow depth of the water.

October 2013 - Loss of the alpha bottle resulted in no bottom nutrient sample collection at station ET4.1. Rough conditions precluded LICOR measurements at stations CB5.1W, LE1.1, LE1.2, LE1.3 and LE1.4. LICOR was also not measured at stations RET1.1, TF1.5 and TF1.7. Secchi disk depth and total depth were not recorded at station TF1.3.

November 2013 - No station LE1.2 water column data were measured at the depth of 16 meters. Secchi disk depth and total depth were not recorded at station TF1.3. Only surface and bottom water samples were collected at station ET5.2. A middle sample was not collected at station TF2.4 (the sample was collected a quarter of a mile South of the usual location in a shallower water depth). Station XHH4742 was not sampled.

December 2013 - Station TF1.5 was not sampled because shallow depths prevented access by the sampling vessel. Because of a frozen sample hose, no bottom sample was collected at station

TRQ0088. Only surface samples were collected at stations ET2.1, ET2.2 and ET 2.3 because the pump was frozen. Total depth measurements were not recorde3d at stations TRQ0088 and WIW0141.

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

The Yellow Springs Instrument (YSI) data sondes and HydroLab multi-parameter sondes were maintained and calibrated before and after each cruise in accordance with manufacturer's recommendations. During year 2014, YSI series 6820 and 6920 and Hydrolab series 3 (rarely), series 4A, and series 5 sondes were deployed. Field sheet dissolved oxygen method and equipment-set unit number values were used to track sondes used for station water quality measurements.

HYDROLAB PROFILE SAMPLING PROTOCOLS:

A profile of temperature, specific conductance, dissolved oxygen, and pH was obtained from the water column at 0.5 m, 1.0 m, 2.0 m and 3.0 m depth intervals below the surface. Thereafter readings were taken at 2.0 m intervals and at the bottom. Tributary bottom equals total depth minus one meter (not rounded). If the change in dissolved oxygen exceeded 1.0 mg/L or if the change in specific conductance equaled or exceeded 1,000 micromhos/cm over any 2.0 m interval, readings were taken at 1.0 m intervals between these two readings. For total depths less than or equal to 10.0 m, readings were taken at 1.0 m intervals.

GRAB SAMPLING DEPTH PROTOCOLS:

At stations where two depths were sampled, collections were taken at 0.5 m below the surface, and 1.0 m above the bottom. If the station total depth was equal to 1.5 m, the bottom sample was also collected at 0.5 m. Great caution was exercised when taking bottom samples; if the bottom was disturbed and bottom sediments appeared to have been included, the sample was dumped out and collected after the sediments had settled. Alternately, the sample was collected slightly higher in the water column and the new bottom sample depth was noted.

At stations where 4 depths were sampled and a pycnocline existed, collections were taken at 0.5 m below the surface, 1.5 m above the upper boundary of the pycnocline, 1.5 m below the lower boundary of the pycnocline, and 1 m above the bottom.

At stations where 4 depths were sampled and there was no discernable pycnocline, samples were taken at 0.5 m below the surface, at the closest profile depth one third the distance from the surface to the bottom, at the closest profile depth two thirds the distance from the surface to the bottom, and 1 m above the bottom.

Note that six Patuxent River stations, at which samples are also collected from four depths, use a different fixed-depth protocol for sampling mid-water depths. At station TF1.5 and

RET1.1, samples are collected at 3 m and 6 m. Mid-water-column samples at stations LE1.1 and LE1.4 are collected at 3 m and 9 m. Samples are collected at 3 m and 12 m depths at stations LE1.2 and LE1.3.

SECCHI DEPTH:

Water transparency was determined, to the nearest 0.1 m using a 20-cm standard Secchi disc lowered into the water column with a calibrated rope. Observations were made on the shady side of the sampling location.

Process_Date: Unknown
Process_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Sally Bowen
Contact_Position: Project Chief, Monitoring Field Office, DNR
Contact_Address:
Address_Type: mailing and physical
Address: 1919 Lincoln Drive
City: Annapolis
State_or_Province: Maryland
Postal_Code: 21401
Country: USA
Contact_Voice_Telephone: 410 263-3369
Contact_Electronic_Mail_Address: kristen.heyer_nospam_@maryland.gov[Remove _nospam_ for valid email address]

Process_Step:
Process_Description:
LABORATORY ANALYSIS - CBL

University of Maryland's Chesapeake Biological Laboratory (CBL), Nutrient Analytical Services Laboratory (NASL) analyzed total dissolved nitrogen, particulate nitrogen, nitrite, nitrite + nitrate, ammonium, total dissolved phosphorus, particulate phosphorus, particulate inorganic phosphorus, orthophosphate, dissolved organic carbon, particulate carbon, total suspended solids, and volatile suspended solids.

The 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.

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: Jerry Frank
Contact_Position: Manager Nutrient Analytical Services Laboratory, Faculty Research Assistant IV
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: 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 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: Administrator II
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: Back River, Big Annemessex River, Bohemia River, Bush River, C&D Canal, Chesapeake Bay, Chester River, Choptank River, Corsica River, Eastern Bay, Elk River, Fishing Bay, Gunpowder River, Little Choptank River, Magothy River, Manokin River, Middle River, Nanticoke River, Northeast River, Patapsco River, Potomac River, Patuxent River, Pocomoke River, Pocomoke Sound, Rhode River, Sassafras River, Severn River, South River, Tangier Sound, West River and Wicomico River.
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 69 Maryland tributary stations during 2013.

The data are contained in three related entities (tables): Station_Information, Monitoring_Event_Data and Water_Quality_Data. Each table contains attributes (fields). The entity Station_Information is comprised of the attributes: STATION, DESCRIPTION, WATER_BODY, CBP_BASIN, TS_BASIN, BASIN, CBSEG_2003, CBSEG_2003_DESCRIPTION, HUC8, CATALOGING_UNIT_DESCRIPTION, HUC11, WATERSHED, FIPS, STATE, COUNTY/CITY, FALL_LINE, LATITUDE, LONGITUDE, LL_DATUM, UTM_X and UTM_Y

The entity Monitoring_Event_Data is comprised of the attributes: EVENT_ID, SOURCE, AGENCY, PROGRAM, PROJECT, STATION, EVENT_START_DATE, EVENT_START_TIME, CRUISE, TOTAL_DEPTH, UPPER_PYCNOCLINE, LOWER_PYCNOCLINE, AIR_TEMP, WIND_SPEED, WIND_DIRECTION, PRECIP_TYPE, TIDE_STAGE, WAVE_HEIGHT, CLOUD_COVER, GAGE_HEIGHT, PRESSURE, FLOW_STAGE, DETAILS and WATER_BODY.

The entity Water_Quality_Data is comprised of the attributes: EVENT_ID, SOURCE, PROJECT, STATION, SAMPLE_DATE, SAMPLE_TIME, DEPTH, LAYER,

SAMPLE_TYPE, SAMPLE_ID, PARAMETER, QUALIFIER, VALUE, UNIT, METHOD, LAB, PROBLEM, DETAILS, TOTAL_DEPTH, UPPER_PYCNOCLINE, LOWER_PYCNOCLINE, LAT, and LONG.

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].

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

The Quality Assurance Project Plan for the Maryland Department of Natural Resources Chesapeake Bay Water Quality Monitoring Program - Chemical and Physical Properties Component for the period July 1, 2013 - June 30, 2014

[http://mddnr.chesapeakebay.net/eyesonthebay/documents/MdDNR_MT2013QAPPv1.4.pdf]

Distribution_Information:
Distributor:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Michael Mallonee
Contact_Position: Water Quality Database Manager
Contact_Address:
Address_Type: Mailing and Physical
Address: 410 Severn Avenue, Suite 109
City: Annapolis
State_or_Province: Maryland
Postal_Code: 21403
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 file, formatted for text attributes, declared format
Format_Information_Content: Station Information data, Monitoring Event data, and Water Quality data
File_Decompression_Technique: No compression applied
Transfer_Size: 10.3

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 web site (see network resource name) instructions.
Fees: None

Metadata_Reference_Information:
Metadata_Date: 20160606
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, D-2
City: Annapolis
State_or_Province: Maryland
Postal_Code: 21401
Country: USA
Contact_Voice_Telephone: 410 260-8630
Contact_Facsimile_Telephone: 410 260-8640
Contact_Electronic_Mail_Address: benjamin.cole_nospam_@maryland.gov[Remove _nospam_ for valid email address]
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998