

Maryland Chesapeake Bay Mainstem 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 Dept. of Natural Resources, Chesapeake Bay Mainstem Water Quality Monitoring 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 data collected at twenty-two stations located in Maryland's Chesapeake Bay mainstem. (Note the station count was incorrectly listed as twenty-one in previous mainstem project metadata records).

Sampling was conducted twice monthly in June, July and August of 2013, and once monthly during the remaining months, for a total of fifteen samplings in the period of 15-Jan-2013 through 11-Dec-2013. Sampling during the first July cruise was limited to physical measurements collected to better assess dissolved oxygen levels in the mainstem deep waters. No samples were collected November through February at eastern and western transect stations, resulting in only ten mainstem flanking station samplings a year.

The water quality monitoring program began in 1984 and is ongoing. The 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 these measures 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.

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.

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 two 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: 20130115

Ending_Date: 20131211

Currentness_Reference: Ground Condition

Status:

Progress: Complete

Maintenance_and_Update_Frequency: As needed

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -80.53758

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

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 > 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

Temporal:

Temporal_Keyword_Thesaurus: Global Change Master Directory Science Keywords

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

Country: USA

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/MD_DNR_MainstemStns2013.pdf]

Browse_Graphic_File_Description: Map of twenty-two 2013 Maryland Chesapeake Bay Mainstem 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, 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 Mainstem 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 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 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 INFORMATION

January 2013 - There was an electrical fire aboard RV Kerhin 15-Jan-2013. Soot covered sampling gear was cleaned if possible and discarded if not. Sampling supplies and sample bottles were discarded. RV Rachel Carson was used for the second and third day of sampling

February 2013 - Debris floating around the vessel was noted at station CB2.1.

March 2013 - Unstable sonde readings were noted at 11 meters at station CB5.3

April 2013 - The 4 meter depth dissolved oxygen reading at station CB3.2 was double checked.

May 2013 - Unstable conductivity readings were noted at station CB5.3 at nine and ten meter depths. Similarly, unstable conductivity readings were noted at station CB4.4. Compensating for strong currents while raising the meter, water quality sonde, can result in the need to extend more cable in order to position the meter at a required depth. Greater meter scope than normal was required at stations CB5.2 and CB5.1.

June 3-5, 2013 - The passage of a ship, during sampling, was noted at station CB5.2. A hydrogen sulfide odor was noted in the station CB3.3C water sample.

June 24-26, 2013 - Hydrogen sulfide odors were detected in bottom and below pycnocline water samples at stations: CB4.3E, CB4.3C, CB4.2C CB4.1E, and CB4.1C H2S odors were also observed in bottom sample water at stations CB4.3W and CB3.3C. Three meter depth sonde readings at station CB3.2 were re-checked.

July 15-17, 2013 - A paint smell was noticed on RV Kerhin. Hydrogen sulfide odors were detected in bottom and below pycnocline water samples at station: CB4.3E, CB4.2C, CB4.1C and CB4.1E. H₂S odors were also observed in bottom samples at stations: CB5.2, CB5.1, CB4.4 and CB3.3C. It was noted that station CB4.1E three meter depth conductivity readings were not stable.

July 29-31, 2013 - Readings at the eleven meter depth at station CB5.3 were unstable. A ship passed prior to when sonde readings were taken at station CB4.3C. The dissolved oxygen readings at the four and five meter depths at station CB3.2 were checked.

August 12-14, 2013 - Delivery of split samples to Port Royal Virginia on 12-Aug-2014 was delayed to 19:00 due to a bridge closure due to an accident. Hydrogen sulfide odors were detected in bottom and below pycnocline water samples at stations: CB5.3, CB5.2, CB4.4, CB4.3E, CB4.3C and CB4.2C, CB4.1E, CB4.1C. H₂S odors were also observed in the bottom samples at station CB3.3C. A remark was made in the log at station CB3.2 regarding the rocking motion of the vessel causing the sonde to touch bottom at 11 meters.

September 2013 - Strong currents at station CB4.4 resulted in sonde cable scoping. Hydrogen sulfide odors were noted in water sampled at bottom and below pycnocline depths at station: CB3.3C. Additional remarks were made regarding the thermometer in the sun at station CB3.1 and unstable 14 meter depth conductivity reading at station CB4.3E.

November 2013 - A note was made about the thermometer in the sun at station CB4.4.

December 2013 - the sonde cable was scoping at stations CB4.3C, CB4.2C and CB3.3C.

Logical_Consistency_Report:

For logistical reasons, station LE2.3, a Potomac River sampling project station, is routinely sampled during Chesapeake Bay mainstem sampling cruises.

January 2013 - Due to a fire, two research vessels were used for January sampling. 15-Jan samples were collected aboard RV Kerhin. 17 and 18- Jan samples were collected using RV Rachel Carson.

February 2013 - Sampling was conducted aboard RV Rachel Carson.

October 2013 - Due to scheduling, budget and staffing constraints, October sampling was conducted aboard RV Rachel Carson in a two day period. The following stations were not sampled: CB4.3W, CB4.2W, and CB4.1W. The weight at the bottom of the sonde array touched bottom at 4 meters at station CB1.1 and the bottom sample was collected from a depth of three meters.

December 2013 - Sampling was conducted aboard RV Rachel Carson.

Completeness Report:

The 2013 Chesapeake Bay Mainstem Monitoring Program dataset includes physical and chemical water quality data along with ancillary information (weather, date, depth, etc.) acquired during monthly sampling cruises, between January and December 2013.

Sampling-event and physical properties, nutrient and suspended solid data from twenty-two Chesapeake Bay Mainstem stations are included in the dataset.

Note that mainstem flanking stations were not routinely sampled in November. The following stations are flanking stations: CB43.E, CB4.3W, CB4.2E, CB4.2W, CB4.1E, CB4.1W, CB3.3E and CB3.3W.

Silica samples were not collected at any stations July through December 2013.

January 2013 - It was not possible to determine the tide stage at stations CB5.3, CB5.2, CB5.1 and CB4.4.

March 2013 - Heavy weather 18-March and vessel scheduling conflicts resulted in reducing the number of stations sampled to accomplish the survey in a two day window. Flanking stations were not sampled. Samples were not collected at the following stations: CB4.3E, CB4.3W, CB4.2W, CB4.2E, CB4.1E, CB4.1W and CB3.3E. A dredge pipeline prevented access to station CB1.1.

April 2013 - The 16 meter depth dissolved oxygen measurement at station CB3.3C was not recorded.

July 2013 - Sampling during the second July survey was limited to hydrocasts. The physical measurements were collected to better assess dissolved oxygen levels in the mainstem deep waters. No DOC samples were collected 17 July.

August 2013 - Loss of the Secchi disk at station CB2.1 resulted in no Secchi measurements at stations: CB2.1 and CB1.1.

September 2013 - Strong currents at stations CB5.1 and CB4.1E prevented the hose from reaching the bottom.

October 2013 - Sampling was conducted aboard RV Rachel Carson. A reduced number of stations were sampled October 14th and 15th. LICOR measurements were not recorded. The stations not sampled were: CB5.3, CB4.3W, CB4.2W and CB4.1W.

November 2013 - LICOR was not measured at station CB5.1W due to rough conditions. Station CB5.3 was not sampled at all due to rough seas. LICOR was not measured at station CB5.2 due to rough conditions. Strong currents at station CB5.1 precluded sampling below 33 meters depth. Failure of the LICOR equipment precluded sampling at stations CB5.1 and CB4.4.

December 2013 - LICOR was not measured at station CB5.1W due to rough conditions. Station CB5.3 was not sampled due to rough seas. LICOR was not measured at station CB5.2 due to heavy seas. Failure of the LICOR equipment precluded sampling at stations CB5.1 and CB4.4.

Lineage:

Process_Step:

Process_Description:

SONDE CALIBRATION and POST-CALIBRATION

The Yellow Springs Instrument (YSI) 6000 data sondes were maintained and calibrated before and after each cruise in accordance with manufacturer's recommendations.

WATER COLUMN PROFILE SAMPLING PROTOCOLS:

A profile of temperature, specific conductance, dissolved oxygen, and pH was obtained from the water column by deploying the data sonde 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 1.0 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 of the distance from the surface to the bottom, at the closest profile depth two thirds of the distance from the surface to the bottom, and 1.0 m above the bottom.

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: SBOWEN_nospam_@dnr.state.md.us[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 also performed chlorophyll analyses. Prior to 2009, chlorophyll analyses were performed by the Maryland Department of Mental Health and 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 conduct data QA/QC procedures. All of the water quality calibration "grab" sample data are plotted. Outliers and anomalous values are thoroughly researched. Staff members compare unusual values to historic values from the site and values from nearby sites. Weather events are considered, event logs are reviewed and CBL analytical laboratory staff members and DNR field staff members are consulted regarding possible legitimate causes for outlying values. In cases where values are not considered to be legitimate, they were masked in 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: Renee Karrh

Contact_Position: Program Manager

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: renee.karrh_nospam_maryland.gov[Remove_nospam_for valid email address]

Spatial_Data_Organization_Information:

Indirect_Spatial_Reference: Chesapeake Bay, Maryland

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 Mainstem. Project data are an aggregation of data collected at twenty-two Maryland mainstem stations during 2013.

The data are contained in three related entities (tables): *Station_Information*, *Monitoring_Event_Data*, *Water_Quality_Data* and *Light_Attenuation_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*.

The entity *Light_Attenuation_Data* is comprised of the attributes: *EVENT_ID*, *SOURCE*, *PROJECT*, *STATION*, *SAMPLE_DATE*, *SAMPLE_TIME*, *SAMPLE_REPLICATE_TYPE*, *DEPTH*, *EPAR_S*, *EPARU_Z*, *EPARD_Z*, *UNIT*, *METHOD*, *DETAILS*, *TOTAL_DEPTH*, *UPPER_PYCNOCLINE* and *LOWER_PYCNOCLINE*.

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

Country: USA

Contact_Voice_Telephone: 800-968-5785

Contact_Electronic_Mail_Address: mmallone@_no_spam_chesapeakebay.net[Remove _nosпам_ 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: 6.2

Digital_Transfer_Option:

Online_Option:

Computer_Contact_Information:

Network_Address:

Network_Resource_Name: [http://www.chesapeakebay.net/data_waterquality.aspx]

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: 20130520

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_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