The State of Delaware 2016 Combined Watershed Assessment Report (305(b)) and Determination for the Clean Water Act Section 303(d) List of Waters Needing TMDLs

(The Integrated Report)

Delaware Department of Natural Resources and Environmental Control

Division of Watershed Stewardship

Watershed Assessment and Management Section

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EXECUTIVE SUMMARY

The State of Delaware 2016 Combined Watershed Assessment Report (305(b)) and Determination for the Clean Water Act Section 303(d) List of Waters Needing TMDLs (the Integrated Report) provides a statewide assessment of surface water and ground water resources, highlights Delaware's initiatives in water resources management and pollution control and provides a list of waters that need Total Maximum Daily Load regulations (TMDLs) to meet water quality standards. The document fulfills the reporting requirements set forth under Sections 305(b) and 303(d) of the Federal Clean water Act of 1977, as amended in 1981 and 1987. The document is organized largely in accordance with the federal Environmental Protection Agency's (EPA) 2006 guidance document. In order to streamline the 2016 Integrated Report, many Departmental programs and other resources not specifically required in the report are briefly described and URLs for further information are supplied.

This Integrated Report summarizes statewide water quality assessments, provides an overview of major initiatives and concerns on a statewide basis, and lists waters needing TMDLs. Tables are provided which show the result of water quality analysis and designated use support findings for data from the period of January 2010 through December 2014 and the resulting Section 303(d) List of Waters Needing TMDLs from those assessments.

The 2016 303(d) List shows 89 revisions from earlier Lists. Those revisions are highlighted in "Change this cycle" column in the List. Under the Clean Water Act, "listing" a waterbody is an indication that the water body is not fully meeting its designated use, thus "impaired", and needs further controls to support the designated use. Once listed, a TMDL regulation or alternative must be developed that will return the waterbody to supporting the designated use. Delisting a waterbody for a pollutant indicates that the previously listed waterbody now supports a designated use and thus "attains the use". Segment/pollutant combinations allow the Department to track progress for individual pollutants in specified waterbodies. For example, one segment (which can be an entire waterbody or a section of larger waterbody) may be impacted by four fish tissue advisory pollutants, nutrients and bacteria. That segment would thus have six segment/pollutant combinations.

For the 2016 assessments, the Department incorporated the Fish Tissue Advisories that were issued by the Delaware Departments of Health and the Department of Natural Resources and Environmental Control on June 7, 2016. In those advisories, a number of rivers and creeks had fish consumption advisories that were less restrictive than prior advisories, but for more contaminants of concern. This was due to a minor technical change as opposed to worsening conditions. In fact, many of the contaminants of concern that were added (mostly organochlorine pesticides) were marginally over their respective levels of concern. Further, they show decreasing concentrations when viewed over the long term. The Department expects those contaminant levels to continue to decline in the fish due to natural attenuation and in response to ongoing improvements in stormwater management and other controls. As a result of the

advisories, seventeen segment/pollutant combinations were newly listed and twelve segment/pollutant combinations were delisted.

Four segments are newly listed for copper impairments and one segment for dissolved oxygen impairment. The new listing for dissolved oxygen is in a segment that already has a TMDL that should lead to attainment of the criteria.

There were five delistings for nutrient impairments, four for dissolved oxygen impairments and seven for bacterial impairments.

The Department has been using a strategy called the Watershed Approach to Toxics Assessment and Restoration (WATAR) to address toxic pollutant issues in the State. As a result of successful WATAR activities and data collection, the Department has elected to delay TMDLs for toxics that were slated for development in 2017. Twenty six segment/pollutant combinations have been given a completion date of 2022. As this report is being completed, trends analyses for the listed toxics are being compiled for inclusion in a separate white paper the Department anticipates to be finalized later in 2017. The Department believes that the result of the trend analysis will support three possible outcomes:

- Delisting of some segments in the 2018 cycle that are no longer impaired by the toxics in question.
- Recommendation to use a TMDL alternative of monitored natural attenuation for some segments that are close to attainment and expected to reach attainment in the near future.
- TMDL Development by 2022 for segments that the trend analysis shows are not likely to support the designated use due to impairments that are not likely to naturally attenuate in a reasonable time frame. In these cases, the data collected in the WATAR program is expected to support timely TMDL development on or before the 2022 deadline.

Groundwater quality in Delaware was assessed based on raw-water data collected during a two-year time period (October 1, 2013 through September 30, 2015) from public water-supply (PWS) wells. The water-quality database consisted of almost 30,000 analyses Well depths range from 22 to 957 ft below land surface (bls) with a median well depth of 145 ft bls. Highlights from the groundwater-quality assessment follow*:

- **Based on nitrate data, almost half of the wells evaluated are susceptible to human influence.** Nitrate concentrations exceeded 0.4 mg/L, a threshold indicative of human impacts, in 43.5% of the samples.
- **The unconfined aquifer is the most susceptible to human influence.** This aquifer had the highest median nitrate concentration (4.70 mg/L), the largest fraction of concentrations exceeding 0.4 mg/L (91.3%), and the smallest fraction of non-detectable concentrations (7.2%).
- **Nitrate concentrations exceeded the drinking-water standard in <5% of all samples.** Concentrations exceeded the Primary Maximum Contaminant Level (PMCL) of 10 mg/L for

drinking water in 4.5% of the samples. Areally, PMCL exceedances were limited to unconfined wells located in Sussex County.

- **Organic compounds were frequently undetectable and rarely exceeded drinking-water standards.** Specifically, organic compounds exceeded PMCLs in 0.5% of the analyses. The following analytes were found above the PMCL: tetrachloroethylene (PCE) and Bis(2-chloroethyl) ether (BCEE).

Other groundwater-quality findings:

- **Overall, groundwater is predominantly soft or moderately hard.** Specifically, most of the results (84.5%) met either of these criteria.
- **Groundwater was acidic in about half of the overall samples.** Specifically, pH values were less than the lower limit of the Secondary Maximum Contaminant Level (SMCL) range (6.5-8.5 standard pH units) in 52.6% of the samples.
- **Iron was elevated in almost one third of the samples.** Iron exceeded the SMCL (0.3 mg/L) in 31.2% of the samples.
- **Groundwater is generally dilute overall based on total dissolved solids (TDS) data.** Specifically, the median TDS concentration was 146 mg/L. All TDS concentrations were below the 500 mg/L SMCL.
- **Sodium concentrations were above the health advisory level in about one quarter of the samples.** Sodium concentrations exceeded the Health Advisory (HA) of 20 mg/L in 23.3% of the samples.
- *Note: Because only raw or apparently raw groundwater-quality data were evaluated, the results may not be representative of finished or treated water delivered to consumers. Therefore, an exceedance of a drinking-water standard does not necessarily indicate that a public water-supply system is not in compliance

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PART A. INTRODUCTION

The State of Delaware 2016 Combined Watershed Assessment Report (305(b)) and Determination for the Clean Water Act Section 303(d) List of Waters Needing TMDLs (the Integrated Report) provides a statewide assessment of surface water and ground water resources, highlights Delaware's initiatives in water resources management and pollution control and provides a list of waters that need Total Maximum Daily Load regulations (TMDLs) to meet water quality standards. The document fulfills the reporting requirements set forth under Sections 305(b) and 303(d) of the Federal Clean water Act of 1977, as amended in 1981 and 1987. The document is organized largely in accordance with the federal Environmental Protection Agency's (EPA) 2006 guidance document and subsequent updates.

This Integrated Report summarizes statewide water quality assessments, provides an overview of major initiatives and concerns on a statewide basis, and lists waters needing TMDLs. Tables are provided in the appendices which show the result of water quality analysis and designated use support findings for data from the period of January 2010 through December 2015 and the resulting TMDL List from those assessments.

In order to streamline the 2016 Integrated Report, many Departmental programs and other resources not specifically required in the report are briefly described and URLs for further information are supplied.

PART B. BACKGROUND

B1. Total Waters

State Population[1]	945,934
State Surface Area	1981 square miles
Number of Basins	5
Number of Watersheds	45
Total Number of Stream and River Miles[2]	2509
Number of Perennial River Miles[2]	1778
Number of Intermittent Stream Miles [2]	405
Number of Ditches and Canals [2]	326
Number of Border Miles	87
Acres of Lakes/Reservoirs/Ponds [2]	2954
Square Miles of Estuarine Waters [3]	841
Number of Ocean Coastal Miles	25
Acres of Freshwater Wetlands	226,530
Acres of Tidal Wetlands	127,338

1. http://www.census.gov/quickfacts/table/PST045215/10
2. Values are being updated to reflect information in higher resolution mapping tools in cooperation with EPA and a contractor.
3. Surface area for Delaware River Zone 5 and Delaware Bay provided by the Delaware River Basin Commission (DRBC), 1994 -1995 305(b) Report. For purposes of this report, Delaware reports on the Inland Bays and DRBC reports on the Delaware River and Bay.

B2. Water Pollution Control Program

The Delaware Department of Natural Resources and Environmental Control (DNREC) has several programs related to water pollution control in its Watershed Assessment and Management Section. The Water Quality Standards program works with stakeholders and co-regulators to set the Designated Uses and Criteria for the State's waters to protect them as required under the Clean Water Act (CWA), EPA regulations and Delaware Code. The most recent Triennial Review of Water Quality Standards was done in 2014. DNREC anticipates another Triennial Review will start in 2017. DNREC does Integrated Reporting to meet its CWA Section 305(b) and 303(d) requirements, as shown in this report. Integrated reports are due on April 1st of even numbered years. The Total Maximum Daily Load (TMDL) program is also part of the Watershed Assessment and Management Section. Waterbodies that don't meet their designated uses due to pollutants, and thus part of the State's 303(d) list of impaired waters, are required to have TMDLs to meet their criteria. The TMDL program has completed TMDLs for most of the watersheds in the State for excessive nutrients and bacteria. TMDLs and alternatives for other pollutants are being addressed by the Watershed Approach to Assessment and Restoration (WATAR) Program.

The Drainage and Stormwater Section provides management and implementation of regulatory and non-regulatory programs to improve drainage, stormwater, water quality and dam safety.

The Surface Water Discharges Section regulates point and non-point sources of pollution to surface waters of the state. This section works with individuals, municipalities and industry to ensure that wastewater is properly treated, storm water is properly managed, and biosolids and residual wastes are beneficially reused. Delaware's National Pollutant Discharge Elimination System (NPDES) permits are part of this Section's programs.

The Nonpoint Source Program addresses nonpoint source pollution through educational programs, publications, and partnerships with other Delaware organizations. The Delaware NPS Program also administers a competitive grant made possible through Section 319 of the Clean Water Act, providing funding for projects designed to reduce NPS pollution.

The Ground Water Discharges Section (GWDS) is responsible for overseeing all aspects of the siting, design and installation of onsite wastewater treatment and disposal systems (aka septic systems). The section also issues waste transporter permits and licenses to percolation testers, designers, soil scientists, system contractors, liquid waste haulers and system inspectors.

The Ground-Water Protection Branch of the Water Supply Section is responsible for the ground-water protection program, source water assessment and protection program, and wellhead protection program. Hydrologists and environmental scientists of this branch provide technical expertise needed to protect the ground-water resources of Delaware. Responsibilities include regulatory review, resource assessment, database quality control, and public education.

The following table has web addresses for the programs mentioned above.

Program	Web Address
Water Quality Standards	http://www.dnrec.delaware.gov/swc/wa/Pages/Watershed%20Assessment%20Surface%20Water%20Quality%20Management.aspx
305(b) Reports and 303(d) lists	http://www.dnrec.delaware.gov/swc/wa/Pages/WatershedAssessment305band303dReports.aspx
Total Maximum Daily Loads	http://www.dnrec.delaware.gov/swc/wa/Pages/WatershedAssessmentTMDLs.aspx
Watershed Approach to Assessment and Restoration (WATAR)	http://www.dnrec.delaware.gov/dwhs/SIRB/Pages/WATAR.aspx
Drainage and Stormwater Section	http://www.dnrec.delaware.gov/swc/Drainage/Pages/Drainage.aspx
Nonpoint Source Program	http://www.dnrec.delaware.gov/swc/district/Pages/NPS-Program.aspx
Ground Water Discharges (septics)	http://www.dnrec.delaware.gov/wr/Services/Pages/GroundWaterDischarges.aspx
Surface Water Discharges	http://www.dnrec.delaware.gov/wr/Services/Pages/SurfaceWaterDischarges.aspx
Ground Water Protection Branch	http://www.dnrec.delaware.gov/wr/Services/OtherServices/Pages/WaterSupplyGroundWaterProtectionProgram.aspx
Municipal Separate Storm Sewer Systems (MS4s) Permits	http://www.dnrec.delaware.gov/wr/Information/SWDInfo/Pages/MS4.aspx

DNREC works closely with its partners in other Delaware agencies, other States and Federal agencies to address water issues that cross jurisdictional boundaries. For example, the Department works with the Delaware Department of Health and Social Services' Division of Public Health to collect and analyze for toxins in fish and then coordinate fish consumption advisories State wide. The Department works with the Nutrient Management Commission to work with non-point sources of nutrients to manage and/or reduce nutrient inputs to Delaware's waters. DNREC is also working closely with the Delaware Department of Transportation to develop and implement MS4 permits in New Castle County.

The Department is an active member of the Delaware River Basin Commission that works in the Delaware River and Delaware Bay to regulate both flow and water quality. Delaware is also working closely with partners and stakeholders from six states in the Chesapeake Bay watershed to implement the Chesapeake Bay Watershed Implementation Plan that will help restore the Chesapeake Bay's water quality.

B3. Cost/Benefit Assessment

Under the Clean Water Act and the implementing regulations, States are required to submit estimates of the environmental, economic and social costs and benefits needed to achieve the objectives of the Clean Water Act. In cooperation with the Department, The University of Delaware Water Resources Center prepared a white paper entitled "Economic Benefits of Improved Water Quality in Delaware." In the paper, the Center estimated the economic benefits of improved water quality to be $17.2 million dollars annually. The UD Water Resources Center has also concluded that Delaware watersheds and waterways support (1) over $6 billion in annual economic activity from water quality, flood control, water supply, fishing and wildlife viewing, recreation, agriculture, ports, forests, and parks, (2) ecosystem goods and services of $6.7 billion per year (2010 dollars) with a net present value (NPV) of $216.6 billion, (3) over 70,000 direct and indirect jobs with over $2 billion in wages, see http://www.wrc.udel.edu/research/watershed-economics/economic-benefits-and-jobs-provided-by-delaware-watersheds/. To date, cost estimates have not been compiled. Future iterations of the Integrated Report will expand the analysis of costs and benefits reported.

B4. Special State Concerns and Recommendations

The Department has been working on managing water quality issues for many years with stakeholders and other State and Federal agencies to address water quality issues statewide and in interstate waters. See Section B2 of this report for current activities in our water pollution control programs. The Department has been working with stakeholders on TMDLs that are being implemented with varying degrees of success. Toxics TMDLs for zinc have been implemented successfully in the Christina basin, bringing zinc levels into compliance with applicable water quality standards. Statewide trends analysis for nutrients shows that approximately half of the reporting stations considered are experiencing lower nutrient loads for nitrogen with fewer than ten percent of stations showing increasing trends. See Section C5 for the trends analysis. Continued TMDL implementation is still needed to continue those gains and achieve nutrient targets in Waters of the State.

The Department has been addressing remaining waterbodies needing TMDLs or alternatives for toxic pollutants in its WATAR program also described and linked to in Section B2 above. Tracking down pollution sources and using appropriate and cost effective approaches to remediate those sources is one keystone of the WATAR program. One such intervention at Mirror Lake in Dover was remarkably effective in reducing bioavailability of PCBs. The Department worked across Divisions, with other State and Federal agencies, and with academia to do the work at Mirror Lake. As a result, major reductions in PCBs in fish tissue in the fish in the lake were seen in less than a year. The Department believes working to expand the successes and lessons learned from the WATAR program will be important in reducing impacts from pollution statewide.

Climate change is an important issue long term in the State. The Department worked with a wide range of scientists and policy makers to create the Delaware Climate Change Impact Assessment that is online at : http://www.dnrec.delaware.gov/energy/Pages/The-Delaware-Climate-Impact-Assessment.aspx . One of the conclusions in the executive summary is that: “Delaware faces potential impacts from changes in temperature, precipitation, and sea level rise. State officials, local governments, residents, and businesses must prepare for changing climate conditions that will affect communities and economic sectors throughout Delaware.”

Water quality monitoring including fish tissue and other biological monitoring has been a keystone to understanding water quality issues statewide. The Department has invested heavily in monitoring data for many years. Scientists, citizens and policy makers rely on the continued availability of high quality data to track progress and make regulatory and policy decisions that affect a wide range of programs and interests. For example, the Department anticipates using site specific data from the WATAR program to set criteria in the water quality standards for toxic pollutants state wide in upcoming triennial reviews of water quality standards required under the Clean Water Act.

PART C. SURFACE WATER MONITORING AND ASSESSMENT

C1. Monitoring Program

The purpose of the Delaware's Surface Water Quality Monitoring Program is to collect data on the chemical, physical and biological characteristics of Delaware's surface waters. The information that is collected under this program is used to:

- Describe general surface water quality conditions in the State;
- Identify long term trends in surface water quality;
- Determine the suitability of Delaware surface waters for water supply, recreation, fish and aquatic life, and other uses;
- Monitor achievement of Surface Water Quality Standards;
- Identify and prioritize high quality and degraded surface waters;
- Calculate annual nutrient loads and track progress toward achieving Total Maximum Daily Loads (TMDLs) targets; and
- Evaluate the overall success of Delaware's water quality management efforts.
- Inform decisions by other stakeholders and programs

Delaware maintains a General Assessment Monitoring Network (GAMN) of ~ 134 stations. Twenty two of the stations are monitored monthly and the remaining stations are monitored either six or twelve times per year. Each station is monitored for conventional parameters such as nutrients, bacteria, dissolved oxygen, pH, alkalinity, and hardness. Some stations are monitored for dissolved metals. The data from this monitoring is entered into EPA's STORET database and used for this report and other uses by interested parties.
More information about Delaware's Water Quality monitoring is available online at:
http://www.dnrec.delaware.gov/swc/wa/Pages/WaterQualityMonitoring.aspx
In addition to uploading data to STORET, the Department also works in co-operation with the University of Delaware to share available water quality data in a more user friendly format in the Delaware Water Quality Portal at this URL: http://demac.udel.edu/waterquality/.

C2. Assessment Methodology

General Provisions

Data Considered**:**

All readily available data and information for the period of January 1, 2010 through December 31, 2014 will be considered for the assessment of most designated uses. Given that adequate water quality data may not be available in all cases, determinations of use attainment will be made with an abundance of caution.

Data Quality and Quantity

Data from the Department of Natural Resources and Environmental Control's (DNREC's) Environmental Laboratory Section (ELS) will be considered for use if it is collected and analyzed in accordance with the DNREC ELS Quality Assurance Project Plan. For data from sources other than the DNREC ELS, the Department will consider the quality controls used in collection and analysis to determine if it will be appropriate for use in this assessment. Data will be considered readily available if it is in an electronic format that can be imported into or exported from a modern spreadsheet or database program like Microsoft Excel or Access. Data that is only available on paper will be considered on a case by case basis given the limited resources available to the Department to convert such data to the more usable electronic format. The Department routinely currently collects water quality samples at more than 130 stations throughout the State. That data makes up the bulk of the data available for use in 305(b) assessments. The Department considers data from the most recent five-year period, thus, at each station, there are usually data from 20 sampling dates or more. Some stations are in place for a more limited time period and have smaller data sets. Other readily available data and reports are requested in advance of each assessment from parties outside of the Department and used when they are made available. In addition to electronic mail requests from specific organizations, a notice will be published in the Delaware State News and the News Journal.

For the 2016 assessment, the Department will consider data and information received on or before November 13, 2015 from the following sources:

- Reports of ambient water quality data including State ambient water quality monitoring programs, citizen volunteer monitoring programs, complaint investigations, and other readily available data sources (e.g., EPA's Storage and Retrieval System (STORET), the United States Geological Survey, and research reports), and data and information provided by the public;
- Reports prepared to satisfy Clean Water Act (CWA) Sections 305(b), 303(d) and 314 and any updates;
- Fish and shellfish advisories
- Restrictions on water sports or recreational contact

Coordination with Delaware River Basin Commission (DRBC) and Chesapeake Bay Program Assessments

The DRBC prepares 305(b) assessment reports every two years for the Delaware River and Delaware Bay. Delaware will incorporate the most recent use attainment determinations made by

DRBC for the shared waters of the Delaware River and Delaware Bay into its 2016 303(d) list. Delaware expects to work cooperatively with the DRBC, member states and stakeholders to develop and implement TMDLs in waters of the Delaware River and Bay that the DRBC determines to be impaired.

The Chesapeake Bay Program (CBP) is doing assessments for waters in the Chesapeake Bay and nearby waters that drain into the bay in co-operation with Maryland, Virginia, Washington D.C. and Delaware. Delaware will incorporate the most recent use attainment determinations for waters of the state that use criteria developed by the CBP for waters that drain to the Chesapeake Bay.

Use of Environmental Protection Agency Integrated Assessment Guidance

On July 29, 2005, the EPA published "Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d) and 305(b) of the Clean Water Act." The guidance is available on the internet at this URL: http://www.epa.gov/owow/tmdl/2006IRG/index.html. The Guidance was reaffirmed in for the 2008 listing process in a memo by Diane Regas of the EPA. That memo is online at this URL: http://www.epa.gov/owow/tmdl/2008_ir_memorandum.html . The Guidance was reaffirmed and expanded upon in a May 5, 2009 memorandum posted online at this URL: http://www.epa.gov/owow/tmdl/guidance/final52009.html . No significant changes were made to the guidance in the August 13, 2015 memo online here: http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/2016-IR-Memo-and-Cover-Memo-8_13_2015.pdf.

The core recommendation of the guidance is to categorize all waters of the state according to the following five categories:

Category 1: All designated uses are met;

Category 2: Some of the designated uses are met but there is insufficient data to determine if remaining designated uses are met;

Category 3: Insufficient data to determine whether any designated uses are met. Either no data is available or some data is available, but it is insufficient to make a determination

Category 4: Water is impaired or threatened but a TMDL is not needed;

- 4A: All TMDLs for this segment have been completed and EPA approved. Class 4A waters have all necessary TMDLs approved, but one or more impairments exist, despite the approved TMDLs.
- 4B: Other required control measures are expected to result in the attainment of WQSs in a reasonable period of time
- 4C: The impairment or threat is not caused by a pollutant

Category 5: Water is impaired or threatened and a TMDL is needed for at least one pollutant or stressor

Each of Delaware's monitored waterbody segments will be assigned to the appropriate category for each designated use and then 'rolled up' into a final categorization for the segment. For the final categorization, the highest category number from the applicable use determinations will be assigned to each segment. For example, if a hypothetical segment has a Category 1 determination for aquatic life use support based on average dissolved oxygen, a Category 3 determination for primary contact use, and a Category 5 determination for aquatic life use support based on the dissolved oxygen minimum criteria, then the segment would be given an overall categorization of category 5. In this case, DNREC would pursue the collection of additional enterococcus data in order to assess the primary contact use and establish a schedule for developing a TMDL in order to meet the minimum dissolved oxygen criteria.

Dissolved Oxygen (DO) Aquatic Life Use Support (ALUS)

The following types of DO data are potentially available for analysis:

- Field measurements taken by personnel using handheld DO probes; and
- Continuous monitoring data collected using multiparameter monitoring systems that are typically deployed for several days, weeks, or months. In order to get a more accurate picture of dissolved oxygen dynamics and other water quality parameters, the Department continues to increase its use of continuous monitoring systems.

To determine ALUS with regard to Dissolved Oxygen (DO), the following methodology will be used to compare measured DO concentrations to two different standards, the minimum at all times and daily average concentrations. Average DO concentrations are considered to be met if the 10th percentile of available data is above the applicable criteria of 5.0 mg/l for marine waters and 5.5 mg/l for fresh waters. The statewide minimum DO concentration for surface waters is 4.0 mg/l at any time. Stations are judged to be in compliance with this criterion if the minimum is not violated by more than 1% of continuous monitoring data and no more than two field samples are below the minimum. Dissolved oxygen criteria in the Murderkill River are different from the Statewide averages for the period of May 16 to September 30th and the data from that period is considered in the same way as the rest of the State against the lower criteria.

Assessments of Average DO Criteria Attainment:

If sampling events occurred on at least ten different days during the assessment period for each station, attainment of the DO average criteria will be assessed using the method that follows. Stations with fewer than ten different sampling days will be considered to have insufficient data and be placed in Category 3 for this assessment cycle. Stations where monitoring has been discontinued that have data from fewer than 10 days will not be considered for further evaluation.

For purposes of DO compliance with the daily average criteria in a segment, continuous monitoring data, if available, will be averaged on a daily basis for each station. If no continuous data is available, then the field measurements (as available) will be considered to be representative of the daily average for that day. Any type of sample (continuous or field measurement) will be considered to be representative for that station at the time of collection. Once the daily average for each station (station daily average, SDA) has been determined, the SDAs for each station will be pooled and the upper confidence limit (UCL) of the nonparametric 10th percentile confidence interval will be determined using methods described in Section 3.7 of Helsel and Hirsch . That UCL will be compared to the applicable standard. If the UCL is above the applicable average criteria for all stations in a segment, the segment will be considered to be fully supporting (Category 1) for the DO average portion of ALUS. If the UCL from any station in a segment is below the applicable average, the segment will be considered not fully supportive of the aquatic life use (Category 5)

Formally stated, the following hypotheses will be tested:

H_0: at the 90% Confidence level, $X_{10} \geq$ Standard

H_1: at the 90% Confidence level, $X_{10} <$ Standard

Where X_{10}= Non parametric estimate of the 10th percentile of available data.

Assessments of Minimum DO Criteria Attainment:

Attainment of the minimum DO criteria will be assessed based on all available data (note that ten samples in 5 years are not needed for the comparison to the minimum). For stations for which no continuous DO monitoring data are available, two or more SDAs in five years below the applicable minimum will be sufficient evidence to show that the aquatic life use is not supported (Category 5).

For stations with continuous monitoring data, available continuous monitoring data will be pooled on an annual basis for each station. The UCL of the first percentile of the data will be calculated and compared to the minimum criteria in the same manner as the average comparison above for each year of the applicable five previous years. One or more years in which the upper confidence limit of the first percentile is below the minimum will be sufficient to determine that aquatic life use is not fully supported in the segment (Category 5). See the flow chart below for a graphical depiction of the dissolved oxygen assessment process.

Nutrient Enrichment Assessment

From a state-wide perspective, nutrient overenrichment is one of the leading causes of water quality impairment in Delaware. While nutrients are essential to the health of aquatic ecosystems, excessive nutrient loadings to surface waters can lead to an undesirable proliferation of aquatic weeds and algae, which in turn can result in oxygen depletion and associated impacts to fish and macroinvertebrate populations. Excessive aquatic plant growth can also preclude or seriously curtail water dependent activities such as fishing and boating when plant densities become so great that uses are not physically possible.

For tidal portions of the Indian River, Rehoboth Bay and Little Assawoman Bay watersheds, the water quality criterion for dissolved inorganic nitrogen is a seasonal average of 0.14 mg/l as N, and for dissolved inorganic phosphorus a seasonal average of 0.01 mg/l. For those stations where sampling events occurred on at least ten different days during the assessment period, the available data for the months of March to October from each station will be averaged and confidence intervals on the averages will be determined. The lower confidence limit on the averages will be compared to the above values to assess attainment of desired nutrient levels in these waters. Stations with fewer than ten different sampling days will be considered to have insufficient data and be placed in Category 3 for this assessment cycle. Segments with one or more stations whose lower confidence limit on their seasonal average is above the criteria will be considered to be not fully supporting the aquatic life use (Category 5).

For the remaining waters of the State, the Department has been developing and implementing nutrient and dissolved oxygen TMDLs using target values for total nitrogen of 2-3 mg/l and total phosphorus levels of 0.1 to 0.2 mg/l. These target values were developed in order to implement the narrative provisions in the Surface Water Quality Standards. For those stations with sampling events on at least ten different days during the five-year assessment period the data will be averaged and lower confidence limits on the averages will be calculated and compared to the maximum values above. Stations whose lower confidence limit on the 5 year average total nitrogen or total phosphorus levels are above those levels will be considered to be not fully supporting the aquatic life use (Category 5). Active stations with fewer than ten different sampling days will be considered to have insufficient data and be placed in Category 3 for this assessment cycle. Segments with one or more stations whose lower confidence limit on their average nutrient concentrations are above the target values will be considered to be not fully supporting the aquatic life use (Category 5).

The following conditions will also result in segments being listed in Category 5:

1. There were documented cases of nuisance algal blooms or excessive macrophyte growth. These cases violate Section 4.1.1.3 of Delaware's Standards which require waters of the State to be free from substances that may result in a dominance of nuisance species;

2. Detailed, site-specific monitoring studies indicated a strong linkage between nutrient levels and indicators of eutrophication such as high chlorophyll-a concentrations, extreme daily variation in dissolved oxygen levels, and high sediment oxygen demand; or
3. For ERES waters, a long-term trend analysis indicates a statistically significant increase in nutrient levels over time. Such increases are inconsistent with the short-term goal of "holding the line" on water quality in ERES waters. Such increases are also inconsistent with the long-term goal of restoring those waters, to the extent feasible, to their natural state.

Assessments of Total Suspended Solids in the Tidal Inland Bays Watershed

For tidal portions of the Indian River, Rehoboth Bay and Little Assawoman Bay watersheds, the water quality criterion for total suspended solids (TSS) is a seasonal average of 20mg/l from March 1 to October 31. For those stations where sampling events occurred on at least ten different days during the assessment period, the available data for the months of March to October from each station will be averaged and confidence intervals on the averages will be determined. The lower confidence limit on the averages will be compared to the above values to assess attainment of desired TSS levels in these waters. Active stations with fewer than ten different sampling days will be considered to have insufficient data and be placed in Category 3 for this assessment cycle. Segments with one or more stations whose lower confidence limit on their seasonal average is above the criteria will be considered to be not fully supporting the aquatic life use (Category 5).

Primary Contact Recreation Use Assessments

Generally, total enterococcus bacteria water quality samples are collected several times each year at each monitoring station. In addition, for all guarded beaches and many unguarded beaches, samples are collected much more frequently from mid-May through mid-September as part of beach monitoring activities pursuant to the Beaches Environmental Assessment and Coastal Health (BEACH) Act. Assessment of the above two situations for primary contact recreation use support will be as follows.

For segments with no beach monitoring, if sampling events occurred on at least ten different days during the assessment period, the geometric mean of the available enterococcus (colonies/100 ml)data for each station will be compared to the geometric mean values shown in the table below. Stations with fewer than ten different sampling days will be considered to have insufficient data (Category 3) to make a determination if the geometric mean criterion is met. For segments with no beach monitoring, one or more station geometric means above the values in the table will be considered to not be in support of the Primary Contact Recreation designated use (Category 5).

Water Type	Geometric Mean (Enterococcus colonies/100 ml) Criteria for Primary Contact Use
Fresh	100
Marine	35

Segments with beaches that are closed as a result of poor bacterial water quality data two or more times in a single calendar year will be considered not to support the primary contact designated use (Category 5).

Temperature Assessments

Delaware surface water quality criteria indicate that, in freshwaters, no human induced increase of the daily maximum temperature above 86°F (30.0 ^{o}C) shall be allowed and in marine waters the maximum human induced temperature is 87 ^{o}F (30.6 ^{o}C). Stations for which two or more sampling events are above the criteria and whose segments receive thermal discharges will be deemed not in support of the aquatic life use.

Assessment of Harvestable Shellfish Waters Use Support

Delaware is a member of the Interstate Shellfish Sanitation Conference (ISSC), the administrative body of the National Shellfish Sanitation Program (NSSP). Delaware's Shellfish Sanitation Regulations are administered as per ISSC / NSSP standards and practices. Section 3.2.1.3 of said Regulations specifies data collection / closure criteria for Delaware shellfish waters, which include parameters constituting administrative closure of shellfish waters. Parameters that would trigger administrative closures in compliance with ISSC/NSSP standards may include theoretical pollution loading, sanitary shoreline survey information, and numerical total coliform data. All Delaware shellfish waters designated as other-than-Approved, which may include Prohibited, Seasonally Approved, Conditionally Approved, or restricted, are so designated on the basis of administrative decisions. Specifically, these criteria include: 1) theoretical pollution loading, which is determined to be the potential for intermittent pollution discharges, making detection of said theoretical releases non-detectable via conventional sampling methodology; 2) sanitary shoreline survey findings which indicate potential for theoretical pollution loading, also non-detectable via conventional sampling methodology; and 3) may include dilution of theoretical virus discharges from point sources; however, not corresponding to increases in total coliform levels. In order to comply with ISSC / NSSP requirements, Delaware samples all shellfish waters not administratively closed for other reasons for total coliform bacteria. Delaware's Shellfish Program is assessed under the auspices of the U.S. Food and Drug Administration, as per ISSC/NSSP standards and practices, and submits

bacteriological water quality data to the U.S. Food and Drug Administration to demonstrate compliance.

To assess the harvestable shellfish designated use, the Department will consider the data and reports to FDA for waters that are not administratively closed. Waters that have been administratively closed for shellfish harvesting as a result of total coliform exceedances during the assessment period will be assessed as category-5.

Listing Criteria for Waters with Fish Consumption Advisories

For purposes of developing Delaware's Integrated 305(b) Report and 303(d) List, the issuance of a "no consumption" or "limited consumption" fish advisory will be interpreted as a violation of Section 4.5.9.2.3 and Section 4.1.1.3 of Delaware's Surface Water Quality Standards. Those two narrative provisions provide, respectively, that:

1) waters of the State shall be maintained to prevent adverse toxic effects on human health resulting from ingestion of chemically contaminated aquatic organisms; and
2) waters of the State shall be free from pollutants that may endanger public health.

Any segment for which fish consumption advisories are in place as of the publishing of the Integrated Report will be placed in Category 5 for each of the chemicals of concern included in each advisory. In the event that fish consumption advisories have been lifted, or any chemical of concern has been removed from an advisory, any requirements to develop a TMDL for that chemical in that segment will be removed if the fish tissue data was originally the sole cause for placement of the segment on the 303(d) list. In waters impaired by toxic pollutants, with both fish consumption advisories and water column data, both fish tissue and water column data will be assessed independently against the applicable criteria.

For the 2016 assessments, the Department incorporated the Fish Tissue Advisories that were issued by the Delaware Departments of Health and the Department of Natural Resources and Environmental Control on June 7, 2016. In those advisories, a number of rivers and creeks had fish consumption advisories that were less restrictive than prior advisories, but for more contaminants of concern. This was due to a minor technical change as opposed to worsening conditions. In fact, many of the contaminants of concern that were added (mostly organochlorine pesticides) were marginally over their respective levels of concern. Further, they show decreasing concentrations when viewed over the long term. The Department expects those contaminant levels to continue to decline in the fish due to natural attenuation and in response to ongoing improvements in stormwater management and other controls. Thus, the TMDL dates for these newly listed contaminants of concern in fish were assigned a low priority with the expectation that the listings will be removed in the interim between listing and the target dates assigned. In future listing cycles, and subject to stakeholder input, the Department anticipates delisting those contaminants if trends show the concentrations have or are likely to fall below levels of concern in a reasonable time frame without TMDL development.

Ammonia assessments

In fresh waters, ammonia's toxicity is known to be controlled by both the temperature and pH of the water. Delaware's ammonia criteria are based on the presence or absence of early life stages of fish and specify that the criterion should not be exceeded more than one time in a three-year period. The applicable criterion is calculated for each sampling event.

For stations whose average salinity during the assessment period is below 5 ppt, total ammonia as nitrogen, temperature and pH data will be used to compare the total ammonia data to the criterion calculated according to the following formulas:

When fish early life stages are present:

$$\text{Criterion} = \frac{0.0577}{1 + 10^{7.688-pH}} + \frac{2.487}{1 + 10^{pH-7.688}} * \text{MIN}\,(2.85,\ 1.45 * 10^{0.028*(25-T)})$$

When fish early life stages are absent:

$$\text{Criterion} = \frac{0.0577}{1 + 10^{7.688-pH}} + \frac{2.487}{1 + 10^{pH-7.688}} * [1.45\ 10^{0.028*(25-\text{MAX}\,(T,7))}]$$

If two or more sampling events from the same station result in exceedances of the calculated criteria within three years, the station will be deemed not supported for aquatic life use support based on ammonia toxicity.

Assessments of Aquatic Life Use Support Using Site-Specific Data That Results from Environmental Assessments and Other Programs

In the normal course of business, the Department requests, receives and evaluates water quality data for various environmental programs. Similar data may also come from other parties (e.g., State, Federal, or local agencies). The Department will use those site-specific studies to compare water quality data to the applicable water quality standard(s) and make assessment and listing decisions for the affected segments. If the data show no water quality criteria are exceeded and no uses are impaired, no further listing action will be taken. If the data are ambiguous or inconclusive, the segment will be listed in Category 3. If water quality criteria are exceeded or uses are impaired as a result of a contaminated site, and the owners of the site are making substantial progress (as determined by the Department) toward correcting the pollution problem, the segment will be listed in Category 4 if an enforceable regulatory mechanism has been identified and implemented. If it appears that there is a water quality problem related to a contaminated site, and that substantial progress is not likely in the near future, the segment will be listed in Category 5.

Assessments of Waters of Exceptional Recreational or Ecological Significance

ERES is a special use designation in Delaware's Surface Water Quality Standards that applies to waters deemed to be of Exceptional Recreational or Ecological Significance. The short-term goal for ERES waters is to "hold the line" on pollution and the long-term goal is to restore ERES waters, to the maximum extent practicable, to their natural condition.

The ERES designated use will be assessed using data from the period January 1, 1998 through December 2014 for total nitrogen and total phosphorous concentrations to assess trends for those parameters. Seasonality for each parameter at each station will be determined using the Kruskal-Wallis test. Parameters showing no seasonality will be assessed using Sen's slope estimator.. Parameters showing seasonality will be evaluated using seasonal Kendall slope estimations. Segments with one or more stations that show statistically significant increases in total nitrogen or total phosphorus levels will be considered to not be in attainment of the ERES designated use.

Assessments of Biology and Habitat

The Department is working with the EPA to address prior listings for Biology and Habitat. As new stressor analyses and other data and information become available, appropriate measures will be taken to address these listings. Where no specific pollutant can be determined, the Department will delist those segments (move to category 4b or 4c as needed) and address water quality issues through restoration and other efforts as funding is available. If specific pollutants can be determined, TMDLs or other actions will be taken to address those pollutants.

Setting Priorities for Water Quality Limited Segments Still Needing TMDLs

The Department has been working with EPA and other states to develop and implement EPA's Updated Framework for Implementing the Clean Water Act 303(d) Program Responsibilities (the Vision) in this and future integrated reports. EPA and the States and Tribes worked collaboratively to develop the Vision. More information about the Vision is available online at: http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/programvision.cfm. For the 2016 cycle, EPA's Integrated Reporting Guidance documents are available online here: http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/guidance.cfm. Along with most other states, the Department committed to developing documents describing our Prioritization strategies for the 2016 and future Integrated Reports.

As a result of successful WATAR activities and data collection noted above in Section B2, the Department has elected to delay TMDLs for toxics that were slated for development in 2017. Those segments have been given a completion date of 2022. As this report is being completed, trends analyses for the listed toxics are being compiled for inclusion in a separate analysis the Department anticipates to be finalized later in 2017. The Department believes that the result of the trend analysis will support three possible outcomes:

- Delisting of some segments in the 2018 cycle that are no longer impaired by the toxics in question.

- Recommendation to use a TMDL alternative of monitored natural attenuation for some segments that are close to attainment and expected to reach attainment in the near future.
- TMDL Development by 2022 for segments that the trend analysis shows are not likely to support the designated use due to impairments that are not likely to naturally attenuate in a reasonable time frame. In these cases, the data collected in the WATAR program is expected to support timely TMDL development on or before the 2022 deadline.

The analysis will go into much more detail of the factors considered for the resulting recommendations than is possible in this brief description. The Department will make the analysis available to stakeholders when it is completed, and consider the recommendations and stakeholder comments in the 2018 Integrated Report.

Rationale Used to Designate a Lower Category for Segments Previously Designated for TMDL Development

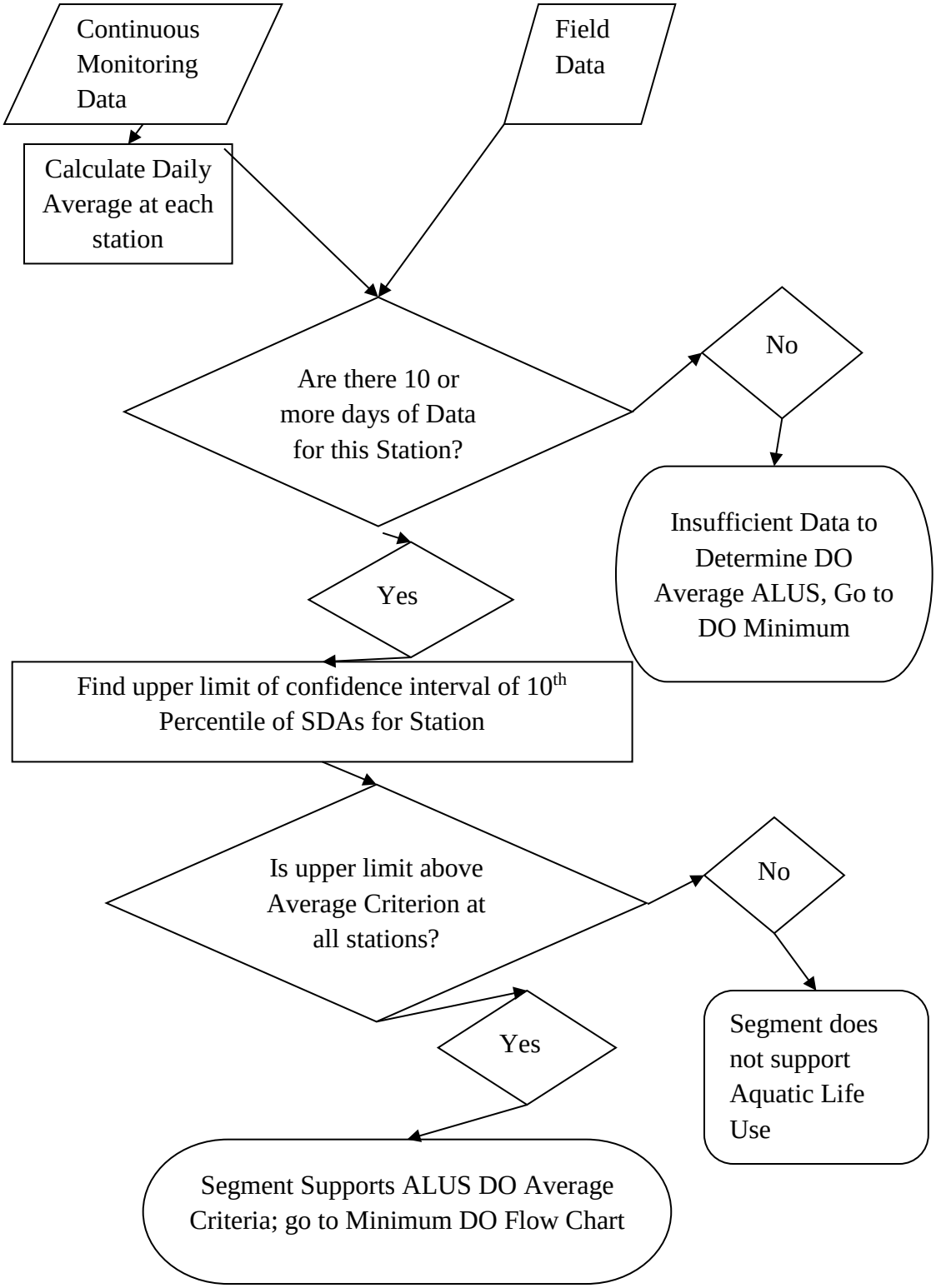
The Department may move segments from prior 303(d) Lists (equivalent to Category 5) to another category based on any of the following factors, and will document the reasons for doing so on a case-by-case basis. Once a TMDL has been promulgated and approved by the EPA, it is in place until it has been rescinded by the Department following applicable Departmental procedures.

- The assessment and interpretation of more recent or more accurate data demonstrate that the applicable WQS(s) is being met. (Move to category 1)
- The results of more sophisticated water quality modeling demonstrate that the applicable WQS(s) is being met. (Move to category 1)
- Demonstration that flaws in the original analysis of data and information led to the water being incorrectly listed. (Move to category 1)
- The development of a new listing methodology, consistent with State WQSs and federal listing requirements, and a reassessment of the data that led to the prior listing, concluding that WQSs are now attained. (Move to appropriate category)
- A demonstration pursuant to 40 CFR 130.7(b)(1)(ii) that there are effluent limitations required by State or local authorities that are more stringent than technology-based effluent limitations required by the CWA and that these more stringent effluent limitations will result in the attainment of WQSs for the pollutant causing the impairment. (Move to category 4A or 4B until data and analysis support move to Category 1)
- A demonstration pursuant to 40 CFR 130.7(b)(1)(iii) that there are other pollution control requirements required by State, local, or federal authority that will result in attainment of WQSs for a specific pollutant(s) within a reasonable time. (Move to category 4A or 4B until data and analysis support move to Category 1)
- Documentation that the State included on a previous Section 303(d) List an impaired water that was not required to be listed by EPA regulations; e.g., waters where there is no pollutant associated with the impairment. (Move to category 1 or 4C as appropriate)
- Approval or establishment by EPA of a TMDL since the last Section 303(d) List. (Move to category 4A or 4B until data and analysis support move to Category 1)

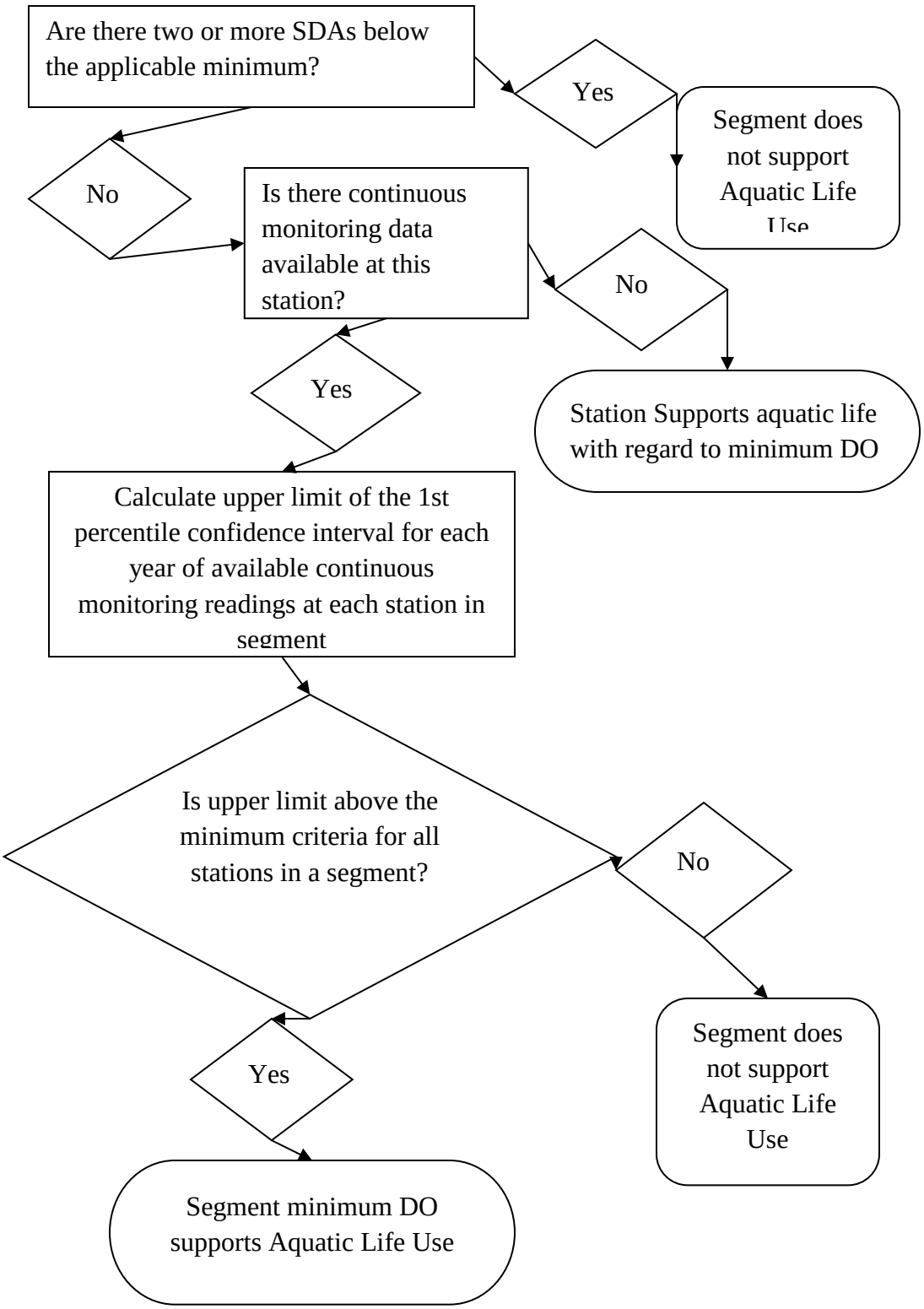
Other factors may also be used to change categories on a case by case basis, subject to EPA approval and appropriate stakeholder involvement.

Flow Charts for Designated Use Attainment

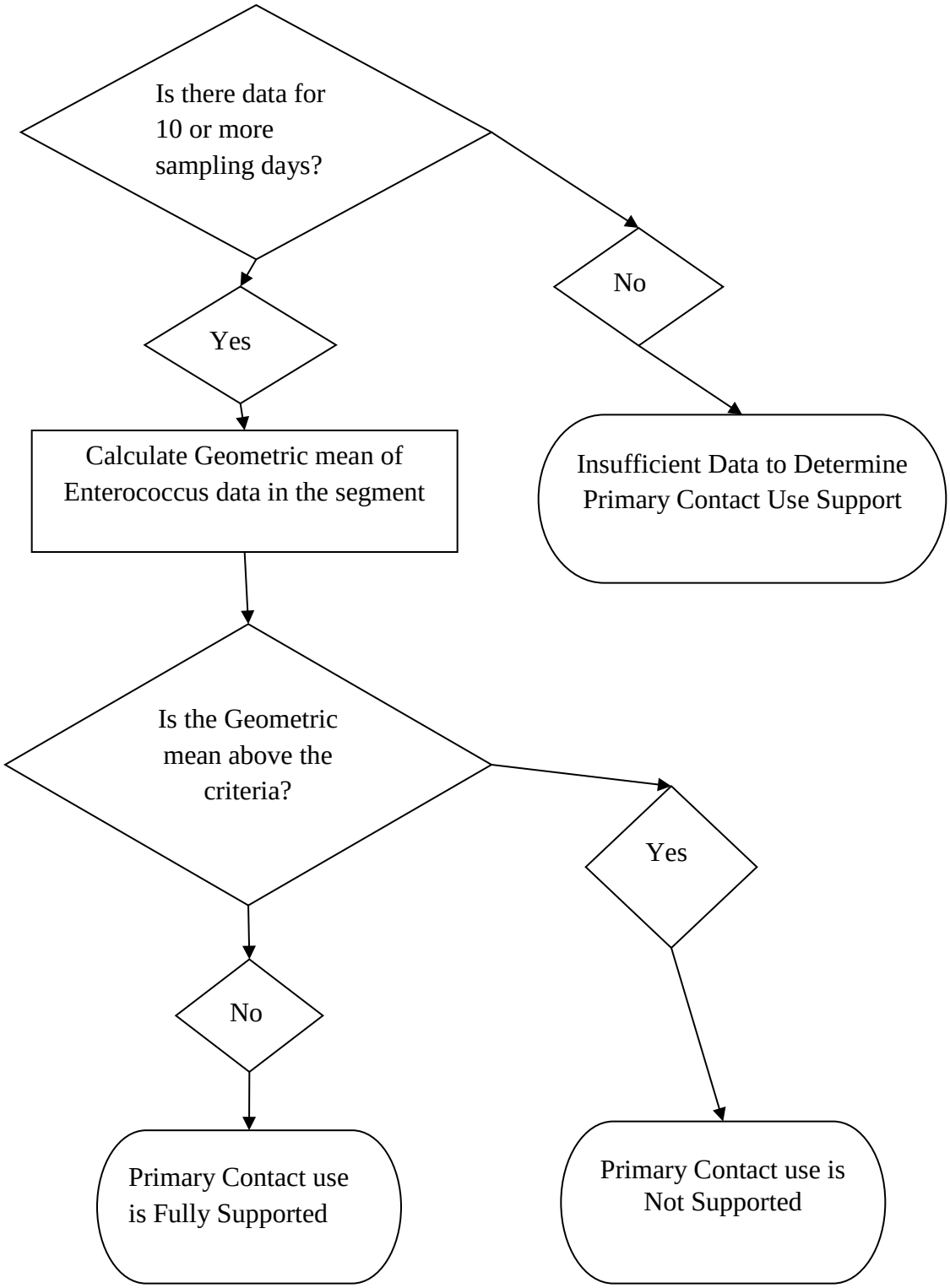
Assessment of Aquatic Life Use Support Using Average Dissolved Oxygen Criteria



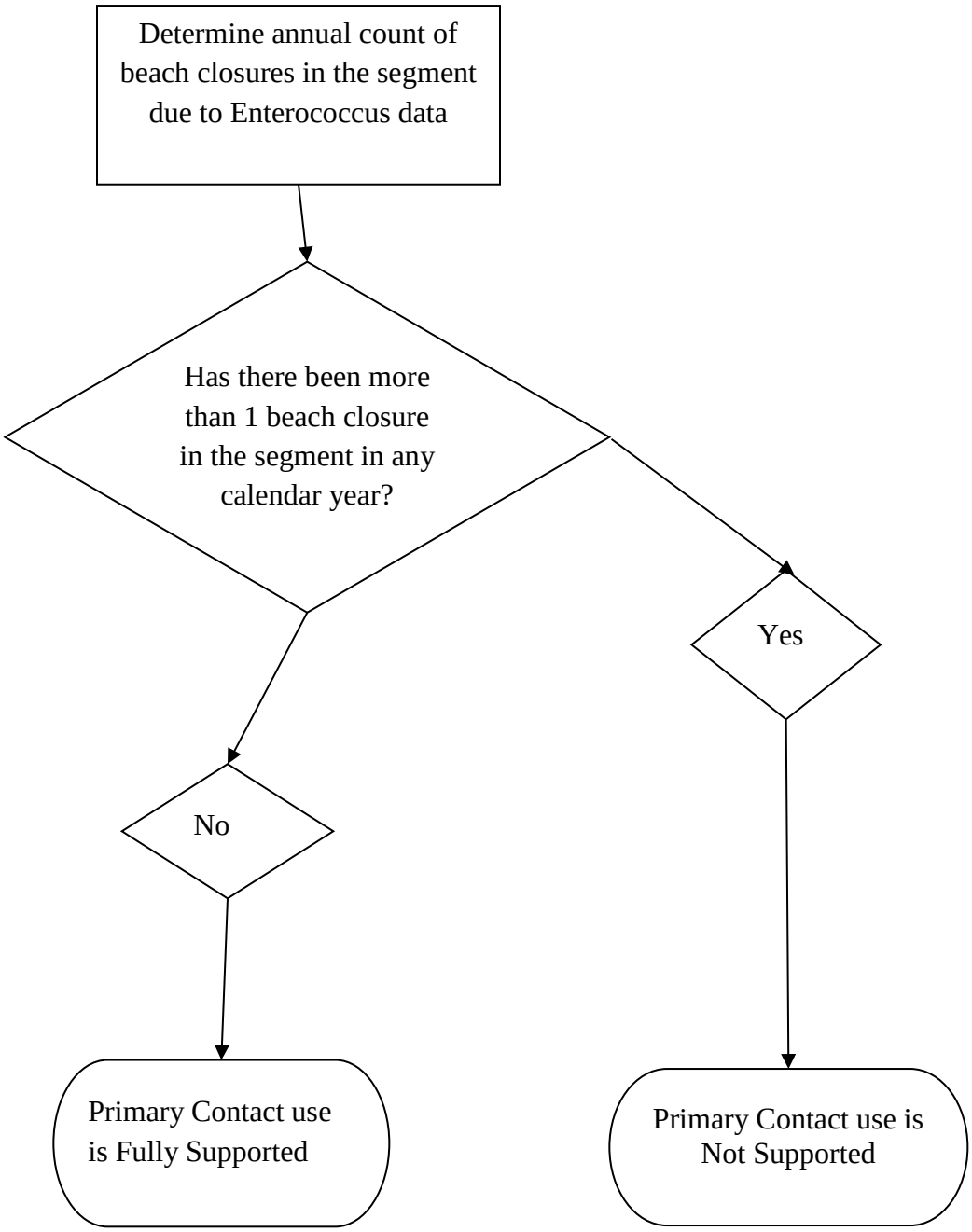
Assessment of Aquatic Life Use Support Using Minimum Dissolved Oxygen Criteria



Assessment of Primary Contact Use Support in Segments that do not have Beach Monitoring Programs



Assessment of Primary Contact Use Support in Segments with Beach Monitoring Programs



C3. Assessment Results

The results of the data analyzed for each station evaluated for this report are shown in Appendix One: Station Roll Ups. Assessments for each segment for the period of interest are shown in Appendix Two: Segment Roll Ups. The TMDL List (the List) is shown in Appendix Three: The Final Determination for the State of Delaware 2016 Clean Water Act Section 303(d) List of Waters Needing TMDLs. Appendix Four: Volunteer Water Quality Monitoring Data shows results from volunteer monitoring results in the Inland Bays watershed, and the Nanticoke River Watershed.

The 2016 303(d) List shows 89 revisions from earlier Lists. Those revisions are highlighted in "Change this cycle" column in the List. Under the Clean Water Act, "listing" a waterbody is an indication that the water body is not fully meeting its designated use, thus "impaired", and needs further controls to support the designated use. Once listed, a TMDL regulation or alternative must be developed that will return the waterbody to supporting the designated use. Delisting a waterbody for a pollutant indicates that the previously listed waterbody now supports a designated use and thus "attains the use". Segment/pollutant combinations allow the Department to track progress for individual pollutants in specified waterbodies. For example, one segment (which can be an entire waterbody or a section of larger waterbody) may be impacted by four fish tissue advisory pollutants, nutrients and bacteria. That segment would thus have six segment/pollutant combinations.

For the 2016 assessments, the Department incorporated the Fish Tissue Advisories that were issued by the Delaware Departments of Health and the Department of Natural Resources and Environmental Control on June 7, 2016. In those advisories, a number of rivers and creeks had fish consumption advisories that were less restrictive than prior advisories, but for more contaminants of concern. This was due to a minor technical change as opposed to worsening conditions. In fact, many of the contaminants of concern that were added (mostly organochlorine pesticides) were marginally over their respective levels of concern. Further, they show decreasing concentrations when viewed over the long term. The Department expects those contaminant levels to continue to decline in the fish due to natural attenuation and in response to ongoing improvements in stormwater management and other controls. As a result of the advisories, seventeen segment/pollutant combinations were newly listed and twelve segment/pollutant combinations were delisted.

Four segments are newly listed for copper impairments and one segment for dissolved oxygen impairment. The new listing for dissolved oxygen is in a segment that already has a TMDL that should lead to attainment of the criteria.

There were five delistings for nutrient impairments, four for dissolved oxygen impairments and seven for bacterial impairments.

Consideration of Zinc Exceedances in the Gravelly Branch

The zinc data collected over the period July 2008 through February 2017 at Station 316031 in Gravelly Branch were evaluated more closely for purposes of this report. Exceedances have occurred periodically over the full record considered. Exceedances have occurred in nineteen (19) of seventy-two (72) samples, or in approximately 26% of the samples. Dissolved zinc concentrations tended to be higher in the winter and lower in the summer and fall. Exceedances followed this same trend with more exceedances during the November through March time period. No exceedances were observed in the summer or fall months. Patterns in the hardness data are less clear. Dissolved zinc is poorly correlated with hardness.

The measured dissolved zinc concentrations were not particularly high, ranging between 4.5 ug/L and 47.4 ug/L. The mean and median are similar at 22 ug/L and 23.1 ug/L, respectively. Approximately 95% of the zinc results are less than 36.5 ug/L. The measured hardness values were very low, ranging between 12.2 mg/L and 48.9 mg/L. The mean and median are similar at 19.6 mg/L and 19.2 mg/L. Importantly, 95% of the hardness values are less than 25 mg/L. Water at this station is very “soft”. Because zinc toxicity is inversely related to water hardness, soft water translates to very stringent criteria. In this case, the measured zinc concentrations and the calculated zinc criteria are similar, with the measured values never more than 1.5 times the criteria. The average magnitude of exceedance was only 16% to 17%. See the Table below.

From a regulatory perspective, these are clearly exceedances. However, there is some uncertainty in this assessment due to the very low hardness concentrations at the site. The relationship between hardness and toxicity reflected in the criteria equations was developed based on laboratory bioassays performed at hardness values generally higher than those typical of the Gravelly Branch station. Despite the marginal exceedances and the uncertainty associated with applying the criteria equations in extremely low hardness conditions, DNREC placed this station in category 5 of its 303(d) list of impaired waterbodies rather than category 3. The distinction is that category 5 waters need a TMDL or equivalent while category 3 waters simply need additional information. DNREC intends to follow up with additional testing at and upstream of station 316031 to better understand current conditions. This may confirm or refute the need to retain this station in category 5.

Table 1: Zinc Concentrations in Gravelly Branch

Sample Date	Hardness (mg/L $CaCO_3$)	Dissolved Zinc (ug/L)	Zinc Chronic Criterion (ug/L)	Zinc Acute Criterion (ug/L)	% Zinc Chronic Criteria	% Zinc Acute Criterion
7/9/2008	12.2	11.7	19.9	19.7	58.9%	59.4%
9/16/2008	43.1	8.6	57.9	57.4	14.9%	15.0%
11/19/2008	23.9	47.4	35.1	34.8	134.9%	136.0%
2/4/2009	26.8	25.3	38.7	38.4	65.4%	65.9%
3/16/2009	18	24	27.6	27.4	86.9%	87.6%
5/20/2009	21.3	28.3	31.9	31.6	88.8%	89.5%
7/22/2009	18.2	13.3	27.9	27.7	47.7%	48.1%
9/29/2009	18.8	24.8	28.7	28.4	86.5%	87.2%
10/28/2009	22.7	25.2	33.6	33.4	74.9%	75.5%
11/10/2009	19.8	34.55	30.0	29.7	115.3%	116.3%
12/15/2009	19.2	29.4	29.2	28.9	100.7%	101.6%
1/12/2010	22.45	25.7	33.3	33.0	77.1%	77.8%
2/15/2010	20.1	24.6	30.3	30.1	81.1%	81.7%
3/15/2010	20.5	24.9	30.8	30.6	80.7%	81.4%
4/12/2010	29.1	23.5	41.5	41.2	56.6%	57.1%
5/11/2010	16.3	13.3	25.4	25.2	52.4%	52.8%
6/7/2010	16.15	10.4	25.2	25.0	41.3%	41.6%
7/21/2010	18.1	7.7	27.8	27.5	27.7%	28.0%
8/23/2010	15.7	14.4	24.6	24.4	58.5%	59.0%
9/20/2010	16.4	4.5	25.5	25.3	17.6%	17.8%
10/11/2010	19.6	18	29.7	29.5	60.6%	61.1%
11/8/2010	19.2	21.2	29.2	28.9	72.6%	73.2%
12/7/2010	16.7	18.6	25.9	25.7	71.7%	72.3%
1/10/2011	19	28	28.9	28.7	96.8%	97.6%
2/7/2011	19.4	40.25	29.4	29.2	136.7%	137.8%
3/7/2011	21.2	34.3	31.7	31.5	108.1%	109.0%
4/18/2011	21.2	32.1	31.7	31.5	101.1%	102.0%
5/9/2011	19.4	21	29.4	29.2	71.3%	71.9%
6/6/2011	13.6	12.2	21.8	21.6	56.0%	56.4%
8/8/2011	17.65	5.6	27.2	27.0	20.6%	20.8%
10/10/2011	22.1	22	32.9	32.6	66.9%	67.5%
12/5/2011	15.1	26.05	23.8	23.6	109.4%	110.3%

Sample Date	Hardness (mg/L $CaCO_3$)	Dissolved Zinc (ug/L)	Zinc Chronic Criterion (ug/L)	Zinc Acute Criterion (ug/L)	% Zinc Chronic Criteria	% Zinc Acute Criterion
2/14/2012	12.9	22.7	20.8	20.7	109.0%	109.8%
4/17/2012	15.75	11.7	24.7	24.5	47.4%	47.8%
6/12/2012	14.7	7.35	23.3	23.1	31.6%	31.8%
8/27/2012	16.4	9.6	25.5	25.3	37.6%	37.9%
10/15/2012	16.5	11.4	25.7	25.5	44.4%	44.8%
12/12/2012	20.9	36.4	31.4	31.1	116.1%	117.0%
2/19/2013	20.3	36.7	30.6	30.3	120.0%	120.9%
4/17/2013	18	20.7	27.6	27.4	74.9%	75.5%
6/18/2013	21.5	21.1	32.1	31.9	65.7%	66.2%
8/19/2013	22.5	18	33.4	33.1	53.9%	54.4%
10/21/2013	24.2	26.15	35.5	35.2	73.6%	74.3%
12/16/2013	20.2	28.8	30.5	30.2	94.5%	95.3%
2/10/2014	20	26.15	30.2	30.0	86.6%	87.3%
4/16/2014	19.25	22.65	29.2	29.0	77.4%	78.1%
6/23/2014	19.25	9.65	29.2	29.0	33.0%	33.3%
7/21/2014	17.65	6.55	27.2	27.0	24.1%	24.3%
8/25/2014	17.5	7.05	27.0	26.8	26.1%	26.3%
9/9/2014	19.75	7.15	29.9	29.6	23.9%	24.1%
10/14/2014	17.6	9.25	27.1	26.9	34.1%	34.4%
11/24/2014	17.25	28.35	26.7	26.4	106.4%	107.2%
12/15/2014	16	30.25	25.0	24.8	121.0%	122.0%
1/13/2015	22.8	35.6	33.8	33.5	105.5%	106.3%
2/23/2015	21.25	32.5	31.8	31.5	102.2%	103.0%
3/16/2015	20.8	26.6	31.2	31.0	85.2%	85.9%
4/27/2015	19.35	25.05	29.4	29.1	85.3%	86.0%
5/12/2015	17.75	21.2	27.3	27.1	77.6%	78.3%
9/28/2015	15.45	6.5	24.3	24.1	26.8%	27.0%
10/26/2015	15.8	21.3	24.7	24.5	86.1%	86.8%
11/30/2015	16.05	29.05	25.1	24.9	115.9%	116.8%
12/14/2015	18.6	30.75	28.4	28.2	108.2%	109.1%
1/12/2016	15.5	35.5	24.3	24.1	145.8%	147.0%
2/16/2016	21.45	43.3	32.1	31.8	135.1%	136.2%
3/21/2016	18	31.9	27.6	27.4	115.5%	116.4%
4/25/2016	19.85	22.2	30.0	29.8	74.0%	74.6%
5/24/2016	19.1	26.5	29.1	28.8	91.2%	92.0%
6/28/2016	14.55	13.95	23.1	22.9	60.5%	61.0%

Sample Date	Hardness (mg/L $CaCO_3$)	Dissolved Zinc (ug/L)	Zinc Chronic Criterion (ug/L)	Zinc Acute Criterion (ug/L)	% Zinc Chronic Criteria	% Zinc Acute Criterion
8/9/2016	18.55	10.15	28.3	28.1	35.8%	36.1%
10/31/2016	48.85	21.8	64.4	63.9	33.9%	34.1%
12/14/2016	19.4	25.25	29.4	29.2	85.8%	86.5%
2/20/2017	20.55	23.75	30.9	30.7	76.8%	77.5%

C4. Wetlands Program

The Goals, Objectives and Products of the Delaware Department of Natural Resources and Environmental Control's Wetland Monitoring and Assessment Program

Program Goals

The goal of DNREC's Wetland Monitoring and Assessment Program (WMAP) is to assess the condition, or health, of wetlands and the functions and ecosystem benefits that wetlands provide. This information is used to inform the citizens of Delaware and to improve existing education, restoration, protection, and land use planning efforts. The 2015 Delaware Wetland Management Plan will guide future efforts of the WMAP in the areas of protocol development, wetland monitoring and assessment activities, research, and application of information.

We work closely with other states through the Environmental Protection Agency's Mid-Atlantic Wetlands Program to establish and conduct research methods and share information.

Objectives:

- Develop scientifically valid wetland assessment methods.
- Assess the current condition of wetlands by watershed and identify major stressors that are impacting wetlands.
- Perform research to improve our understanding of wetland functions, the impact of stressors, and the ecosystem services provided by wetlands to humans and the environment.
- Evaluate the performance of wetland restoration and other compensatory wetland mitigation in replacing wetland acreage and function.
- Educate other state agencies, conservation partners, and the general public to improve efforts to protect and restore wetlands.
- Integrate monitoring and assessment data into watershed restoration plans and other conservation strategies.
- Meet requirements of the Clean Water Act.

Productivity

- Development of Delaware's nationally-recognized Monitoring and Assessment Protocols
- Developed a collaborative Delaware Wetland Management Plan
- Completed non-tidal wetland condition reports for the Nanticoke, Inland Bays, Murderkill, St. Jones, and Broadkill watersheds
- Completed wetland condition reports for the Nanticoke, Inland Bays, Murderkill, St. Jones, Broadkill and Mispillion watersheds
- Collaborative development of a Restoration Plan for the Nanticoke Watershed

Links to more information about Delaware's wetlands including Wetland Health Reports, the 2015 Delaware Wetland Management Plan, a review of Delaware's Wetland program and many other resources are online at:
http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Pages/Portal.aspx.

C5. Trends Analysis for Surface Waters

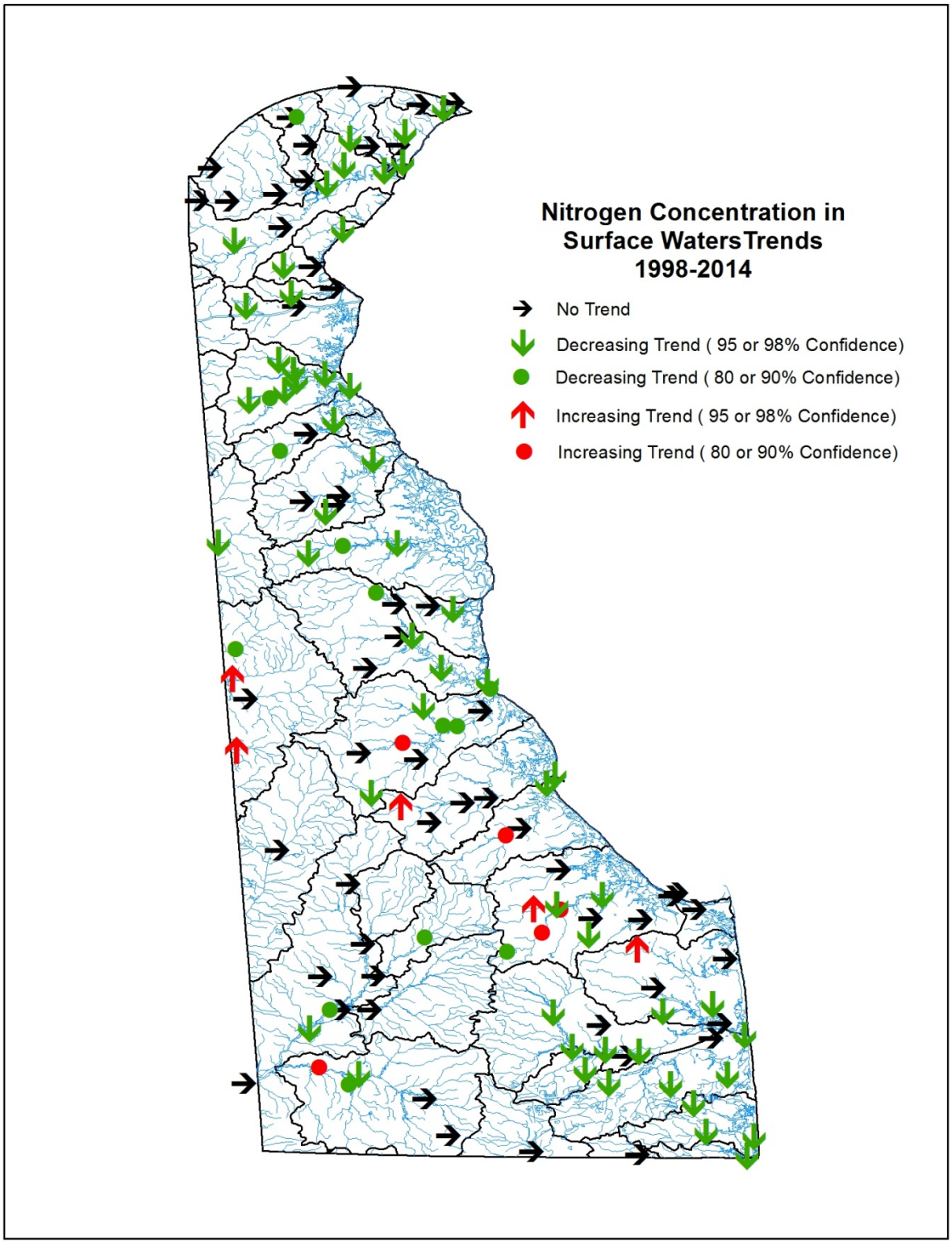
Nutrient Trends at 133 STORET Stations

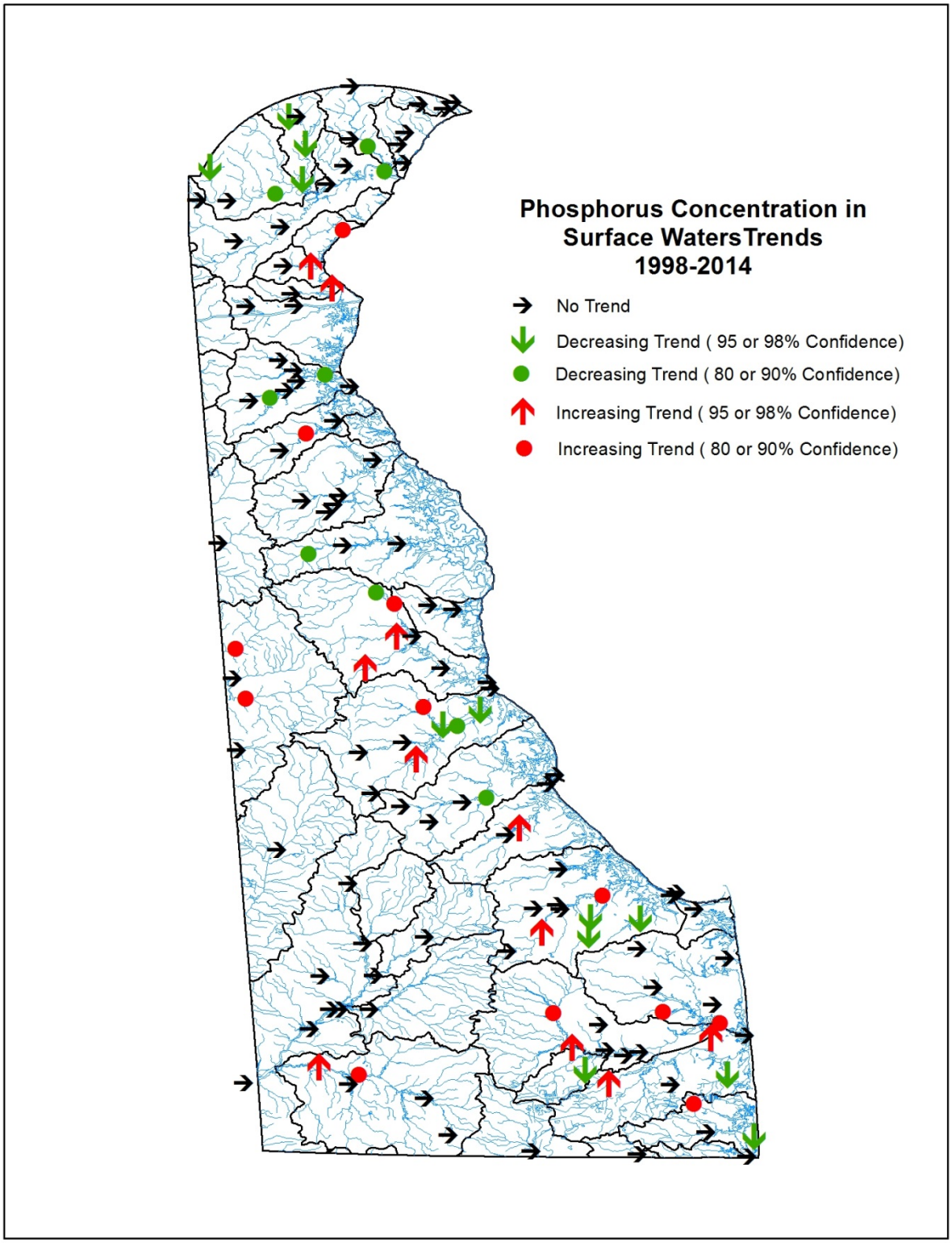
Total nitrogen and total phosphorus data from 1998-2014 for all Delaware STORET stations was retrieved. Data from stations with 40 or more data points were analyzed using WQSTAT software to evaluate for concentration trends using non-parametric methods. 133 stations had 40 or more data points for total phosphorus and 132 stations for total nitrogen. The software reported statistically significant trends at various confidence levels depending on the type of statistical test used. For regulatory purposes the Department would not ordinarily consider 80 or 90 percent confidence levels as a trigger for further action. For this analysis, however, the lower confidence results are reported and mapped to aid in "telling the story", especially in the mapped data. See the tables and maps below.

Of the 133 stations evaluated for total phosphorus concentration trends, 45 had statistically significant trends. For this analysis, a statistically significant downward trend is a desirable outcome. Total phosphorus concentration trends were closely divided between upward and downward trends. 88 stations showed no trend, either positive or negative. Of the 132 stations evaluated for total nitrogen concentration trends, 76 stations had statistically significant trends and 56 stations had no trend upward or downwards. The vast majority of significant trends for total nitrogen were downward trends, mostly at higher confidence levels.

Statewide Nutrient Trends Summary Table

Confidence	Statistically Significant Decreases for Total Phosphorus	Statistically Significant Increases for Total Phosphorous	Statistically Significant Decreases for Total Nitrogen	Statistically Significant Increases for Total Nitrogen
80%	4	4	6	5
90%	6	8	7	--
95% or 98%	12	11	53	5
Totals	22	23	66	10


Nitrogen Concentration in
Surface Waters Trends
1998-2014
No Trend
Decreasing Trend (95 or 98% Confidence)
Decreasing Trend (80 or 90% Confidence)
Increasing Trend (95 or 98% Confidence)
Increasing Trend (80 or 90% Confidence)


Phosphorus Concentration in
Surface Waters Trends
1998-2014
No Trend
Decreasing Trend (95 or 98% Confidence)
Decreasing Trend (80 or 90% Confidence)
Increasing Trend (95 or 98% Confidence)
Increasing Trend (80 or 90% Confidence)

C6. Public Health Issues

The Department addresses public health issues through various programs related to drinking water supplies, beach use and fish/shellfish advisories.

Delaware Source Water Protection Program

The Source Water Assessment and Protection Program (SWAPP) was created by Congress as part of the Safe Drinking Water Act Amendments of 1996. The goal of the SWAPP is to better protect public drinking water resources by providing local and state governments, and the public more information about those resources. The susceptibility of each source of public drinking water to various types of contamination will be determined and published. Congress has provided funding though the U.S. EPA to the states to support their efforts in conducting these assessments.

The Delaware Department of Natural Resources and Environmental Control (DNREC) has the lead role in the development and implementation of the Delaware SWAPP. The Delaware Division of Public Health and the Water Resources Agency, Institute for Public Administration at the University of Delaware, closely supports its work. A SWAPP Citizen and Technical Advisory Committee (CTAC) was formed at the start of this program in 1998 and continuing to assist in developing and implementing Delaware's SWAPP and ensures public involvement.

Program	Web Address
Delaware Source Water Protection Program (DNREC)	http://delawaresourcewater.org/
Delaware Department of Health and Human Services Office of Drinking Water	http://dhss.delaware.gov/dhss/dph/hsp/odw.html
University of Delaware Water Resources Agency, Institute for Public Administration	http://www.wra.udel.edu/

Delaware's Recreational Beach Monitoring Program

DNREC's Recreational Water Program protects the health of swimmers in a number of ways:

- Shoreline surveys are conducted adjacent to guarded recreational beaches to identify all actual and potential sources of pollution.
- Water samples are collected at least weekly at all guarded beaches during the swimming season (mid May through September).
- Water samples are analyzed to determine the levels of Enterococci bacteria in recreational waters. Enterococcus is one of several indicator organisms that signal the presence of potentially harmful bacteria and viruses.

- Signs have been posted at popular public access points around Rehoboth Bay, Indian River Bay, and Little Assawoman Bay to warn potential swimmers of the risks associated with swimming in poor quality waters.
- The Department recommends swimming only at guarded beaches where water samples are collected.
- There is a permanent caution regarding swimming in the Inland Bays. The Inland Bays suffer from nutrient and bacterial pollution that come from failing septic systems, fertilizers, and other sources. Water is slow to flush out of these bay, Indian River Bay, Rehoboth Bay and Little Assawoman Bay, so pollutants linger.

Up to date information about swimming advisories is available online at http://apps.dnrec.state.de.us/recwater/ or by phone on the 24-hour "Beach Hotline" at 1-800-922-WAVE (9283).

Fish Consumption Advisories

Fishing is an important activity in Delaware's inland and coastal waters. Among the benefits provided by fishing are quality recreational opportunities, direct and indirect input to the local economy, food for recreational anglers and food for the commercial marketplace. Fish are a good source of readily digestible protein, they are low in fat and sodium, and the unique type of fats found in fish are believed to provide cardiovascular benefits. Despite the general benefits of fishing and fish consumption, there has been a growing concern regarding the presence of chemical toxins in the flesh of finfish and shellfish taken from Delaware waters and the associated health risk to anglers and their families who consume their catch. The existence of chemicals in the edible portion of some fish has resulted in the public advisories (see Section C2 above). These advisories are as a result of joint action taken by the Department of Natural Resources and Environmental Control and the Department of Health and Social Service's (DHSS) Division of Public Health. Information about the latest advisories that are in effect is online at: http://www.dnrec.delaware.gov/fw/Fisheries/Pages/Advisories.aspx For details about the 2016 advisories, DNREC and DHSS issued a press release online at: http://www.dnrec.delaware.gov/News/Pages/DNREC%2c-DHSS-issue-new-fish-consumption-advisories-reflecting-significant-improvements-in-New-Castle-County0607-6621.aspx

PART D. GROUND WATER MONITORING AND ASSESSMENT

The following is the executive summary of a report titled: "*Delaware's 2016 305(b) Groundwater-Quality Assessment Based on Public-Well Data: Results of Sampling, October 1, 2013 through September 30, 2015*". The entire report is online with this report at: http://www.dnrec.delaware.gov/swc/wa/Pages/WatershedAssessment305band303dReports.aspx.

Groundwater-Quality Highlights

Groundwater quality in Delaware was assessed based on raw-water data collected during a two-year time period (October 1, 2013 through September 30, 2015) from public water-supply (PWS) wells. The water-quality database consisted of almost 30,000 analyses. Five aquifer types were recognized for reporting purposes: (1) unconfined, (2) confined, (3) semi-confined, (4) fractured-rock, and (5) karst. Unconfined, confined, and semi-confined aquifers occur in the mid-Atlantic Coastal Plain Physiographic Province, which comprises most (~96%) of Delaware's land-surface area. Fractured-rock and karst aquifers occur in the Piedmont Physiographic Province in the remaining northernmost portion of the state. There are 1,174 active PWS wells and a large majority (90%) of these wells produce from Coastal-Plain aquifers; 5% produce from Piedmont aquifers; and aquifer designations for the remainder are either not known or not yet established. Well depths range from 22 to 957 ft below land surface (bls) with a median well depth of 145 ft bls. Highlights from the groundwater-quality assessment follow*:

- **Based on nitrate data, almost half of the wells evaluated are susceptible to human influence.** Nitrate concentrations exceeded 0.4 mg/L, a threshold indicative of human impacts, in 43.5% of the samples.
- **The unconfined aquifer is the most susceptible to human influence.** This aquifer had the highest median nitrate concentration (4.70 mg/L), the largest fraction of concentrations exceeding 0.4 mg/L (91.3%), and the smallest fraction of non-detectable concentrations (7.2%).
- **Nitrate concentrations exceeded the drinking-water standard in <5% of all samples.** Concentrations exceeded the Primary Maximum Contaminant Level (PMCL) of 10 mg/L for drinking water in 4.5% of the samples. Areally, PMCL exceedances were limited to unconfined wells located in Sussex County.
- **Overall, nitrate concentrations decrease with depth.** Trends in nitrate concentrations with respect to sample depth indicate that overall the vertical extent of human influence was primarily limited to depths of ~350 ft below land surface and shallower. At depths greater than 350 ft, nitrate was not detected above the quantitation limit. The deepest nitrate detection was associated with a fractured-rock well. (Wells in Piedmont aquifers typically have very long open intervals that may allow contaminants to enter at shallower depths.)

Nitrate detections in Coastal-Plain wells were primarily limited to depths of 240 ft and shallower.

- **Organic compounds were frequently undetectable.** Organic compounds were not detected in 93.4% of the analyses. Almost three-quarters (71.4%) of the detections were found at concentrations less than 1 µg/L. Chloroform, a disinfection byproduct, was the most-frequently detected organic compound.
- **Organic compounds rarely exceeded drinking-water standards.** Specifically, organic compounds exceeded PMCLs in 0.5% of the analyses. The following analytes were found above the PMCL: tetrachloroethylene (PCE) and Bis(2-chloroethyl) ether (BCEE).
- **Some organic compounds have depth trends similar to nitrate.** Specifically, concentrations of methyl tert-butyl ether (MTBE), PCE, and trichloroethylene (TCE) with respect to sample depth indicate that the vertical extent of human impact in the Coastal-Plain aquifers is limited to depths of ~150 ft bls. Data for Piedmont aquifers were limited in this assessment, but in past assessments, organic compounds were detected at greater depths in fractured-rock and karst aquifers, the wells in which typically have very long open intervals that may allow contaminants to enter at shallower depths.
- **Trace elements were frequently undetectable.** Trace elements were not detected in 72% of the analyses. More than half (53%) of the detections were found at concentrations less than 0.1 mg/L and all detections (100%) were found at concentrations less than 1 mg/L. Chromium, nickel, and barium were the top three most-frequently detected trace elements.
- **Arsenic data were too limited in this assessment for meaningful analysis; based on previous assessments, arsenic detections were primarily limited to confined wells in glauconitic aquifers.** Based on the 2014 assessment (Kasper, 2014), arsenic was one of the top five most frequently detected trace elements. Detections of arsenic were primarily limited to confined wells that produce from the Rancocas, Mt. Laurel, or Piney Point aquifers, which are associated with glauconitic geologic formations. A USGS study targeting the Rancocas aquifer and completed during the reporting period (Denver, 2016) found that 15 (41.7%) of 36 wells had arsenic concentrations in excess of the PMCL (10 µg/L).
- **Radionuclide data were very limited in this assessment.** Available radionuclide data were limited to the following parameters with the number of analyses indicated in parentheses: uranium-238 (14), radium-226 (3), radium-228 (3), and gross alpha particle activity (3). All uranium-238 results were ND and thus below the 0.03 mg/L PMCL. All of radium-226 and radium-228 combined results were below the 5 pCi/L PMCL. All gross alpha particle activities were below the 15 pCi/L PMCL. A USGS study targeting the Rancocas aquifer and completed during the reporting period (Denver, 2016) found that 14 (44.4%) of 36 wells had radon concentrations above the lower proposed MCL (300 pCi/L); none of the radon concentrations exceeded the proposed alternative MCL of 4,000 pCi/L.

Other groundwater-quality findings:

- **Overall, groundwater is predominantly soft or moderately hard.** Specifically, most of the results (84.5%) met either of these criteria. There were no hardness data for karst wells; based on previous assessments, this aquifer type routinely had the most elevated hardness values.
- **Groundwater was acidic in about half of the overall samples.** Specifically, pH values were less than the lower limit of the Secondary Maximum Contaminant Level (SMCL) range (6.5-8.5 standard pH units) in 52.6% of the samples. Unconfined and semi-confined wells had the largest fractions of pH values below the SMCL range (88.6 and 80.0%, respectively); in contrast, confined wells had pH values that were predominantly within the SMCL range (76.3%). There were limited pH data for fractured-rock and karst wells; based on previous assessments, karst wells had the highest median pH and the largest fraction of samples within the SMCL range.
- **Iron was elevated in almost one third of the samples.** Iron exceeded the SMCL (0.3 mg/L) in 31.2% of the samples. Elevated iron was detected at virtually all depths. Relative to other Coastal-Plain aquifer types, semi-confined wells had the largest fraction of concentrations greater than the SMCL (46.2%).
- **Groundwater is generally dilute overall based on total dissolved solids (TDS) data.** Specifically, the median TDS concentration was 146 mg/L. All TDS concentrations were below the 500 mg/L SMCL. There were no TDS data for karst wells; based on previous assessments, this aquifer type typically had the highest median TDS concentration.
- **Chloride concentrations rarely exceeded the drinking-water standard.** Chloride concentrations exceeded the SMCL (250 mg/L) in less than 1% of the samples. The most elevated chloride concentration (282 mg/L) was associated with an unconfined well sample.
- **Sodium concentrations were above the health advisory level in about one quarter of the samples.** Sodium concentrations exceeded the Health Advisory (HA) of 20 mg/L in 23.3% of the samples. Sodium concentrations above the HA were found at virtually all depths. Confined wells had the largest fraction of sodium concentrations above the HA (29.5%).

*Note: Because only raw or apparently raw groundwater-quality data were evaluated, the results may not be representative of finished or treated water delivered to consumers. Therefore, an exceedance of a drinking-water standard does not necessarily indicate that a public water-supply system is not in compliance.

PART E. PUBLIC PARTICIPATION

The Department kept the public informed of the process and progress of this Integrated Report using its website, an email list of interested parties and public notices placed in local newspapers. There were no stakeholder comments received. EPA Region Three sent initial and follow up comments that are included in their entirety in Appendix Five. Key comments are excerpted and responded to below.

Comment 1:

An iron listing for the Delaware River DRBC Zone 5 was moved from category 3 to category 1 this listing cycle and DNREC notes on your draft 2016 3039d) list "Surface water levels of iron in this segment sometimes exceed the applicable criterion. The Department believes these levels are due to natural conditions." EPA is aware of industrial sources of iron in DRBC Zone 5. … EPA suggests DNREC work with DRBC to investigate iron issues in Zone 5 and retain the listing in category 3 until those questions are answered.

The Department has returned the Listing to category 3 and will address the issues in zone 5 with the DRBC, stakeholders, and EPA input, as resources allow.

Comment 2:

The mainstem of Red Clay Creek (DE260-001) includes a Category 3 DDT listing and attributes the source to upstream in Pennsylvania. EPA recommends that Red Clay Creek (DE260-001) be added to Category 5 for DDT. If there are exceedances of a water quality standard in any Delaware water, the waterbody should be listed as impaired regardless of the source. Red Clay Creek DDT source being upstream in Pennsylvania is not sufficient reason not to list the waterbody as impaired. In addition, EPA requests to see the results of the 2015 WATAR data and whether it ruled out sources in Delaware.

The Department has engaged with Pennsylvania Department of Environmental Protection and EPA Region 3 staff to work through the issues in this segment in the upcoming assessment cycles. Until then, the Department believes a Category 3 listing is the most appropriate one at this time.

The 2015 WATAR data has been supplied to EPA staff.

Appendices to the 2016 State of Delaware Integrated Report

Appendix One: Station Roll Ups

Appendix Two: Segment Roll Ups

Appendix Three: Final Determination for the State of Delaware 2016 Clean Water Act Section 303(d) List of Waters Needing TMDLs

Appendix Four: Volunteer Water Quality Monitoring Results

Appendix Five: Public Participation

Appendix One: Station Roll Ups

Station	Segment	Watershed	Description	Fresh/ Marine	DO count	DO value	DO < 4.0	Cont. DO Status	DO Status	ENT count	ENT Geomean
101021	DE 230-001-02	Naamans Creek	Naamans Road	f	42	7.96	0	--	1	41	204.6
101031	DE 230-001-02	Naamans Creek	South Branch at Darley Rd.	f	35	7.59	0	--	1	35	204.8
101061	DE 230-001-02	Naamans Creek	South Branch at Marsh Rd.	f	41	7.99	0	--	1	41	189.1
102041	DE 300-001-01	Shellpot Creek	Cherry Island at Rd. 501 Bridge	f	39	3	10	--	5	39	189.7
102051	DE 300-001-02	Shellpot Creek	Rt. 13 Bus (Market Street) Bridge	f	72	8.37	0	--	1	71	326.4
102081	DE 300-001-02	Shellpot Creek	Carr Road Bridge	f	42	8.09	0	--	1	42	112.3
103011	DE 260-001	Red Clay Creek	Stanton, Rt. 4 at Stanton Bridge (USGS gage 01480015)	f	42	8.42	0	--	1	41	114.4
103031	DE 260-001	Red Clay Creek	Wooddale, Rt. 48 (USGS gage 01480000)	f	70	8.31	0	--	1	70	156.0
103041	DE 260-001	Red Clay Creek	Ashland, Rd. 258a	f	42	8.12	0	--	1	42	125.2
103061	DE 260-002	Red Clay Creek	Burrough's Run at Creek Rd. (Rt. 82)	f	43	8.51	0	--	1	39	118.1
104011	DE 040-001	Brandywine Creek	Footbridge in Brandywine State Park	f	42	8.42	0	--	1	42	58.1
104021	DE 040-002	Brandywine Creek	Rd. 279 Bridge (USGS guage 014)	f	71	8.38	0	1	1	71	162.8
104051	DE 040-002	Brandywine Creek	Smith Bridge	f	41	7.92	0	--	1	38	89.8
105031	DE 320-001	White Clay Creek	Chambers Rock Rd. (Road 329) near Thompson	f	42	8.11	0	--	1	42	203.3
105151	DE 320-001	White Clay Creek	DE Park Race Track (USGS gage 01479000), 35ft downstream	f	71	7.91	0	--	1	72	287.0
105171	DE 320-001	White Clay Creek	McKee Lane in Newark	f	41	7.78	0	--	1	41	169.6
106021	DE 120-002	Christina River	Rt. 141 Drawbridge, Newport (USGS tide gage 01480065)	f	41	6.09	0	5	1	41	198.6
106031	DE 120-003	Christina River	Smalley's Dam Spillway	f	42	6.285	1	--	1	42	101.3
106141	DE 120-004-01	Christina River	Rt. 72, Below Newark (USGS guage 01478000)	f	70	7.26	0	--	1	71	256.2
106191	DE 120-006	Christina River	Rt. 273, Above Newark	f	42	8.32	0	--	1	42	159.6
106281	DE 120-007-01	Christina River	Little Mill Creek at atlantic Avenue (USGS Gage 01480095)	f	42	8.63	0	--	1	42	249.0
106291	DE 120-001	Christina River	Conrail Bridge (USGS tide gage 01481602) Up river from Port	f	60	6.68	0	--	1	60	130.3
107011	DE 270-001-02	Red Lion Creek	Rt. 7	f	42	6.53	0	--	1	42	187.2
107031	DE 270-001-01	Red Lion Creek	Rt. 9 Bridge	f	41	5.06	2	--	5	40	261.4

Station	Segment	Watershed	Description	Fresh/ Marine	DO count	DO value	DO < 4.0	Cont. DO Status	DO Status	ENT count	ENT Geomean
108021	DE 090-001	Chesapeake & Delaware Canal	St. Georges Bridge	f	42	6.3	0	--	1	39	30.5
108051	DE 090-002	Chesapeake & Delaware Canal	Lum's Pond at Rt 71	f	16	4.58	2	--	5	15	68.7
108081	DE 090-L01	Chesapeake & Delaware Canal	Lum's Pond Tributary Below Rt 54 Bridge	f	18	6.07	0	--	1	18	66.5
108111	DE 090-L01	Chesapeake & Delaware Canal	Lums Pond Boat Ramp	f	46	7.065	1	--	1	40	41.1
109041	DE 010-001-02	Appoquinimink River	Rt. 13 Bridge below Odessa	f	42	5.24	1	--	5	41	171.4
109071	DE 010-001-03	Appoquinimink River	Drawyer Creek, Rt 13	f	42	5.19	1	--	5	41	202.2
109091	DE 010-001-01	Appoquinimink River	Delaware River (Appoquinimink at Mouth)	f	45	6.415	0	--	1	42	83.1
109121	DE 010-001-01	Appoquinimink River	Rt. 9 Bridge (East)	f	41	5.085	2	5	5	39	83.6
109131	DE 010-L01	Appoquinimink River	Noxontown Pond Overflow, Rd 38	f	42	6.97	0	--	1	32	20.0
109171	DE 010-001-02	Appoquinimink River	MOT Gut (Appo Gut) - West Bank	f	42	5.04	2	--	5	41	167.2
109191	DE 010-L03	Appoquinimink River	Shallcross Lake Overflow, Dischrg Drawer Cr, Rd. 428	f	41	7.27	1	--	1	32	21.4
109251	DE 010-002-02	Appoquinimink River	Deep Creek Br of Appoquinimik River at Rt. 71 Bridge	f	64	7.77	0	--	1	64	407.8
110011	DE 010-002-02	Appoquinimink River	Road 463 East of RR Tracks	f	66	6.33	2	--	5	65	151.9
110031	DE 030-001	Lower Blackbird	Rd 455, Blackbird Landing	f	40	5.9	0	--	1	40	236.3
110041	DE 030-001	Lower Blackbird	Rt. 9 Taylors Bridge	f	39	5.19	2	--	5	39	76.7
111011	DE 130-001	Dragon Run Creek	Rt. 9 Bridge	f	42	2.94	9	--	5	39	43.2
111031	DE 130-002	Dragon Run Creek	Rt. 13 Bridge (flow at Rd. 407), Dragon Creek	f	40	3.64	8	--	5	39	136.2
112021	DE 100-002	Chesapeake Drainage System	Sewell Branch at Rd. 95	f	39	4.73	6	--	5	39	89.9
114011	DE 020-001	Army Creek	Rt. 9 Below Llangollen Wells	f	39	5.55	1	--	1	39	63.0
201011	DE 310-001	Smyrna River	Lake Como at US Route 13 Bridge	f	41	6.98	0	--	1	37	28.1
201021	DE 310-002	Smyrna River	Rd. 137 Bridge, Mill Creek	f	40	8.43	0	--	1	40	39.9
201041	DE 310-001	Smyrna River	Rt. 9 Fleming's Landing	f	41	4.86	4	--	5	41	134.8
201051	DE 310-003	Smyrna River	Rd. 485 Bridge at Smyrna Landing	f	41	5.86	0	--	1	41	260.8
201161	DE 310-003	Smyrna River	Rd. 38 Bridge, Providence Creek	f	42	7.9	0	--	1	42	110.5
202021	DE 160-L01	Leipsic River	Rt. 13 Bridge, Garrisons Lake	f	41	7.565	1	--	1	39	34.9

Station	Segment	Watershed	Description	Fresh/ Marine	DO count	DO value	DO < 4.0	Cont. DO Status	DO Status	ENT count	ENT Geomean
202031	DE 160-001	Leipsic River	DE Rt. 9 Bridge	m	40	3.97	8	--	5	39	105.9
202191	DE 160-002	Leipsic River	Upstream of Masseys Millpond at Rt. 15	f	41	7.71	0	--	1	40	107.6
204031	DE 190-001-01	Little River	Rt. 9 Bridge	m	41	4.19	2	--	5	41	364.3
204041	DE 190-001-02	Little River	Rt. 8 Bridge	f	42	3.54	11	--	5	40	86.4
205011	DE 290-001-01	Saint Jones River	St. Jones at Bowers Beach, mouth to Del.Bay.	m	52	6.36	0	--	1	51	36.3
205041	DE 290-001-01	Saint Jones River	3.5 miles from mouth at Barkers Landing	m	41	3.45	12	--	5	43	94.3
205091	DE 290-001-02	Saint Jones River	Rt. 10 Bridge near DAFB	m	41	3.67	9	--	5	43	113.8
205151	DE 290-003	Saint Jones River	Rd. 69 State College, Fork Branch	f	37	4.07	5	--	5	42	88.9
205181	DE 290-L01	Saint Jones River	Rt. 13 Alt. Moores Lake	f	40	8.42	0	--	1	40	39.1
205191	DE 290-L02	Saint Jones River	Silver Lake Spillway, Dover City Park	f	60	6.46	0	--	1	63	51.0
205211	DE 290-L03	Saint Jones River	Derby Pond at Rt. 13A	f	40	8.79	0	--	1	38	29.9
206011	DE 220-005	Murderkill River	US Rt. 13 Bridge below Felton	f	71	7.64	0	--	1	71	339.3
206041	DE 220-004	Murderkill River	Browns Branch at Rt. 14 Bridge	f	42	6.86	0	--	1	42	204.7
206091	DE 220-001	Murderkill River	US Rt. 113 at Frederica By-Pass	f	42	3.6775	8	5	5	42	173.2
206101	DE 220-001	Murderkill River	Bowers Beach Wharf	m	57	5.78	0	5	5	55	37.2
206141	DE 220-001	Murderkill River	3.25 miles from the mouth	m	34	3.63	8	--	5	33	125.4
206231	DE 220-001	Murderkill River	Confluence of Kent County STP trib.	m	33	3.21	11	--	5	34	206.1
206361	DE 220-L05	Murderkill River	McCauley Pond near spillway	f	42	9.51	0	--	1	40	27.3
206451	DE 220-L03	Murderkill River	Coursey Pond at Rd. 388 Bridge	f	40	8.5	0	--	1	40	34.1
206561	DE 220-002	Murderkill River	Double Run at Rd. 371	f	40	6.8	0	--	1	40	283.1
207021	DE 110-003	Choptank	Cow Marsh Creek at Rd. 208	f	38	6.22	0	--	1	38	94.0
207081	DE 110-001	Choptank	Tappahanna Ditch at Rd. 222	f	40	6.46	0	--	1	40	104.2
207091	DE 110-002	Choptank	Culbreth Marsh at Rd. 210	f	41	6.5	1	--	1	41	111.6
207111	DE 110-003	Choptank	White Marsh Branch at Rd. 268	f	41	5.9	0	--	1	41	152.7
208021	DE 210-001	Mispillion River	Rt. 1 Bridge	f	43	7.03	0	--	1	43	129.7
208061	DE 210-001	Mispillion River	1.09 miles from mouth at lighthouse	m	56	4.88	2	--	5	53	33.9
208121	DE 210-001	Mispillion River	7.48 miles from mouth, mouth of Fishing Branch	f	23	4.16	3	--	5	23	231.6

Station	Segment	Watershed	Description	Fresh/ Marine	DO count	DO value	DO < 4.0	Cont. DO Status	DO Status	ENT count	ENT Geomean
208181	DE 210-L06	Mispillion River	Abbotts Pond at Rd. 620	f	42	7.31	1	--	1	42	64.6
208211	DE 210-L02	Mispillion River	Rt. 36 Silver Lake	f	43	7.79	0	--	1	43	34.3
208231	DE 210-L05	Mispillion River	Beaverdam Branch, Rd. 384	f	43	7.32	0	--	1	43	298.2
301021	DE 080-001	Cedar Creek	Rd. 212, Swiggetts Pond	f	41	7.75	0	--	1	35	18.3
301031	DE 080-001	Cedar Creek	Rt. 1 Bridge	f	43	6.2	0	--	1	43	109.3
301091	DE 080-001	Cedar Creek	Rt. 36 Bridge	m	43	4.3	6	--	5	39	54.1
302031	DE 200-001	Marshyhope Creek	Rd. 308 Bridge	f	80	7.76	0	--	1	75	84.4
303011	DE 060-005	Broadkill River	Ingram Branch, Savanah Ditch at Rd. 246	f	39	5.39	0	--	5	38	250.6
303021	DE 060-005	Broadkill River	Ingram Branch at Rd. 248	f	40	6.43	0	--	1	40	383.7
303031	DE 060-003	Broadkill River	Rt. 5 Bridge	f	71	7.21	0	--	1	69	38.4
303041	DE 060-001	Broadkill River	Rt. 1 Bridge (Mainstem)	f	40	5.06	1	--	5	40	276.9
303051	DE 060-007-01	Broadkill River	Red Mill Pond at Rt. 1	f	40	9.13	0	--	1	37	26.3
303061	DE 060-001	Broadkill River	0.10 Miles From Mouth	m	59	4.57	2	--	5	54	40.9
303171	DE 060-002	Broadkill River	Beaverdam Creek at Rd. 88	f	41	5.54	1	--	1	40	160.1
303181	DE 060-002	Broadkill River	Beaverdam Creek above Rd. 259, Hunters Mill Pond	f	39	6.09	1	--	1	39	385.9
303311	DE 060-004	Broadkill River	Round Pole Branch at Rd. 88	f	40	6.15	0	--	1	40	149.8
303331	DE 060-L03	Broadkill River	Waples Pond at Rt. 1	f	41	8.35	0	--	1	40	26.6
303341	DE 060-006	Broadkill River	Pemberton Branch at Rt. 30 above Wagamons Pond	f	40	7.1	0	--	1	39	362.0
304151	DE 240-001	Nanticoke River	Buoy 66 (Conf DuPont Gut)	f	38	6.82	0	--	1	37	132.2
304191	DE 240-002	Nanticoke River	Rd. 545 Mainstem Nanticoke	f	80	7.32	0	5	5	79	93.1
304311	DE 240-L02	Nanticoke River	Concord Pond overflow	f	41	7.6	0	--	1	36	16.8
304321	DE 240-L04	Nanticoke River	Williams Pond, below the pond at Rd. 535	f	40	7.15	1	--	1	38	42.1
304371	DE 240-003	Nanticoke River	Clear Brook @ Cannon Rd. (Rt. 18)	f	18	4.02	2	--	5	17	610.5
304381	DE 240-003	Nanticoke River	Bucks Branch at Rd. 546	f	41	6.89	0	1	1	40	263.0
304471	DE 240-001	Nanticoke River	Rt. 13 Bridge	f	40	6.35	0	--	1	40	63.4
304591	DE 240-004	Nanticoke River	Deep Creek above Concord Pond, near Old Furnace at Rd. 46	f	37	1.54	17	--	5	36	49.6
304681	DE 240-002	Nanticoke River	Nanticoke River at Beach HWY (Ellendale Greenwood HWY) on east edge of Greenwood	f	41	6.07	1	--	1	40	44.9

Station	Segment	Watershed	Description	Fresh/ Marine	DO count	DO value	DO < 4.0	Cont. DO Status	DO Status	ENT count	ENT Geomean
305011	DE 170-001	Lewes and Rehoboth Canal	Canal Rt. 1	m	41	4.45	4	--	5	38	37.3
305041	DE 170-001	Lewes and Rehoboth Canal	Lewes and Rehoboth Canal at Rd. 18 Bridge	m	41	5	2	--	5	40	15.8
306091	DE 280-E01	Rehoboth Bay	Buoy 7, Rehoboth Bay	m	32	6.75	0	--	1	17	5.0
306111	DE 280-E01	Rehoboth Bay	Massey's Ditch at Bouy 17	m	40	6.64	0	5	5	22	7.1
306121	DE 140-E01	Indian River	Buoy 20, Indian River Bay	m	48	6.67	0	--	1	25	14.4
306181	DE 140-004	Indian River	Buoy 49, Indian River	m	33	5.57	0	--	1	29	36.8
306321	DE 140-E01	Indian River	Indian River Inlet	m	59	6.61	1	--	1	30	9.3
306331	DE 140-E02	Indian River	Island Creek mouth	m	33	6.06	0	--	1	25	18.0
306341	DE 140-004	Indian River	Island Creek, upper third	m	32	6	0	--	1	27	23.2
307011	DE 050-L04	Broad Creek	Records Pond at Rt. 13	f	41	7.6	0	--	1	40	48.6
307031	DE 050-001	Broad Creek	Broad Creek at Main Street in Bethel (Rd 493)	f	41	6.92	0	--	1	40	93.0
307081	DE050-L07	Broad Creek	Trap Pond on Hitch Pond Branch @ Co. Rd. 449 or Trap Pond Rd	f	38	7.83	1	--	1	34	48.8
307171	DE050-L03	Broad Creek	Horseys Pond 50 Yards Above Spillway 50% RB	f	40	6.92	0	--	1	37	42.4
307371	DE 050-006-03	Broad Creek	Raccoon Prong @ Pepperbox Rd. (Rd. 66)	f	23	3.58	5	--	5	23	124.4
308031	DE 280-L01	Rehoboth Bay	Burton Pond, Rd. 24	f	40	7.285	2	--	5	39	17.4
308051	DE 280-001-01	Rehoboth Bay	Guinea Creek at Rt. 298 Bridge	m	40	5.18	3	--	5	41	205.0
308071	DE 140-L01	Indian River	Millsboro Dam Overflow	f	70	7.935	0	5	5	64	27.9
308091	DE 140-003	Indian River	Pepper Creek at Rt. 26	f	40	7.84	1	--	1	40	315.0
308281	DE 140-006	Indian River	Cow Bridge Branch Rd. 48	f	40	7.26	1	--	1	35	28.0
308341	DE 140-005	Indian River	Swan Creek at Rd. 297	f	39	7.44	0	--	1	40	253.4
308361	DE 140-002	Indian River	Blackwater Creek at Rd. 54	f	39	4.14	6	--	5	39	226.3
308371	DE 280-002	Rehoboth Bay	Bundick's Branch at Rt. 23	f	41	7.465	0	--	1	41	365.2
309041	DE 150-001	Iron Branch	Whartons Branch at Rt. 334 Bridge	f	40	7.08	0	--	1	41	252.4
310011	DE 180-E01	Little Assawoman Bay	Little Assawoman Bay Ditch at Rd. 58 Bridge	m	41	5.47	0	--	1	26	17.5
310031	DE 180-003	Little Assawoman Bay	Dirrickson Creek, Rd. 381	m	40	6.06	0	--	1	40	121.3
310071	DE 180-E01	Little Assawoman Bay	Little Assawoman Bay, Mid-Bay	m	41	5.64	1	--	1	24	24.6
310121	DE 180-002	Little Assawoman Bay	Beaverdam Ditch at Rd. 368	f	53	6.24	1	--	1	53	280.1

Station	Segment	Watershed	Description	Fresh/ Marine	DO count	DO value	DO < 4.0	Cont. DO Status	DO Status	ENT count	ENT Geomean
311041	DE 070-001	Buntings Branch	Buntings Branch at Rt. 54	f	39	5.84	1	--	1	39	580.7
312011	DE 140-001	Indian River	White Creek at the mouth of Assawoman Canal	m	41	5.02	1	--	1	38	34.0
313011	DE 250-001	Pocomoke River	Rd. 419 Bridge	f	41	6.1	0	--	1	41	271.4
316011	DE 240-005	Nanticoke River	Gravelly Branch at Rd. 525 Bridge	f	42	7.73	0	--	1	40	92.4
316031	DE 240-005	Nanticoke River	Gravelly Branch at Deer Forest Road (Rd 565) on west edge of Redden State Forest Jester Tract	f	41	5.88	0	--	1	38	37.0
Abbreviations											
DO	Dissolved Oxygen										
ENT	Enterrococcus										
TN	Total Nitrogen										
TP	Total Phosphorus										
DIN	Dissolved Inorganic Nitrogen										
DIP	Dissolved Inorganic Phosphorus										
NH4	Ammonia										
Cu	Copper										
Zn	Zinc										

Station	Segment	Watershed	Description	Fresh/ Marine	ENT Status	TN Count	TN Average	TN LCL	TN Status	TP Count	TP Ave
101021	DE 230-001-02	Naamans Creek	Naamans Road	f	5	40	1.73	1.59	1	37	0.04
101031	DE 230-001-02	Naamans Creek	South Branch at Darley Rd.	f	5	34	1.33	1.18	1	29	0.06
101061	DE 230-001-02	Naamans Creek	South Branch at Marsh Rd.	f	5	41	1.91	1.78	1	41	0.06
102041	DE 300-001-01	Shellpot Creek	Cherry Island at Rd. 501 Bridge	f	5	71	2.20	2.01	1	73	0.13
102051	DE 300-001-02	Shellpot Creek	Rt. 13 Bus (Market Street) Bridge	f	5	77	1.42	1.32	1	76	0.06
102081	DE 300-001-02	Shellpot Creek	Carr Road Bridge	f	5	43	1.37	1.17	1	42	0.04
103011	DE 260-001	Red Clay Creek	Stanton, Rt. 4 at Stanton Bridge (USGS gage 01480015)	f	5	42	3.36	3.20	5	42	0.08
103031	DE 260-001	Red Clay Creek	Wooddale, Rt. 48 (USGS gage 01480000)	f	5	109	3.55	3.44	5	109	0.12
103041	DE 260-001	Red Clay Creek	Ashland, Rd. 258a	f	5	47	4.24	4.04	5	47	0.11
103061	DE 260-002	Red Clay Creek	Burrough's Run at Creek Rd. (Rt. 82)	f	5	44	2.09	1.98	1	44	0.03
104011	DE 040-001	Brandywine Creek	Footbridge in Brandywine State Park	f	1	43	3.20	3.07	5	43	0.09
104021	DE 040-002	Brandywine Creek	Rd. 279 Bridge (USGS guage 014)	f	5	77	2.99	2.87	1	77	0.10
104051	DE 040-002	Brandywine Creek	Smith Bridge	f	1	41	2.97	2.81	1	41	0.08
105031	DE 320-001	White Clay Creek	Chambers Rock Rd. (Road 329) near Thompson	f	5	43	4.57	4.27	5	43	0.09
105151	DE 320-001	White Clay Creek	DE Park Race Track (USGS gage 01479000), 35ft downstream	f	5	75	3.50	3.34	5	74	0.10
105171	DE 320-001	White Clay Creek	McKee Lane in Newark	f	5	41	4.23	4.06	5	41	0.08
106021	DE 120-002	Christina River	Rt. 141 Drawbridge, Newport (USGS tide gage 01480065)	f	5	29	2.24	2.04	1	36	0.09
106031	DE 120-003	Christina River	Smalley's Dam Spillway	f	5	82	1.47	1.40	1	82	0.07
106141	DE 120-004-01	Christina River	Rt. 72, Below Newark (USGS guage 01478000)	f	5	79	1.83	1.74	1	79	0.07
106191	DE 120-006	Christina River	Rt. 273, Above Newark	f	5	43	2.52	2.39	1	42	0.04
106281	DE 120-007-01	Christina River	Little Mill Creek at atlantic Avenue (USGS Gage 01480095)	f	5	37	1.30	1.18	1	38	0.04
106291	DE 120-001	Christina River	Conrail Bridge (USGS tide gage 01481602) Up river from Port	f	5	58	2.47	2.35	1	59	0.10
107011	DE 270-001-02	Red Lion Creek	Rt. 7	f	5	42	0.98	0.92	1	42	0.06
107031	DE 270-001-01	Red Lion Creek	Rt. 9 Bridge	f	5	41	1.83	1.64	1	41	0.13

Station	Segment	Watershed	Description	Fresh/ Marine	ENT Status	TN Count	TN Average	TN LCL	TN Status	TP Count	TP Ave
108021	DE 090-001	Chesapeake & Delaware Canal	St. Georges Bridge	f	1	61	1.84	1.72	1	58	0.17
108051	DE 090-002	Chesapeake & Delaware Canal	Lum's Pond at Rt 71	f	1	17	1.57	1.31	1	17	0.08
108081	DE 090-L01	Chesapeake & Delaware Canal	Lum's Pond Tributary Below Rt 54 Bridge	f	1	25	1.27	1.13	1	25	0.12
108111	DE 090-L01	Chesapeake & Delaware Canal	Lums Pond Boat Ramp	f	1	65	1.39	1.33	1	67	0.07
109041	DE 010-001-02	Appoquinimink River	Rt. 13 Bridge below Odessa	f	5	44	1.93	1.74	1	44	0.20
109071	DE 010-001-03	Appoquinimink River	Drawyer Creek, Rt 13	f	5	37	2.24	1.98	1	35	0.21
109091	DE 010-001-01	Appoquinimink River	Delaware River (Appoquinimink at Mouth)	f	1	57	1.80	1.68	1	58	0.18
109121	DE 010-001-01	Appoquinimink River	Rt. 9 Bridge (East)	f	1	48	1.73	1.60	1	49	0.16
109131	DE 010-L01	Appoquinimink River	Noxontown Pond Overflow, Rd 38	f	1	42	1.79	1.59	1	42	0.07
109171	DE 010-001-02	Appoquinimink River	MOT Gut (Appo Gut) - West Bank	f	5	50	1.78	1.62	1	50	0.18
109191	DE 010-L03	Appoquinimink River	Shallcross Lake Overflow, Dischrg Drawer Cr, Rd. 428	f	1	42	2.30	2.05	1	42	0.05
109251	DE 010-002-02	Appoquinimink River	Deep Creek Br of Appoquinimik River at Rt. 71 Bridge	f	5	72	3.50	3.25	5	74	0.05
110011	DE 010-002-02	Appoquinimink River	Road 463 East of RR Tracks	f	5	77	1.61	1.52	1	78	0.10
110031	DE 030-001	Lower Blackbird	Rd 455, Blackbird Landing	f	5	40	1.59	1.47	1	39	0.22
110041	DE 030-001	Lower Blackbird	Rt. 9 Taylors Bridge	f	1	39	1.48	1.37	1	39	0.20
111011	DE 130-001	Dragon Run Creek	Rt. 9 Bridge	f	1	42	0.99	0.88	1	41	0.14
111031	DE 130-002	Dragon Run Creek	Rt. 13 Bridge (flow at Rd. 407), Dragon Creek	f	5	40	1.64	1.48	1	39	0.07
112021	DE 100-002	Chesapeake Drainage System	Sewell Branch at Rd. 95	f	1	38	1.99	1.80	1	36	0.20
114011	DE 020-001	Army Creek	Rt. 9 Below Llangollen Wells	f	1	38	1.34	1.24	1	39	0.17
201011	DE 310-001	Smyrna River	Lake Como at US Route 13 Bridge	f	1	40	1.61	1.43	1	41	0.11
201021	DE 310-002	Smyrna River	Rd. 137 Bridge, Mill Creek	f	1	38	1.88	1.61	1	39	0.13
201041	DE 310-001	Smyrna River	Rt. 9 Fleming's Landing	f	5	41	1.74	1.55	1	41	0.26
201051	DE 310-003	Smyrna River	Rd. 485 Bridge at Smyrna Landing	f	5	40	2.21	1.96	1	40	0.24
201161	DE 310-003	Smyrna River	Rd. 38 Bridge, Providence Creek	f	5	42	3.20	2.99	1	43	0.06
202021	DE 160-L01	Leipsic River	Rt. 13 Bridge, Garrisons Lake	f	1	61	2.11	1.91	1	62	0.19

Station	Segment	Watershed	Description	Fresh/ Marine	ENT Status	TN Count	TN Average	TN LCL	TN Status	TP Count	TP Ave
202031	DE 160-001	Leipsic River	DE Rt. 9 Bridge	m	5	40	1.53	1.38	1	40	0.27
202191	DE 160-002	Leipsic River	Upstream of Masseys Millpond at Rt. 15	f	5	55	3.43	3.18	5	55	0.14
204031	DE 190-001-01	Little River	Rt. 9 Bridge	m	5	37	2.59	2.37	1	32	0.37
204041	DE 190-001-02	Little River	Rt. 8 Bridge	f	1	41	2.06	1.90	1	40	0.14
205011	DE 290-001-01	Saint Jones River	St. Jones at Bowers Beach, mouth to Del.Bay.	m	5	51	1.67	1.37	1	46	0.29
205041	DE 290-001-01	Saint Jones River	3.5 miles from mouth at Barkers Landing	m	5	43	1.77	1.57	1	43	0.23
205091	DE 290-001-02	Saint Jones River	Rt. 10 Bridge near DAFB	m	5	44	2.13	1.90	1	44	0.23
205151	DE 290-003	Saint Jones River	Rd. 69 State College, Fork Branch	f	1	41	1.26	1.12	1	41	0.18
205181	DE 290-L01	Saint Jones River	Rt. 13 Alt. Moores Lake	f	1	43	4.26	3.77	5	44	0.08
205191	DE 290-L02	Saint Jones River	Silver Lake Spillway, Dover City Park	f	1	95	1.55	1.43	1	95	0.16
205211	DE 290-L03	Saint Jones River	Derby Pond at Rt. 13A	f	1	46	2.89	2.61	1	46	0.07
206011	DE 220-005	Murderkill River	US Rt. 13 Bridge below Felton	f	5	79	3.30	3.10	5	74	0.22
206041	DE 220-004	Murderkill River	Browns Branch at Rt. 14 Bridge	f	5	42	3.48	2.95	1	41	0.05
206091	DE 220-001	Murderkill River	US Rt. 113 at Frederica By-Pass	f	5	45	2.71	2.28	1	48	0.19
206101	DE 220-001	Murderkill River	Bowers Beach Wharf	m	5	66	1.65	1.41	1	65	0.21
206141	DE 220-001	Murderkill River	3.25 miles from the mouth	m	5	39	1.94	1.64	1	40	0.19
206231	DE 220-001	Murderkill River	Confluence of Kent County STP trib.	m	5	40	2.94	2.11	1	40	0.69
206361	DE 220-L05	Murderkill River	McCauley Pond near spillway	f	1	42	4.21	3.94	5	42	0.08
206451	DE 220-L03	Murderkill River	Coursey Pond at Rd. 388 Bridge	f	1	67	3.45	3.18	5	68	0.10
206561	DE 220-002	Murderkill River	Double Run at Rd. 371	f	5	52	2.91	2.66	1	52	0.14
207021	DE 110-003	Choptank	Cow Marsh Creek at Rd. 208	f	1	39	1.63	1.55	1	39	0.11
207081	DE 110-001	Choptank	Tappahanna Ditch at Rd. 222	f	5	41	1.29	1.14	1	41	0.11
207091	DE 110-002	Choptank	Culbreth Marsh at Rd. 210	f	5	42	2.72	2.57	1	42	0.14
207111	DE 110-003	Choptank	White Marsh Branch at Rd. 268	f	5	43	5.34	4.96	5	43	0.08
208021	DE 210-001	Mispillion River	Rt. 1 Bridge	f	5	43	3.88	3.46	5	43	0.12
208061	DE 210-001	Mispillion River	1.09 miles from mouth at lighthouse	m	1	57	1.36	1.21	1	55	0.21
208121	DE 210-001	Mispillion River	7.48 miles from mouth, mouth of Fishing Branch	f	5	38	3.17	2.63	1	38	0.17

Station	Segment	Watershed	Description	Fresh/ Marine	ENT Status	TN Count	TN Average	TN LCL	TN Status	TP Count	TP Ave
208181	DE 210-L06	Mispillion River	Abbotts Pond at Rd. 620	f	1	37	3.58	3.15	5	40	0.05
208211	DE 210-L02	Mispillion River	Rt. 36 Silver Lake	f	1	44	3.66	3.15	5	44	0.05
208231	DE 210-L05	Mispillion River	Beaverdam Branch, Rd. 384	f	5	41	4.60	4.40	5	47	0.05
301021	DE 080-001	Cedar Creek	Rd. 212, Swiggetts Pond	f	1	56	3.44	3.06	5	55	0.03
301031	DE 080-001	Cedar Creek	Rt. 1 Bridge	f	5	43	3.41	2.96	1	43	0.12
301091	DE 080-001	Cedar Creek	Rt. 36 Bridge	m	5	47	1.36	1.21	1	45	0.19
302031	DE 200-001	Marshyhope Creek	Rd. 308 Bridge	f	1	81	3.18	2.99	1	86	0.12
303011	DE 060-005	Broadkill River	Ingram Branch, Savanah Ditch at Rd. 246	f	5	33	11.50	7.83	5	36	0.34
303021	DE 060-005	Broadkill River	Ingram Branch at Rd. 248	f	5	39	10.84	7.43	5	39	0.31
303031	DE 060-003	Broadkill River	Rt. 5 Bridge	f	1	74	2.97	2.75	1	75	0.06
303041	DE 060-001	Broadkill River	Rt. 1 Bridge (Mainstem)	f	5	51	3.00	2.69	1	55	0.17
303051	DE 060-007-01	Broadkill River	Red Mill Pond at Rt. 1	f	1	47	2.19	1.97	1	49	0.09
303061	DE 060-001	Broadkill River	0.10 Miles From Mouth	m	5	61	1.28	1.11	1	60	0.13
303171	DE 060-002	Broadkill River	Beaverdam Creek at Rd. 88	f	5	40	6.28	5.80	5	40	0.09
303181	DE 060-002	Broadkill River	Beaverdam Creek above Rd. 259, Hunters Mill Pond	f	5	38	6.62	5.14	5	36	0.12
303311	DE 060-004	Broadkill River	Round Pole Branch at Rd. 88	f	5	40	4.05	3.75	5	39	0.07
303331	DE 060-L03	Broadkill River	Waples Pond at Rt. 1	f	1	47	3.37	2.93	1	48	0.03
303341	DE 060-006	Broadkill River	Pemberton Branch at Rt. 30 above Wagamons Pond	f	5	39	4.64	4.37	5	40	0.03
304151	DE 240-001	Nanticoke River	Buoy 66 (Conf DuPont Gut)	f	5	71	3.23	3.02	5	71	0.10
304191	DE 240-002	Nanticoke River	Rd. 545 Mainstem Nanticoke	f	1	141	5.23	5.07	5	146	0.06
304311	DE 240-L02	Nanticoke River	Concord Pond overflow	f	1	44	2.26	2.03	1	44	0.04
304321	DE 240-L04	Nanticoke River	Williams Pond, below the pond at Rd. 535	f	1	38	3.57	2.96	1	36	0.09
304371	DE 240-003	Nanticoke River	Clear Brook @ Cannon Rd. (Rt. 18)	f	5	13	3.25	2.61	1	16	0.16
304381	DE 240-003	Nanticoke River	Bucks Branch at Rd. 546	f	5	35	10.35	9.14	5	41	0.05
304471	DE 240-001	Nanticoke River	Rt. 13 Bridge	f	1	42	3.13	2.91	1	42	0.06
304591	DE 240-004	Nanticoke River	Deep Creek above Concord Pond, near Old Furnace at Rd. 46	f	1	38	1.79	1.36	1	38	0.12
304681	DE 240-002	Nanticoke River	Nanticoke River at Beach HWY (Ellendale Greenwood HWY) on east edge of Greenwood	f	1	57	3.66	3.51	5	57	0.06

Station	Segment	Watershed	Description	Fresh/ Marine	ENT Status	TN Count	TN Average	TN LCL	TN Status	TP Count	TP Ave
305011	DE 170-001	Lewes and Rehoboth Canal	Canal Rt. 1	m	5	47	0.97	0.91	1	46	0.10
305041	DE 170-001	Lewes and Rehoboth Canal	Lewes and Rehoboth Canal at Rd. 18 Bridge	m	1	69	0.86	0.79	1	69	0.09
306091	DE 280-E01	Rehoboth Bay	Buoy 7, Rehoboth Bay	m	1	30	0.54	0.50	1	13	0.06
306111	DE 280-E01	Rehoboth Bay	Massey's Ditch at Bouy 17	m	1	45	0.49	0.45	1	39	0.06
306121	DE 140-E01	Indian River	Buoy 20, Indian River Bay	m	1	50	0.66	0.57	1	49	0.08
306181	DE 140-004	Indian River	Buoy 49, Indian River	m	5	29	1.96	1.68	1	25	0.14
306321	DE 140-E01	Indian River	Indian River Inlet	m	1	53	0.46	0.43	1	31	0.07
306331	DE 140-E02	Indian River	Island Creek mouth	m	1	34	1.49	1.37	1	34	0.11
306341	DE 140-004	Indian River	Island Creek, upper third	m	1	33	1.94	1.69	1	33	0.13
307011	DE 050-L04	Broad Creek	Records Pond at Rt. 13	f	1	44	4.16	3.88	5	44	0.07
307031	DE 050-001	Broad Creek	Broad Creek at Main Street in Bethel (Rd 493)	f	1	39	4.40	4.03	5	40	0.10
307081	DE050-L07	Broad Creek	Trap Pond on Hitch Pond Branch @ Co. Rd. 449 or Trap Pond Rd	f	1	37	1.77	1.55	1	34	0.10
307171	DE050-L03	Broad Creek	Horseys Pond 50 Yards Above Spillway 50% RB	f	1	40	2.98	2.51	1	40	0.08
307371	DE 050-006-03	Broad Creek	Raccoon Prong @ Pepperbox Rd. (Rd. 66)	f	5	25	1.71	1.34	1	25	0.12
308031	DE 280-L01	Rehoboth Bay	Burton Pond, Rd. 24	f	1	59	1.56	1.35	1	58	0.04
308051	DE 280-001-01	Rehoboth Bay	Guinea Creek at Rt. 298 Bridge	m	5	63	2.09	1.92	1	63	0.09
308071	DE 140-L01	Indian River	Millsboro Dam Overflow	f	1	97	3.08	2.90	1	94	0.05
308091	DE 140-003	Indian River	Pepper Creek at Rt. 26	f	5	42	2.16	1.84	1	41	0.11
308281	DE 140-006	Indian River	Cow Bridge Branch Rd. 48	f	1	40	1.38	1.21	1	37	0.07
308341	DE 140-005	Indian River	Swan Creek at Rd. 297	f	5	36	2.13	1.99	1	35	0.03
308361	DE 140-002	Indian River	Blackwater Creek at Rd. 54	f	5	28	3.45	2.94	1	34	0.08
308371	DE 280-002	Rehoboth Bay	Bundick's Branch at Rt. 23	f	5	56	5.99	5.55	5	55	0.04
309041	DE 150-001	Iron Branch	Whartons Branch at Rt. 334 Bridge	f	5	35	2.59	2.03	1	38	0.06
310011	DE 180-E01	Little Assawoman Bay	Little Assawoman Bay Ditch at Rd. 58 Bridge	m	1	43	0.90	0.78	1	43	0.06
310031	DE 180-003	Little Assawoman Bay	Dirrickson Creek, Rd. 381	m	5	42	2.35	2.11	1	42	0.21
310071	DE 180-E01	Little Assawoman Bay	Little Assawoman Bay, Mid-Bay	m	1	49	0.87	0.80	1	48	0.05
310121	DE 180-002	Little Assawoman Bay	Beaverdam Ditch at Rd. 368	f	5	55	2.38	2.15	1	54	0.08

Station	Segment	Watershed	Description	Fresh/ Marine	ENT Status	TN Count	TN Average	TN LCL	TN Status	TP Count	TP Ave
311041	DE 070-001	Buntings Branch	Buntings Branch at Rt. 54	f	5	39	3.65	3.15	5	40	0.21
312011	DE 140-001	Indian River	White Creek at the mouth of Assawoman Canal	m	1	59	0.81	0.76	1	57	0.06
313011	DE 250-001	Pocomoke River	Rd. 419 Bridge	f	5	40	2.33	2.08	1	40	0.13
316011	DE 240-005	Nanticoke River	Gravelly Branch at Rd. 525 Bridge	f	1	43	2.47	2.16	1	42	0.03
316031	DE 240-005	Nanticoke River	Gravelly Branch at Deer Forest Road (Rd 565) on west edge of Redden State Forest Jester Tract	f	1	62	1.82	1.76	1	62	0.04
Abbreviations											
DO	Dissolved Oxygen										
ENT	Enterrococcus										
TN	Total Nitrogen										
TP	Total Phosphorus										
DIN	Dissolved Inorganic Nitrogen										
DIP	Dissolved Inorganic Phosphorus										
NH4	Ammonia										
Cu	Copper										
Zn	Zinc										

Station	Segment	Watershed	Description	Fresh/ Marine	TP LCL	TP Status	DIN Count	DIN Ave	DIN LCL	DIN Status	DIP Count	DIP Ave
101021	DE 230-001-02	Naamans Creek	Naamans Road	f	0.03	1	--	--	--	--	--	--
101031	DE 230-001-02	Naamans Creek	South Branch at Darley Rd.	f	0.05	1	--	--	--	--	--	--
101061	DE 230-001-02	Naamans Creek	South Branch at Marsh Rd.	f	0.04	1	--	--	--	--	--	--
102041	DE 300-001-01	Shellpot Creek	Cherry Island at Rd. 501 Bridge	f	0.12	1	--	--	--	--	--	--
102051	DE 300-001-02	Shellpot Creek	Rt. 13 Bus (Market Street) Bridge	f	0.05	1	--	--	--	--	--	--
102081	DE 300-001-02	Shellpot Creek	Carr Road Bridge	f	0.03	1	--	--	--	--	--	--
103011	DE 260-001	Red Clay Creek	Stanton, Rt. 4 at Stanton Bridge (USGS gage 01480015)	f	0.06	1	--	--	--	--	--	--
103031	DE 260-001	Red Clay Creek	Wooddale, Rt. 48 (USGS gage 01480000)	f	0.09	1	--	--	--	--	--	--
103041	DE 260-001	Red Clay Creek	Ashland, Rd. 258a	f	0.09	1	--	--	--	--	--	--
103061	DE 260-002	Red Clay Creek	Burrough's Run at Creek Rd. (Rt. 82)	f	0.02	1	--	--	--	--	--	--
104011	DE 040-001	Brandywine Creek	Footbridge in Brandywine State Park	f	0.07	1	--	--	--	--	--	--
104021	DE 040-002	Brandywine Creek	Rd. 279 Bridge (USGS guage 014)	f	0.09	1	--	--	--	--	--	--
104051	DE 040-002	Brandywine Creek	Smith Bridge	f	0.06	1	--	--	--	--	--	--
105031	DE 320-001	White Clay Creek	Chambers Rock Rd. (Road 329) near Thompson	f	0.06	1	--	--	--	--	--	--
105151	DE 320-001	White Clay Creek	DE Park Race Track (USGS gage 01479000), 35ft downstream	f	0.07	1	--	--	--	--	--	--
105171	DE 320-001	White Clay Creek	McKee Lane in Newark	f	0.06	1	--	--	--	--	--	--
106021	DE 120-002	Christina River	Rt. 141 Drawbridge, Newport (USGS tide gage 01480065)	f	0.08	1	--	--	--	--	--	--
106031	DE 120-003	Christina River	Smalley's Dam Spillway	f	0.06	1	--	--	--	--	--	--
106141	DE 120-004-01	Christina River	Rt. 72, Below Newark (USGS guage 01478000)	f	0.05	1	--	--	--	--	--	--
106191	DE 120-006	Christina River	Rt. 273, Above Newark	f	0.03	1	--	--	--	--	--	--
106281	DE 120-007-01	Christina River	Little Mill Creek at atlantic Avenue (USGS Gage 01480095)	f	0.03	1	--	--	--	--	--	--
106291	DE 120-001	Christina River	Conrail Bridge (USGS tide gage 01481602) Up river from Port	f	0.09	1	--	--	--	--	--	--
107011	DE 270-001-02	Red Lion Creek	Rt. 7	f	0.04	1	--	--	--	--	--	--
107031	DE 270-001-01	Red Lion Creek	Rt. 9 Bridge	f	0.11	1	--	--	--	--	--	--

Station	Segment	Watershed	Description	Fresh/ Marine	TP LCL	TP Status	DIN Count	DIN Ave	DIN LCL	DIN Status	DIP Count	DIP Ave
108021	DE 090-001	Chesapeake & Delaware Canal	St. Georges Bridge	f	0.15	1	--	--	--	--	--	--
108051	DE 090-002	Chesapeake & Delaware Canal	Lum's Pond at Rt 71	f	0.04	1	--	--	--	--	--	--
108081	DE 090-L01	Chesapeake & Delaware Canal	Lum's Pond Tributary Below Rt 54 Bridge	f	0.08	1	--	--	--	--	--	--
108111	DE 090-L01	Chesapeake & Delaware Canal	Lums Pond Boat Ramp	f	0.05	1	--	--	--	--	--	--
109041	DE 010-001-02	Appoquinimink River	Rt. 13 Bridge below Odessa	f	0.17	1	--	--	--	--	--	--
109071	DE 010-001-03	Appoquinimink River	Drawyer Creek, Rt 13	f	0.18	1	--	--	--	--	--	--
109091	DE 010-001-01	Appoquinimink River	Delaware River (Appoquinimink at Mouth)	f	0.16	1	--	--	--	--	--	--
109121	DE 010-001-01	Appoquinimink River	Rt. 9 Bridge (East)	f	0.15	1	--	--	--	--	--	--
109131	DE 010-L01	Appoquinimink River	Noxontown Pond Overflow, Rd 38	f	0.06	1	--	--	--	--	--	--
109171	DE 010-001-02	Appoquinimink River	MOT Gut (Appo Gut) - West Bank	f	0.17	1	--	--	--	--	--	--
109191	DE 010-L03	Appoquinimink River	Shallcross Lake Overflow, Dischrg Drawer Cr, Rd. 428	f	0.05	1	--	--	--	--	--	--
109251	DE 010-002-02	Appoquinimink River	Deep Creek Br of Appoquinimik River at Rt. 71 Bridge	f	0.04	1	--	--	--	--	--	--
110011	DE 010-002-02	Appoquinimink River	Road 463 East of RR Tracks	f	0.09	1	--	--	--	--	--	--
110031	DE 030-001	Lower Blackbird	Rd 455, Blackbird Landing	f	0.20	5	--	--	--	--	--	--
110041	DE 030-001	Lower Blackbird	Rt. 9 Taylors Bridge	f	0.18	1	--	--	--	--	--	--
111011	DE 130-001	Dragon Run Creek	Rt. 9 Bridge	f	0.11	1	--	--	--	--	--	--
111031	DE 130-002	Dragon Run Creek	Rt. 13 Bridge (flow at Rd. 407), Dragon Creek	f	0.06	1	--	--	--	--	--	--
112021	DE 100-002	Chesapeake Drainage System	Sewell Branch at Rd. 95	f	0.18	1	--	--	--	--	--	--
114011	DE 020-001	Army Creek	Rt. 9 Below Llangollen Wells	f	0.15	1	--	--	--	--	--	--
201011	DE 310-001	Smyrna River	Lake Como at US Route 13 Bridge	f	0.10	1	--	--	--	--	--	--
201021	DE 310-002	Smyrna River	Rd. 137 Bridge, Mill Creek	f	0.11	1	--	--	--	--	--	--
201041	DE 310-001	Smyrna River	Rt. 9 Fleming's Landing	f	0.21	5	--	--	--	--	--	--
201051	DE 310-003	Smyrna River	Rd. 485 Bridge at Smyrna Landing	f	0.20	5	--	--	--	--	--	--
201161	DE 310-003	Smyrna River	Rd. 38 Bridge, Providence Creek	f	0.04	1	--	--	--	--	--	--
202021	DE 160-L01	Leipsic River	Rt. 13 Bridge, Garrisons Lake	f	0.17	1	--	--	--	--	--	--

Station	Segment	Watershed	Description	Fresh/ Marine	TP LCL	TP Status	DIN Count	DIN Ave	DIN LCL	DIN Status	DIP Count	DIP Ave
202031	DE 160-001	Leipsic River	DE Rt. 9 Bridge	m	0.24	5	--	--	--	--	--	--
202191	DE 160-002	Leipsic River	Upstream of Masseys Millpond at Rt. 15	f	0.12	1	--	--	--	--	--	--
204031	DE 190-001-01	Little River	Rt. 9 Bridge	m	0.33	5	--	--	--	--	--	--
204041	DE 190-001-02	Little River	Rt. 8 Bridge	f	0.12	1	--	--	--	--	--	--
205011	DE 290-001-01	Saint Jones River	St. Jones at Bowers Beach, mouth to Del.Bay.	m	0.21	5	--	--	--	--	--	--
205041	DE 290-001-01	Saint Jones River	3.5 miles from mouth at Barkers Landing	m	0.21	5	--	--	--	--	--	--
205091	DE 290-001-02	Saint Jones River	Rt. 10 Bridge near DAFB	m	0.20	5	--	--	--	--	--	--
205151	DE 290-003	Saint Jones River	Rd. 69 State College, Fork Branch	f	0.15	1	--	--	--	--	--	--
205181	DE 290-L01	Saint Jones River	Rt. 13 Alt. Moores Lake	f	0.07	1	--	--	--	--	--	--
205191	DE 290-L02	Saint Jones River	Silver Lake Spillway, Dover City Park	f	0.14	1	--	--	--	--	--	--
205211	DE 290-L03	Saint Jones River	Derby Pond at Rt. 13A	f	0.06	1	--	--	--	--	--	--
206011	DE 220-005	Murderkill River	US Rt. 13 Bridge below Felton	f	0.00	1	--	--	--	--	--	--
206041	DE 220-004	Murderkill River	Browns Branch at Rt. 14 Bridge	f	0.04	1	--	--	--	--	--	--
206091	DE 220-001	Murderkill River	US Rt. 113 at Frederica By-Pass	f	0.17	1	--	--	--	--	--	--
206101	DE 220-001	Murderkill River	Bowers Beach Wharf	m	0.17	1	--	--	--	--	--	--
206141	DE 220-001	Murderkill River	3.25 miles from the mouth	m	0.17	1	--	--	--	--	--	--
206231	DE 220-001	Murderkill River	Confluence of Kent County STP trib.	m	0.00	1	--	--	--	--	--	--
206361	DE 220-L05	Murderkill River	McCauley Pond near spillway	f	0.06	1	--	--	--	--	--	--
206451	DE 220-L03	Murderkill River	Coursey Pond at Rd. 388 Bridge	f	0.09	1	--	--	--	--	--	--
206561	DE 220-002	Murderkill River	Double Run at Rd. 371	f	0.12	1	--	--	--	--	--	--
207021	DE 110-003	Choptank	Cow Marsh Creek at Rd. 208	f	0.07	1	--	--	--	--	--	--
207081	DE 110-001	Choptank	Tappahanna Ditch at Rd. 222	f	0.09	1	--	--	--	--	--	--
207091	DE 110-002	Choptank	Culbreth Marsh at Rd. 210	f	0.08	1	--	--	--	--	--	--
207111	DE 110-003	Choptank	White Marsh Branch at Rd. 268	f	0.06	1	--	--	--	--	--	--
208021	DE 210-001	Mispillion River	Rt. 1 Bridge	f	0.09	1	--	--	--	--	--	--
208061	DE 210-001	Mispillion River	1.09 miles from mouth at lighthouse	m	0.17	1	--	--	--	--	--	--
208121	DE 210-001	Mispillion River	7.48 miles from mouth, mouth of Fishing Branch	f	0.15	1	--	--	--	--	--	--

Station	Segment	Watershed	Description	Fresh/ Marine	TP LCL	TP Status	DIN Count	DIN Ave	DIN LCL	DIN Status	DIP Count	DIP Ave
208181	DE 210-L06	Mispillion River	Abbotts Pond at Rd. 620	f	0.04	1	--	--	--	--	--	--
208211	DE 210-L02	Mispillion River	Rt. 36 Silver Lake	f	0.04	1	--	--	--	--	--	--
208231	DE 210-L05	Mispillion River	Beaverdam Branch, Rd. 384	f	0.04	1	--	--	--	--	--	--
301021	DE 080-001	Cedar Creek	Rd. 212, Swiggetts Pond	f	0.03	1	--	--	--	--	--	--
301031	DE 080-001	Cedar Creek	Rt. 1 Bridge	f	0.10	1	--	--	--	--	--	--
301091	DE 080-001	Cedar Creek	Rt. 36 Bridge	m	0.16	1	--	--	--	--	--	--
302031	DE 200-001	Marshyhope Creek	Rd. 308 Bridge	f	0.09	1	--	--	--	--	--	--
303011	DE 060-005	Broadkill River	Ingram Branch, Savanah Ditch at Rd. 246	f	0.27	5	--	--	--	--	--	--
303021	DE 060-005	Broadkill River	Ingram Branch at Rd. 248	f	0.24	5	--	--	--	--	--	--
303031	DE 060-003	Broadkill River	Rt. 5 Bridge	f	0.05	1	--	--	--	--	--	--
303041	DE 060-001	Broadkill River	Rt. 1 Bridge (Mainstem)	f	0.15	1	--	--	--	--	--	--
303051	DE 060-007-01	Broadkill River	Red Mill Pond at Rt. 1	f	0.08	1	--	--	--	--	--	--
303061	DE 060-001	Broadkill River	0.10 Miles From Mouth	m	0.11	1	--	--	--	--	--	--
303171	DE 060-002	Broadkill River	Beaverdam Creek at Rd. 88	f	0.06	1	--	--	--	--	--	--
303181	DE 060-002	Broadkill River	Beaverdam Creek above Rd. 259, Hunters Mill Pond	f	0.09	1	--	--	--	--	--	--
303311	DE 060-004	Broadkill River	Round Pole Branch at Rd. 88	f	0.06	1	--	--	--	--	--	--
303331	DE 060-L03	Broadkill River	Waples Pond at Rt. 1	f	0.03	1	--	--	--	--	--	--
303341	DE 060-006	Broadkill River	Pemberton Branch at Rt. 30 above Wagamons Pond	f	0.02	1	--	--	--	--	--	--
304151	DE 240-001	Nanticoke River	Buoy 66 (Conf DuPont Gut)	f	0.08	1	--	--	--	--	--	--
304191	DE 240-002	Nanticoke River	Rd. 545 Mainstem Nanticoke	f	0.05	1	--	--	--	--	--	--
304311	DE 240-L02	Nanticoke River	Concord Pond overflow	f	0.03	1	--	--	--	--	--	--
304321	DE 240-L04	Nanticoke River	Williams Pond, below the pond at Rd. 535	f	0.07	1	--	--	--	--	--	--
304371	DE 240-003	Nanticoke River	Clear Brook @ Cannon Rd. (Rt. 18)	f	0.11	1	--	--	--	--	--	--
304381	DE 240-003	Nanticoke River	Bucks Branch at Rd. 546	f	0.04	1	--	--	--	--	--	--
304471	DE 240-001	Nanticoke River	Rt. 13 Bridge	f	0.06	1	--	--	--	--	--	--
304591	DE 240-004	Nanticoke River	Deep Creek above Concord Pond, near Old Furnace at Rd. 46	f	0.05	1	--	--	--	--	--	--
304681	DE 240-002	Nanticoke River	Nanticoke River at Beach HWY (Ellendale Greenwood HWY) on east edge of Greenwood	f	0.05	1	--	--	--	--	--	--

Station	Segment	Watershed	Description	Fresh/ Marine	TP LCL	TP Status	DIN Count	DIN Ave	DIN LCL	DIN Status	DIP Count	DIP Ave
305011	DE 170-001	Lewes and Rehoboth Canal	Canal Rt. 1	m	0.08	1	27	0.11	0.07	1	32	0.06
305041	DE 170-001	Lewes and Rehoboth Canal	Lewes and Rehoboth Canal at Rd. 18 Bridge	m	0.08	1	42	0.10	0.07	1	47	0.05
306091	DE 280-E01	Rehoboth Bay	Buoy 7, Rehoboth Bay	m	0.05	1	9	0.05	0.02	1	27	0.05
306111	DE 280-E01	Rehoboth Bay	Massey's Ditch at Bouy 17	m	0.06	1	12	0.05	0.02	1	31	0.05
306121	DE 140-E01	Indian River	Buoy 20, Indian River Bay	m	0.06	1	22	0.12	0.05	1	39	0.05
306181	DE 140-004	Indian River	Buoy 49, Indian River	m	0.11	1	23	0.90	0.49	5	28	0.04
306321	DE 140-E01	Indian River	Indian River Inlet	m	0.05	1	22	0.05	0.03	1	40	0.05
306331	DE 140-E02	Indian River	Island Creek mouth	m	0.09	1	21	0.45	0.25	5	26	0.05
306341	DE 140-004	Indian River	Island Creek, upper third	m	0.09	1	21	0.75	0.49	5	26	0.04
307011	DE 050-L04	Broad Creek	Records Pond at Rt. 13	f	0.05	1	--	--	--	--	--	--
307031	DE 050-001	Broad Creek	Broad Creek at Main Street in Bethel (Rd 493)	f	0.08	1	--	--	--	--	--	--
307081	DE050-L07	Broad Creek	Trap Pond on Hitch Pond Branch @ Co. Rd. 449 or Trap Pond Rd	f	0.08	1	--	--	--	--	--	--
307171	DE050-L03	Broad Creek	Horseys Pond 50 Yards Above Spillway 50% RB	f	0.07	1	--	--	--	--	--	--
307371	DE 050-006-03	Broad Creek	Raccoon Prong @ Pepperbox Rd. (Rd. 66)	f	0.03	1	--	--	--	--	--	--
308031	DE 280-L01	Rehoboth Bay	Burton Pond, Rd. 24	f	0.02	1	37	0.73	0.55	5	33	0.02
308051	DE 280-001-01	Rehoboth Bay	Guinea Creek at Rt. 298 Bridge	m	0.07	1	35	0.95	0.69	5	40	0.04
308071	DE 140-L01	Indian River	Millsboro Dam Overflow	f	0.04	1	68	2.06	1.85	5	63	0.03
308091	DE 140-003	Indian River	Pepper Creek at Rt. 26	f	0.09	1	28	1.04	0.82	5	26	0.03
308281	DE 140-006	Indian River	Cow Bridge Branch Rd. 48	f	0.06	1	22	0.64	0.41	5	27	0.03
308341	DE 140-005	Indian River	Swan Creek at Rd. 297	f	0.02	1	26	1.80	1.63	5	24	0.02
308361	DE 140-002	Indian River	Blackwater Creek at Rd. 54	f	0.05	1	25	2.64	2.01	5	25	0.03
308371	DE 280-002	Rehoboth Bay	Bundick's Branch at Rt. 23	f	0.03	1	39	5.76	5.28	5	37	0.03
309041	DE 150-001	Iron Branch	Whartons Branch at Rt. 334 Bridge	f	0.05	1	24	1.34	0.75	5	27	0.03
310011	DE 180-E01	Little Assawoman Bay	Little Assawoman Bay Ditch at Rd. 58 Bridge	m	0.05	1	11	0.04	0.02	1	28	0.04
310031	DE 180-003	Little Assawoman Bay	Dirrickson Creek, Rd. 381	m	0.15	1	19	0.72	0.39	5	29	0.08
310071	DE 180-E01	Little Assawoman Bay	Little Assawoman Bay, Mid-Bay	m	0.05	1	18	0.05	0.02	1	31	0.03
310121	DE 180-002	Little Assawoman Bay	Beaverdam Ditch at Rd. 368	f	0.06	1	33	1.01	0.75	5	33	0.03

Station	Segment	Watershed	Description	Fresh/ Marine	TP LCL	TP Status	DIN Count	DIN Ave	DIN LCL	DIN Status	DIP Count	DIP Ave
311041	DE 070-001	Buntings Branch	Buntings Branch at Rt. 54	f	0.13	1	26	1.77	1.26	5	26	0.08
312011	DE 140-001	Indian River	White Creek at the mouth of Assawoman Canal	m	0.05	1	27	0.08	0.02	1	39	0.04
313011	DE 250-001	Pocomoke River	Rd. 419 Bridge	f	0.10	1	--	--	--	--	--	--
316011	DE 240-005	Nanticoke River	Gravelly Branch at Rd. 525 Bridge	f	0.02	1	--	--	--	--	--	--
316031	DE 240-005	Nanticoke River	Gravelly Branch at Deer Forest Road (Rd 565) on west edge of Redden State Forest Jester Tract	f	0.03	1	--	--	--	--	--	--
Abbreviations												
DO	Dissolved Oxygen											
ENT	Enterrococcus											
TN	Total Nitrogen											
TP	Total Phosphorus											
DIN	Dissolved Inorganic Nitrogen											
DIP	Dissolved Inorganic Phosphorus											
NH4	Ammonia											
Cu	Copper											
Zn	Zinc											

Station	Segment	Watershed	Description	Fresh/ Marine	DIP LCL	DIP Status	NH4 Over Criteria	Cu Over Criteria	Zn Over Criteria
101021	DE 230-001-02	Naamans Creek	Naamans Road	f	--	--	--	--	--
101031	DE 230-001-02	Naamans Creek	South Branch at Darley Rd.	f	--	--	--	--	--
101061	DE 230-001-02	Naamans Creek	South Branch at Marsh Rd.	f	--	--	--	--	--
102041	DE 300-001-01	Shellpot Creek	Cherry Island at Rd. 501 Bridge	f	--	--	--	--	--
102051	DE 300-001-02	Shellpot Creek	Rt. 13 Bus (Market Street) Bridge	f	--	--	--	--	--
102081	DE 300-001-02	Shellpot Creek	Carr Road Bridge	f	--	--	--	--	--
103011	DE 260-001	Red Clay Creek	Stanton, Rt. 4 at Stanton Bridge (USGS gage 01480015)	f	--	--	--	--	--
103031	DE 260-001	Red Clay Creek	Wooddale, Rt. 48 (USGS gage 01480000)	f	--	--	--	--	--
103041	DE 260-001	Red Clay Creek	Ashland, Rd. 258a	f	--	--	--	--	--
103061	DE 260-002	Red Clay Creek	Burrough's Run at Creek Rd. (Rt. 82)	f	--	--	--	--	--
104011	DE 040-001	Brandywine Creek	Footbridge in Brandywine State Park	f	--	--	--	--	--
104021	DE 040-002	Brandywine Creek	Rd. 279 Bridge (USGS guage 014)	f	--	--	--	--	--
104051	DE 040-002	Brandywine Creek	Smith Bridge	f	--	--	--	--	--
105031	DE 320-001	White Clay Creek	Chambers Rock Rd. (Road 329) near Thompson	f	--	--	--	--	--
105151	DE 320-001	White Clay Creek	DE Park Race Track (USGS gage 01479000), 35ft downstream	f	--	--	--	--	--
105171	DE 320-001	White Clay Creek	McKee Lane in Newark	f	--	--	--	--	--
106021	DE 120-002	Christina River	Rt. 141 Drawbridge, Newport (USGS tide gage 01480065)	f	--	--	--	--	--
106031	DE 120-003	Christina River	Smalley's Dam Spillway	f	--	--	--	--	--
106141	DE 120-004-01	Christina River	Rt. 72, Below Newark (USGS guage 01478000)	f	--	--	--	3	--
106191	DE 120-006	Christina River	Rt. 273, Above Newark	f	--	--	--	--	--
106281	DE 120-007-01	Christina River	Little Mill Creek at atlantic Avenue (USGS Gage 01480095)	f	--	--	--	--	--
106291	DE 120-001	Christina River	Conrail Bridge (USGS tide gage 01481602) Up river from Port	f	--	--	--	--	--
107011	DE 270-001-02	Red Lion Creek	Rt. 7	f	--	--	--	--	--
107031	DE 270-001-01	Red Lion Creek	Rt. 9 Bridge	f	--	--	--	--	--

Station	Segment	Watershed	Description	Fresh/ Marine	DIP LCL	DIP Status	NH4 Over Criteria	Cu Over Criteria	Zn Over Criteria
108021	DE 090-001	Chesapeake & Delaware Canal	St. Georges Bridge	f	--	--	--	--	--
108051	DE 090-002	Chesapeake & Delaware Canal	Lum's Pond at Rt 71	f	--	--	--	--	--
108081	DE 090-L01	Chesapeake & Delaware Canal	Lum's Pond Tributary Below Rt 54 Bridge	f	--	--	--	--	--
108111	DE 090-L01	Chesapeake & Delaware Canal	Lums Pond Boat Ramp	f	--	--	--	--	--
109041	DE 010-001-02	Appoquinimink River	Rt. 13 Bridge below Odessa	f	--	--	--	--	--
109071	DE 010-001-03	Appoquinimink River	Drawyer Creek, Rt 13	f	--	--	--	--	--
109091	DE 010-001-01	Appoquinimink River	Delaware River (Appoquinimink at Mouth)	f	--	--	--	4	--
109121	DE 010-001-01	Appoquinimink River	Rt. 9 Bridge (East)	f	--	--	--	--	--
109131	DE 010-L01	Appoquinimink River	Noxontown Pond Overflow, Rd 38	f	--	--	--	--	--
109171	DE 010-001-02	Appoquinimink River	MOT Gut (Appo Gut) - West Bank	f	--	--	--	--	--
109191	DE 010-L03	Appoquinimink River	Shallcross Lake Overflow, Dischrg Drawer Cr, Rd. 428	f	--	--	--	2	--
109251	DE 010-002-02	Appoquinimink River	Deep Creek Br of Appoquinimik River at Rt. 71 Bridge	f	--	--	--	--	--
110011	DE 010-002-02	Appoquinimink River	Road 463 East of RR Tracks	f	--	--	--	--	--
110031	DE 030-001	Lower Blackbird	Rd 455, Blackbird Landing	f	--	--	--	--	--
110041	DE 030-001	Lower Blackbird	Rt. 9 Taylors Bridge	f	--	--	--	--	--
111011	DE 130-001	Dragon Run Creek	Rt. 9 Bridge	f	--	--	--	--	--
111031	DE 130-002	Dragon Run Creek	Rt. 13 Bridge (flow at Rd. 407), Dragon Creek	f	--	--	--	--	--
112021	DE 100-002	Chesapeake Drainage System	Sewell Branch at Rd. 95	f	--	--	--	--	--
114011	DE 020-001	Army Creek	Rt. 9 Below Llangollen Wells	f	--	--	--	--	--
201011	DE 310-001	Smyrna River	Lake Como at US Route 13 Bridge	f	--	--	--	--	--
201021	DE 310-002	Smyrna River	Rd. 137 Bridge, Mill Creek	f	--	--	--	--	--
201041	DE 310-001	Smyrna River	Rt. 9 Fleming's Landing	f	--	--	--	--	--
201051	DE 310-003	Smyrna River	Rd. 485 Bridge at Smyrna Landing	f	--	--	--	--	--
201161	DE 310-003	Smyrna River	Rd. 38 Bridge, Providence Creek	f	--	--	--	--	--
202021	DE 160-L01	Leipsic River	Rt. 13 Bridge, Garrisons Lake	f	--	--	--	--	--

Station	Segment	Watershed	Description	Fresh/ Marine	DIP LCL	DIP Status	NH4 Over Criteria	Cu Over Criteria	Zn Over Criteria
202031	DE 160-001	Leipsic River	DE Rt. 9 Bridge	m	--	--	--	--	--
202191	DE 160-002	Leipsic River	Upstream of Masseys Millpond at Rt. 15	f	--	--	--	--	--
204031	DE 190-001-01	Little River	Rt. 9 Bridge	m	--	--	--	--	--
204041	DE 190-001-02	Little River	Rt. 8 Bridge	f	--	--	--	--	--
205011	DE 290-001-01	Saint Jones River	St. Jones at Bowers Beach, mouth to Del.Bay.	m	--	--	--	--	--
205041	DE 290-001-01	Saint Jones River	3.5 miles from mouth at Barkers Landing	m	--	--	--	--	--
205091	DE 290-001-02	Saint Jones River	Rt. 10 Bridge near DAFB	m	--	--	--	--	--
205151	DE 290-003	Saint Jones River	Rd. 69 State College, Fork Branch	f	--	--	--	--	--
205181	DE 290-L01	Saint Jones River	Rt. 13 Alt. Moores Lake	f	--	--	--	--	--
205191	DE 290-L02	Saint Jones River	Silver Lake Spillway, Dover City Park	f	--	--	--	--	--
205211	DE 290-L03	Saint Jones River	Derby Pond at Rt. 13A	f	--	--	--	--	--
206011	DE 220-005	Murderkill River	US Rt. 13 Bridge below Felton	f	--	--	--	--	--
206041	DE 220-004	Murderkill River	Browns Branch at Rt. 14 Bridge	f	--	--	2	--	--
206091	DE 220-001	Murderkill River	US Rt. 113 at Frederica By-Pass	f	--	--	--	5	--
206101	DE 220-001	Murderkill River	Bowers Beach Wharf	m	--	--	--	11	--
206141	DE 220-001	Murderkill River	3.25 miles from the mouth	m	--	--	--	7	--
206231	DE 220-001	Murderkill River	Confluence of Kent County STP trib.	m	--	--	--	4	--
206361	DE 220-L05	Murderkill River	McCauley Pond near spillway	f	--	--	--	--	--
206451	DE 220-L03	Murderkill River	Coursey Pond at Rd. 388 Bridge	f	--	--	--	--	--
206561	DE 220-002	Murderkill River	Double Run at Rd. 371	f	--	--	--	--	--
207021	DE 110-003	Choptank	Cow Marsh Creek at Rd. 208	f	--	--	--	--	--
207081	DE 110-001	Choptank	Tappahanna Ditch at Rd. 222	f	--	--	--	--	--
207091	DE 110-002	Choptank	Culbreth Marsh at Rd. 210	f	--	--	--	--	--
207111	DE 110-003	Choptank	White Marsh Branch at Rd. 268	f	--	--	--	--	--
208021	DE 210-001	Mispillion River	Rt. 1 Bridge	f	--	--	--	--	--
208061	DE 210-001	Mispillion River	1.09 miles from mouth at lighthouse	m	--	--	--	--	--
208121	DE 210-001	Mispillion River	7.48 miles from mouth, mouth of Fishing Branch	f	--	--	--	--	--

Station	Segment	Watershed	Description	Fresh/ Marine	DIP LCL	DIP Status	NH4 Over Criteria	Cu Over Criteria	Zn Over Criteria
208181	DE 210-L06	Mispillion River	Abbotts Pond at Rd. 620	f	--	--	--	--	--
208211	DE 210-L02	Mispillion River	Rt. 36 Silver Lake	f	--	--	--	--	--
208231	DE 210-L05	Mispillion River	Beaverdam Branch, Rd. 384	f	--	--	--	--	--
301021	DE 080-001	Cedar Creek	Rd. 212, Swiggetts Pond	f	--	--	--	--	--
301031	DE 080-001	Cedar Creek	Rt. 1 Bridge	f	--	--	--	--	--
301091	DE 080-001	Cedar Creek	Rt. 36 Bridge	m	--	--	--	--	--
302031	DE 200-001	Marshyhope Creek	Rd. 308 Bridge	f	--	--	--	--	--
303011	DE 060-005	Broadkill River	Ingram Branch, Savanah Ditch at Rd. 246	f	--	--	--	--	--
303021	DE 060-005	Broadkill River	Ingram Branch at Rd. 248	f	--	--	--	--	--
303031	DE 060-003	Broadkill River	Rt. 5 Bridge	f	--	--	--	--	--
303041	DE 060-001	Broadkill River	Rt. 1 Bridge (Mainstem)	f	--	--	--	--	--
303051	DE 060-007-01	Broadkill River	Red Mill Pond at Rt. 1	f	--	--	--	--	--
303061	DE 060-001	Broadkill River	0.10 Miles From Mouth	m	--	--	--	--	--
303171	DE 060-002	Broadkill River	Beaverdam Creek at Rd. 88	f	--	--	--	--	--
303181	DE 060-002	Broadkill River	Beaverdam Creek above Rd. 259, Hunters Mill Pond	f	--	--	--	--	--
303311	DE 060-004	Broadkill River	Round Pole Branch at Rd. 88	f	--	--	--	--	--
303331	DE 060-L03	Broadkill River	Waples Pond at Rt. 1	f	--	--	--	--	--
303341	DE 060-006	Broadkill River	Pemberton Branch at Rt. 30 above Wagamons Pond	f	--	--	--	--	--
304151	DE 240-001	Nanticoke River	Buoy 66 (Conf DuPont Gut)	f	--	--	--	--	--
304191	DE 240-002	Nanticoke River	Rd. 545 Mainstem Nanticoke	f	--	--	--	--	--
304311	DE 240-L02	Nanticoke River	Concord Pond overflow	f	--	--	--	--	--
304321	DE 240-L04	Nanticoke River	Williams Pond, below the pond at Rd. 535	f	--	--	--	--	--
304371	DE 240-003	Nanticoke River	Clear Brook @ Cannon Rd. (Rt. 18)	f	--	--	--	--	--
304381	DE 240-003	Nanticoke River	Bucks Branch at Rd. 546	f	--	--	--	--	--
304471	DE 240-001	Nanticoke River	Rt. 13 Bridge	f	--	--	--	--	--
304591	DE 240-004	Nanticoke River	Deep Creek above Concord Pond, near Old Furnace at Rd. 46	f	--	--	--	--	--
304681	DE 240-002	Nanticoke River	Nanticoke River at Beach HWY (Ellendale Greenwood HWY) on east edge of Greenwood	f	--	--	--	--	--

Station	Segment	Watershed	Description	Fresh/ Marine	DIP LCL	DIP Status	NH4 Over Criteria	Cu Over Criteria	Zn Over Criteria
305011	DE 170-001	Lewes and Rehoboth Canal	Canal Rt. 1	m	0.05	5	--	4	--
305041	DE 170-001	Lewes and Rehoboth Canal	Lewes and Rehoboth Canal at Rd. 18 Bridge	m	0.05	5	--	5	--
306091	DE 280-E01	Rehoboth Bay	Buoy 7, Rehoboth Bay	m	0.04	5	--	2	--
306111	DE 280-E01	Rehoboth Bay	Massey's Ditch at Bouy 17	m	0.04	5	--	3	--
306121	DE 140-E01	Indian River	Buoy 20, Indian River Bay	m	0.04	5	--	5	--
306181	DE 140-004	Indian River	Buoy 49, Indian River	m	0.03	5	--	5	--
306321	DE 140-E01	Indian River	Indian River Inlet	m	0.04	5	--	--	--
306331	DE 140-E02	Indian River	Island Creek mouth	m	0.04	5	--	2	--
306341	DE 140-004	Indian River	Island Creek, upper third	m	0.03	5	--	2	--
307011	DE 050-L04	Broad Creek	Records Pond at Rt. 13	f	--	--	--	--	--
307031	DE 050-001	Broad Creek	Broad Creek at Main Street in Bethel (Rd 493)	f	--	--	--	--	--
307081	DE050-L07	Broad Creek	Trap Pond on Hitch Pond Branch @ Co. Rd. 449 or Trap Pond Rd	f	--	--	2	--	--
307171	DE050-L03	Broad Creek	Horseys Pond 50 Yards Above Spillway 50% RB	f	--	--	--	--	--
307371	DE 050-006-03	Broad Creek	Raccoon Prong @ Pepperbox Rd. (Rd. 66)	f	--	--	--	--	--
308031	DE 280-L01	Rehoboth Bay	Burton Pond, Rd. 24	f	0.02	5	--	--	--
308051	DE 280-001-01	Rehoboth Bay	Guinea Creek at Rt. 298 Bridge	m	0.03	5	--	4	--
308071	DE 140-L01	Indian River	Millsboro Dam Overflow	f	0.02	5	--	--	--
308091	DE 140-003	Indian River	Pepper Creek at Rt. 26	f	0.02	5	--	--	--
308281	DE 140-006	Indian River	Cow Bridge Branch Rd. 48	f	0.02	5	--	--	--
308341	DE 140-005	Indian River	Swan Creek at Rd. 297	f	0.01	1	--	--	--
308361	DE 140-002	Indian River	Blackwater Creek at Rd. 54	f	0.02	5	--	--	--
308371	DE 280-002	Rehoboth Bay	Bundick's Branch at Rt. 23	f	0.02	5	--	--	--
309041	DE 150-001	Iron Branch	Whartons Branch at Rt. 334 Bridge	f	0.02	5	--	2	--
310011	DE 180-E01	Little Assawoman Bay	Little Assawoman Bay Ditch at Rd. 58 Bridge	m	0.03	5	--	2	--
310031	DE 180-003	Little Assawoman Bay	Dirrickson Creek, Rd. 381	m	0.04	5	--	2	--
310071	DE 180-E01	Little Assawoman Bay	Little Assawoman Bay, Mid-Bay	m	0.03	5	--	--	--
310121	DE 180-002	Little Assawoman Bay	Beaverdam Ditch at Rd. 368	f	0.02	5	--	--	--

Station	Segment	Watershed	Description	Fresh/ Marine	DIP LCL	DIP Status	NH4 Over Criteria	Cu Over Criteria	Zn Over Criteria
311041	DE 070-001	Buntings Branch	Buntings Branch at Rt. 54	f	0.05	5	--	3	--
312011	DE 140-001	Indian River	White Creek at the mouth of Assawoman Canal	m	0.03	5	--	2	--
313011	DE 250-001	Pocomoke River	Rd. 419 Bridge	f	--	--	--	--	--
316011	DE 240-005	Nanticoke River	Gravelly Branch at Rd. 525 Bridge	f	--	--	--	--	--
316031	DE 240-005	Nanticoke River	Gravelly Branch at Deer Forest Road (Rd 565) on west edge of Redden State Forest Jester Tract	f	--	--	--	--	9
Abbreviations									
DO	Dissolved Oxygen								
ENT	Enterrococcus								
TN	Total Nitrogen								
TP	Total Phosphorus								
DIN	Dissolved Inorganic Nitrogen								
DIP	Dissolved Inorganic Phosphorus								
NH4	Ammonia								
Cu	Copper								
Zn	Zinc								

Appendix Two: Segment Roll Ups

Waterbody ID	Watershed Name	Segment	DO Status	ENT Status	TN Status	TP Status	DIN Status	DIP Status	NH4 Over Criteria
DE 010-001-01	Appoquinimink River	Lower Appoquinimink River	5	1	1	1			
DE 010-001-02	Appoquinimink River	Upper Appoquinimink River	5	5	1	1			
DE 010-001-03	Appoquinimink River	Drawyer Creek	5	5	1	1			
DE 010-002-02	Appoquinimink River	Deep Creek to confluence with Silver	5	5	5	1			
DE 010-L01	Appoquinimink River	Noxontown Pond	1	1	1	1			
DE 010-L03	Appoquinimink River	Shallcross Lake	1	1	1	1			
DE 020-001	Army Creek	Lower Army Creek	1	1	1	1			
DE 030-001	Blackbird Creek	Lower Blackbird	5	5	1	5			
DE 040-001	Brandywine Creek	Lower Brandywine	1	1	5	1			
DE 040-002	Brandywine Creek	Upper Brandywine	1	5	1	1			
DE 050-001	Broad Creek	Lower Broad Creek	1	1	5	1			
DE 050-006-03	Broad Creek	Raccoon Prong	5	5	1	1			
DE 050-L04	Broad Creek	Records Pond	1	1	5	1			
DE 060-001	Broadkill River	Lower Broadkill	5	5	1	1			
DE 060-002	Broadkill River	Beaverdam Creek	1	5	5	1			
DE 060-003	Broadkill River	Upper Broadkill River	1	1	1	1			
DE 060-004	Broadkill River	Round Pole Branch	1	5	5	1			
DE 060-005	Broadkill River	Ingrams Branch	5	5	5	5			
DE 060-006	Broadkill River	Pemberton Branch	1	5	5	1			
DE 060-007-01	Broadkill River	Lower Red Mill Branch	1	1	1	1			
DE 060-L03	Broadkill River	Waples Pond and Reynolds Pond	1	1	1	1			
DE 070-001	Buntings Branch	Buntings Branch	1	5	5	1	5	5	
DE 080-001	Cedar Creek	Lower Cedar Creek	5	5	5	1			
DE 090-001	Chesapeake & Delaware Canal	C&D Canal	1	1	1	1			
DE 090-002	Chesapeake & Delaware Canal	Tributaries of Chesapeake & Delawar	5	1	1	1			
DE 090-L01	Chesapeake & Delaware Canal	Lums Pond	1	1	1	1			
DE 100-002	Chesapeake Drainage System	Sewell Branch, including tributaries	5	1	1	1			
DE 110-001	Choptank	Tappahanna Ditch	1	5	1	1			
DE 110-002	Choptank	Culbreth Marsh Ditch	1	5	1	1			
DE 110-003	Choptank	Cow Marsh Creek	1	5	5	1			
DE 120-001	Christina River	Lower Christina River	1	5	1	1			
DE 120-002	Christina River	Mid Christina River	5	5	1	1			

Waterbody ID	Watershed Name	Segment	DO Status	ENT Status	TN Status	TP Status	DIN Status	DIP Status	NH4 Over Criteria
DE 120-003	Christina River	Upper Christina River	1	5	1	1			
DE 120-004-01	Christina River	Lower Christina Creek	1	5	1	1			
DE 120-006	Christina River	Upper Christina Creek	1	5	1	1			
DE 120-007-01	Christina River	Little Mill Creek and Willow Run	1	5	1	1			
DE 130-001	Dragon Run Creek	Lower Dragon Run Creek	5	1	1	1			
DE 130-002	Dragon Run Creek	Upper Dragon Run Creek	5	5	1	1			
DE 140-001	Indian River	White Creek	1	1	1	1	1	5	
DE 140-002	Indian River	Blackwater Creek	5	5	1	1	5	5	
DE 140-003	Indian River	Pepper Creek, including tributaries	1	5	1	1	5	5	
DE 140-004	Indian River	Indian River	1	5	1	1	5	5	
DE 140-005	Indian River	Swan Creek	1	5	1	1	5	1	
DE 140-006	Indian River	Stockley Branch	1	1	1	1	5	5	
DE 140-E01	Indian River	Lower Indian River Bay	1	1	1	1	1	5	
DE 140-E02	Indian River	Upper Indian River Bay	1	1	1	1	5	5	
DE 140-L01	Indian River	Millsboro Pond	5	1	1	1	5	5	
DE 150-001	Iron Branch	Iron Branch	1	5	1	1	5	5	
DE 160-001	Leipsic River	Lower Leipsic River	5	5	1	5			
DE 160-002	Leipsic River	Upper Leipsic River	1	5	5	1			
DE 160-L01	Leipsic River	Garrisons Lake	1	1	1	1			
DE 170-001	Lewes and Rehoboth Canal	Lewes and Rehoboth Canal	5	5	1	1	1	5	
DE 180-002	Little Assawoman Bay	Miller Creek	1	5	1	1	5	5	
DE 180-003	Little Assawoman Bay	Dirickson Creek	1	5	1	1	5	5	
DE 180-E01	Little Assawoman Bay	Little Assawoman Bay	1	1	1	1	1	5	
DE 190-001-01	Little River	Lower Little River	5	5	1	5			
DE 190-001-02	Little River	Upper Little River	5	1	1	1			
DE 200-001	Marshyhope Creek	Marshyhope Creek	1	1	1	1			
DE 210-001	Mispillion River	Lower Mispillion	5	5	5	1			
DE 210-L02	Mispillion River	Silver Lake	1	1	5	1			
DE 210-L05	Mispillion River	Blairs Pond	1	5	5	1			
DE 210-L06	Mispillion River	Abbotts Mill Pond	1	1	5	1			
DE 220-001	Murderkill River	Lower Murderkill	5	5	1	1			
DE 220-002	Murderkill River	Spring Creek	1	5	1	1			

Waterbody ID	Watershed Name	Segment	DO Status	ENT Status	TN Status	TP Status	DIN Status	DIP Status	NH4 Over Criteria
DE 220-004	Murderkill River	Browns Branch	1	5	1	1			
DE 220-005	Murderkill River	Upper Murderkill River	1	5	5	1			
DE 220-L03	Murderkill River	Coursey Pond	1	1	5	1			
DE 220-L05	Murderkill River	McCauley Pond	1	1	5	1			
DE 230-001-02	Naamans Creek	North Branch and South Branch	1	5	1	1			
DE 240-001	Nanticoke River	Lower Nanticoke River	1	5	5	1			
DE 240-002	Nanticoke River	Upper Nanticoke River	5	1	5	1			
DE 240-003	Nanticoke River	Clear Brook Branch	5	5	5	1			
DE 240-004	Nanticoke River	Deep Creek Branch	5	1	1	1			
DE 240-005	Nanticoke River	Gravelly Branch	1	1	1	1			
DE 240-L02	Nanticoke River	Concord Pond	1	1	1	1			
DE 240-L04	Nanticoke River	Williams Pond	1	1	1	1			
DE 250-001	Pocomoke River	Pocomoke River	1	5	1	1			
DE 260-001	Red Clay Creek	Mainstem	1	5	5	1			
DE 260-002	Red Clay Creek	Burroughs Run	1	5	1	1			
DE 270-001-01	Red Lion Creek	Lower Red Lion	5	5	1	1			
DE 270-001-02	Red Lion Creek	Upper Red Lion	1	5	1	1			
DE 280-001-01	Rehoboth Bay	Chapel Branch	5	5	1	1	5	5	
DE 280-002	Rehoboth Bay	Love Creek, including tributaries	1	5	5	1	5	5	
DE 280-E01	Rehoboth Bay	Rehoboth Bay	5	1	1	1	1	5	
DE 280-L01	Rehoboth Bay	Burton Pond	5	1	1	1	5	5	
DE 290-001-01	Saint Jones River	Lower Saint Jones	5	5	1	5			
DE 290-001-02	Saint Jones River	Upper Saint Jones	5	5	1	5			
DE 290-003	Saint Jones River	Fork Branch	5	1	1	1			
DE 290-L01	Saint Jones River	Moores Lake	1	1	5	1			
DE 290-L02	Saint Jones River	Silver Lake	1	1	1	1			
DE 290-L03	Saint Jones River	Derby Pond	1	1	1	1			
DE 300-001-01	Shellpot Creek	Lower Shellpot Creek	5	5	1	1			
DE 300-001-02	Shellpot Creek	Upper Shellpot Creek	1	5	1	1			
DE 310-001	Smyrna River	Lower Smyrna River	5	5	1	5			
DE 310-002	Smyrna River	Mill Creek	1	1	1	1			
DE 310-003	Smyrna River	Tributary of Smyrna River	1	5	1	5			

Waterbody ID	Watershed Name	Segment	DO Status	ENT Status	TN Status	TP Status	DIN Status	DIP Status	NH4 Over Criteria
DE 320-001	White Clay Creek	Mainstem	1	5	5	1			
DE 050-L03	Broad Creek	Horseys Pond	1	1	1	1			
DE 050-L07	Broad Creek	Trap Pond	1	1	1	1			
Abbreviations									
DO	Dissolved Oxygen								
ENT	Enterrococcus								
TN	Total Nitrogen								
TP	Total Phosphorus								
DIN	Dissolved Inorganic Nitrogen								
DIP	Dissolved Inorganic Phosphorus								
NH4	Ammonia								
Cu	Copper								
Zn	Zinc								

Waterbody ID	Watershed Name	Segment	Cu over Criteria	Zn Over Criteria
DE 010-001-01	Appoquinimink River	Lower Appoquinimink River	5	
DE 010-001-02	Appoquinimink River	Upper Appoquinimink River		
DE 010-001-03	Appoquinimink River	Drawyer Creek		
DE 010-002-02	Appoquinimink River	Deep Creek to confluence with Silver		
DE 010-L01	Appoquinimink River	Noxontown Pond		
DE 010-L03	Appoquinimink River	Shallcross Lake	5	
DE 020-001	Army Creek	Lower Army Creek		
DE 030-001	Blackbird Creek	Lower Blackbird		
DE 040-001	Brandywine Creek	Lower Brandywine		
DE 040-002	Brandywine Creek	Upper Brandywine		
DE 050-001	Broad Creek	Lower Broad Creek		
DE 050-006-03	Broad Creek	Raccoon Prong		
DE 050-L04	Broad Creek	Records Pond		
DE 060-001	Broadkill River	Lower Broadkill		
DE 060-002	Broadkill River	Beaverdam Creek		
DE 060-003	Broadkill River	Upper Broadkill River		
DE 060-004	Broadkill River	Round Pole Branch		
DE 060-005	Broadkill River	Ingrams Branch		
DE 060-006	Broadkill River	Pemberton Branch		
DE 060-007-01	Broadkill River	Lower Red Mill Branch		
DE 060-L03	Broadkill River	Waples Pond and Reynolds Pond		
DE 070-001	Buntings Branch	Buntings Branch	5	
DE 080-001	Cedar Creek	Lower Cedar Creek		
DE 090-001	Chesapeake & Delaware Canal	C&D Canal		
DE 090-002	Chesapeake & Delaware Canal	Tributaries of Chesapeake & Delawar		
DE 090-L01	Chesapeake & Delaware Canal	Lums Pond		
DE 100-002	Chesapeake Drainage System	Sewell Branch, including tributaries		
DE 110-001	Choptank	Tappahanna Ditch		
DE 110-002	Choptank	Culbreth Marsh Ditch		
DE 110-003	Choptank	Cow Marsh Creek		
DE 120-001	Christina River	Lower Christina River		
DE 120-002	Christina River	Mid Christina River		

Waterbody ID	Watershed Name	Segment	Cu over Criteria	Zn Over Criteria
DE 120-003	Christina River	Upper Christina River		
DE 120-004-01	Christina River	Lower Christina Creek	5	
DE 120-006	Christina River	Upper Christina Creek		
DE 120-007-01	Christina River	Little Mill Creek and Willow Run		
DE 130-001	Dragon Run Creek	Lower Dragon Run Creek		
DE 130-002	Dragon Run Creek	Upper Dragon Run Creek		
DE 140-001	Indian River	White Creek	5	
DE 140-002	Indian River	Blackwater Creek		
DE 140-003	Indian River	Pepper Creek, including tributaries		
DE 140-004	Indian River	Indian River	5	
DE 140-005	Indian River	Swan Creek		
DE 140-006	Indian River	Stockley Branch		
DE 140-E01	Indian River	Lower Indian River Bay	5	
DE 140-E02	Indian River	Upper Indian River Bay	5	
DE 140-L01	Indian River	Millsboro Pond		
DE 150-001	Iron Branch	Iron Branch	5	
DE 160-001	Leipsic River	Lower Leipsic River		
DE 160-002	Leipsic River	Upper Leipsic River		
DE 160-L01	Leipsic River	Garrisons Lake		
DE 170-001	Lewes and Rehoboth Canal	Lewes and Rehoboth Canal	5	
DE 180-002	Little Assawoman Bay	Miller Creek		
DE 180-003	Little Assawoman Bay	Dirickson Creek	5	
DE 180-E01	Little Assawoman Bay	Little Assawoman Bay	5	
DE 190-001-01	Little River	Lower Little River		
DE 190-001-02	Little River	Upper Little River		
DE 200-001	Marshyhope Creek	Marshyhope Creek		
DE 210-001	Mispillion River	Lower Mispillion		
DE 210-L02	Mispillion River	Silver Lake		
DE 210-L05	Mispillion River	Blairs Pond		
DE 210-L06	Mispillion River	Abbotts Mill Pond		
DE 220-001	Murderkill River	Lower Murderkill	5	
DE 220-002	Murderkill River	Spring Creek		

Waterbody ID	Watershed Name	Segment	Cu over Criteria	Zn Over Criteria
DE 220-004	Murderkill River	Browns Branch		
DE 220-005	Murderkill River	Upper Murderkill River		
DE 220-L03	Murderkill River	Coursey Pond		
DE 220-L05	Murderkill River	McCauley Pond		
DE 230-001-02	Naamans Creek	North Branch and South Branch		
DE 240-001	Nanticoke River	Lower Nanticoke River		
DE 240-002	Nanticoke River	Upper Nanticoke River		
DE 240-003	Nanticoke River	Clear Brook Branch		
DE 240-004	Nanticoke River	Deep Creek Branch		
DE 240-005	Nanticoke River	Gravelly Branch		5
DE 240-L02	Nanticoke River	Concord Pond		
DE 240-L04	Nanticoke River	Williams Pond		
DE 250-001	Pocomoke River	Pocomoke River		
DE 260-001	Red Clay Creek	Mainstem		
DE 260-002	Red Clay Creek	Burroughs Run		
DE 270-001-01	Red Lion Creek	Lower Red Lion		
DE 270-001-02	Red Lion Creek	Upper Red Lion		
DE 280-001-01	Rehoboth Bay	Chapel Branch	5	
DE 280-002	Rehoboth Bay	Love Creek, including tributaries		
DE 280-E01	Rehoboth Bay	Rehoboth Bay	5	
DE 280-L01	Rehoboth Bay	Burton Pond		
DE 290-001-01	Saint Jones River	Lower Saint Jones		
DE 290-001-02	Saint Jones River	Upper Saint Jones		
DE 290-003	Saint Jones River	Fork Branch		
DE 290-L01	Saint Jones River	Moores Lake		
DE 290-L02	Saint Jones River	Silver Lake		
DE 290-L03	Saint Jones River	Derby Pond		
DE 300-001-01	Shellpot Creek	Lower Shellpot Creek		
DE 300-001-02	Shellpot Creek	Upper Shellpot Creek		
DE 310-001	Smyrna River	Lower Smyrna River		
DE 310-002	Smyrna River	Mill Creek		
DE 310-003	Smyrna River	Tributary of Smyrna River		

Waterbody ID	Watershed Name	Segment	Cu over Criteria	Zn Over Criteria
DE 320-001	White Clay Creek	Mainstem		
DE 050-L03	Broad Creek	Horseys Pond		
DE 050-L07	Broad Creek	Trap Pond		
Abbreviations				
DO	Dissolved Oxygen			
ENT	Enterrococcus			
TN	Total Nitrogen			
TP	Total Phosphorus			
DIN	Dissolved Inorganic Nitrogen			
DIP	Dissolved Inorganic Phosphorus			
NH4	Ammonia			
Cu	Copper			
Zn	Zinc			

Appendix Three: Final Determination for the State of Delaware 2016 Clean Water Act Section 303(d) List of Waters Needing TMDLs

FINAL DETERMINATION FOR THE STATE OF DELAWARE 2016 CLEAN WATER ACT SECTION 303(d) LIST OF WATERS NEEDING TMDLs

WATERBODY ID	WATERSHED NAME	SEGMENT	Overall CALM Code	DESCRIPTION	SIZE	POLLUTANT OR STRESSOR	PROBABLE SOURCE(S)	YEAR LISTED	TARGET DATE FOR TMDL	TMDL DATE	Polllutant CALM Code	Year Changed from Category 5 Per 305(b) Assessment and Methodology	Change this cycle	Notes
Piedmont Basin														
DE230-001-01	Naamans Creek	Lower Naamans Creek	4a	From the mouth at the Delaware River, upstream to the first railroad bridge	0.30 miles	Bacteria	NPS	1996	2004	2005	4a	2006		
						Nutrients	NPS	2002	2004	2005	1	2006		Nutrients, Listed 2002, Delisted 2012
DE230-001-02	Naamans Creek	North Branch and South Branch	5	Upper Naamans Creek, including all tributaries on the North Branch and	7.8 miles	Nutrients	NPS	1996	2004	2005	1	2006		Nutrients, Listed 1996, Delisted 2012
						Bacteria	NPS	1996	2004	2005	4a	2006		
				First tributary after the headwaters of South Naamans Creek to the mainstem	1.15 miles	Biology and Habitat	NPS	1998	2009		5			
				From the confluence of Naamans Creek and West Branch Naamans Creek to the confluence of Naamans Creek and North Branch Naamans Creek	0.56 miles	Biology and Habitat	NPS	1998	2009		5			
DE300-001-01	Shellpot Creek	Lower Shellpot Creek	5	From the head of tide below the east set of railroad tracks to the mouth of the Delaware River	1.0 mile	Nutrients	NPS Del. River, UNK	1996	2004	2005	1	2006		Nutrients, Listed 1996, Delisted 2012
						DO		1996	2004	2005	1	2006	y	DO, Listed 1996, Delisted 2016
						Bacteria		2002	2004	2005	4a	2006		
						PCBs		2002	2003	2003	4a	2012		EPA TMDL for PCBS in Delaware River Zone 5 and tributaries
						Chlordane		2002	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						Dieldrin		2016	2029		5		y	
DE300-001-02	Shellpot Creek	Upper Shellpot Creek	5	From the headwaters to the head of tide below the east set of railroad tracks	7.7 miles	Bacteria	NPS	1996	2004	2005	4a	2006		
						Nutrients	NPS	1996	2004	2005	1	2006		Nutrients, Listed 1998, Delisted 2012
						Dieldrin	NPS	2012	2025					
						PCBs	UNK	2016	2029	2003	4a		y	EPA TMDL for PCBS in Delaware River Zone 5 and tributaries
						Chlordane	UNK	2016	2029		5		y	
						Heptachlor Epoxide	UNK	2016	2029		5		y	
				Western tributary of the headwaters to the confluence of the next larger stream order	1.4 miles	Biology and Habitat	NPS	1998	2009		5			
				From the headwaters of Matson Run to the confluence with mainstem Shellpot Creek	1.3 miles	Biology and Habitat	NPS	1998	2009		5			
DE300-001-03	Shellpot Creek	All other tributaries located in the watershed but NOT on the mainstem	5	Western tributary of the headwaters of Stoney Creek to the confluence with mainstem Stoney Creek	0.63 miles	Habitat	NPS	1998	2009		5			
				From the confluence of the headwaters of Stoney Creek to the mouth of the Delaware River	1.2 miles	Biology and Habitat	NPS	1998	2009		5			
						Nutrients	NPS	2008	2005	2005	1			Nutrients, Listed 2008, Delisted 2012
						Bacteria	NPS	2010	2001		4a			
						Nutrients		1996		2000	4a	2004		

WATERBODY ID	WATERSHED NAME	SEGMENT	Overall CALM Code	DESCRIPTION	SIZE	POLLUTANT OR STRESSOR	PROBABLE SOURCE(S)	YEAR LISTED	TARGET DATE FOR TMDL	TMDL DATE	Polllutant CALM Code	Year Changed from Category 5 Per 305(b) Assessment and Methodology	Change this cycle	Notes
DE040-001	Brandywine Creek	Lower Brandywine	5	Mainstem Lower Brandywine	3.8 miles	PCBs	PS, NPS, SF, UNK	1996	2003	2003	4a	2012		EPA TMDL for PCBS in Delaware River Zone 5 and tributaries
						D and F TEQs*		2016	2029		5		y	
						Dieldrin		2016	2029		5		y	
						Bacteria		2002	2004	2005	1	2006	y	Listed 2002, Delisted 2016
						Habitat	NPS	1998	2009		5			

WATERBODY ID	WATERSHED NAME	SEGMENT	Overall CALM Code	DESCRIPTION	SIZE	POLLUTANT OR STRESSOR	PROBABLE SOURCE(S)	YEAR LISTED	TARGET DATE FOR TMDL	TMDL DATE	Polllutant CALM Code	Year Changed from Category 5 Per 305(b) Assessment and Methodology	Change this cycle	Notes
DE040-002	Brandywine Creek	Upper Brandywine	5	From State Line to Wilmington	9.3 miles	Bacteria	PS, NPS, SF, UNK	1996	2004	2005	4a			Bacteria, listed in 1996, delisted 2006 , relisted 2008
						Nutrients		1996		2000	1	2014		Nutrients, Listed 1996, Delisted 2014
						PCBs		1996	2003	2003	4a	2012		EPA TMDL for PCBS in Delaware River Zone 5 and tributaries
						D and F TEQs*		2002	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						Dieldrin		2016	2029		5		y	
				From State line to the confluence with the Christina River	8.0 miles	Habitat	NPS	1998	2009		5			
DE040-003	Brandywine Creek	All tributaries on Brandywine Creek from the headwaters at PA-DE line to the confluence with the Christina River	5	Eastern tributary of Beaver Creek, from headwaters to the confluence with mainstem Beaver Creek	0.96 miles	Biology and Habitat	NPS	1998	2009		5			
				Tributary originating in Pennsylvania on the western side of Brandywine Creek	0.26 miles	Biology and Habitat	NPS	1998	2009		5			
				Tributary of Brandywine Creek, off Route 100 (near PA-DE border)	0.92 miles	Habitat	NPS	1998	2009		5			
				Tributary of Brandywine Creek just below Beaver Creek	0.85 miles	Habitat	NPS	1998	2009		5			
				Eastern tributary of the headwaters of Rocky Run(upper half)	1.16 miles	Habitat	NPS	1998	2009		5			
				Eastern tributary of the headwaters of Rocky Run(lower half)	1.16 miles	Biology and Habitat	NPS	1998	2009		5			
				From the confluence of the headwaters of Wilson Run to the next larger stream order (lower half)	0.64 miles	Habitat	NPS	1998	2009		5			
				From the confluence of the headwaters of Wilson Run to the next larger stream order (upper half)	0.64 miles	Biology and Habitat	NPS	1998	2009		5			
				Wilson Run, from start of the third order stream to the confluence with Brandywine Creek	0.88 miles	Biology	NPS	1998	2009		5			
				Tributary of Wilson Run on Montchanin Road from the headwaters to the first confluence	0.45 miles	Habitat	NPS	1998	2009		5			

WATERBODY ID	WATERSHED NAME	SEGMENT	Overall CALM Code	DESCRIPTION	SIZE	POLLUTANT OR STRESSOR	PROBABLE SOURCE(S)	YEAR LISTED	TARGET DATE FOR TMDL	TMDL DATE	Polllutant CALM Code	Year Changed from Category 5 Per 305(b) Assessment and Methodology	Change this cycle	Notes
DE260-001	Red Clay Creek	Mainstem	5	From PA-DE line to the confluence with White Clay Creek	12.8 miles	Bacteria	PS,	1996	2004	2005	4a	2006		
						Nutrients		1996		2000	4a	2004		
						Zn		1996		1999	1	2014		Listed in 1996 for zinc impairment, 2004 TMDL. De-listed 2014
						PCBs		1996	2003	2003	4a	2012		EPA TMDL for PCBS in Delaware River Zone 5 and tributaries
						D and F TEQs*		2002	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						Chlorinated Pesticides		2002	2017		1	2016	y	TMDL Target date changed from 2009 to 2017 in the 2012 Cycle, per the WATAR plan. Delisted 2016 as these are not contaminants of concern in fish tissue advisories.
						DDT	Upstream Sources out of State	2014			3			DDT levels at the State Line exceed human health and aquatic life criteria and decline downstream in a response fully explained by simple dilution, indicating sources are in Pennsylvania. The Department has done extensive sampling in the basin in 2015 as part of the WATAR process. The Department has initiated the process of working with Pennsylvania and US EPA to address this issue.
						Dieldrin	UNK	2016	2029		5		y	
				From the confluence of West Branch Red Clay Creek to the confluence with White Clay Creek (lower half)	6.4 miles	Habitat	NPS	1998	2009		3	2014		Per Tetra Tech Report for EPA and Delaware DNREC
				From the confluence of West Branch Red Clay Creek to the confluence with White Clay Creek (upper half)	6.4 miles	Biology	NPS	1998	2009		5			
						Habitat	NPS	1998	2009		1	2014		Delisted 2014 per Tetra Tech Report for EPA and Delaware DNREC
DE260-002	Red Clay Creek	Burroughs Run	5	From PA-DE line to the confluence with Red Clay Creek	2.6 miles	Bacteria	NPS	1996	2004	2005	4a	2014	y	Bacteria, listed 1996, Delisted 2014, relisted 2016
					2.6 miles	Nutrients	NPS	1996		2000	1	2004		Nutrients, Listed 1996, Delisted 2012
				From the confluence of the headwaters of Burroughs Run to the confluence with Red clay Creek	4.21 miles	Biology	NPS	1998	2009		5			
DE260-003	Red Clay Creek	All other tributaries located in the watershed but NOT on the mainstem	5	Second tributary below Burroughs Run to the confluence with Red Clay Creek	1.4 miles	Habitat	NPS	1998	2009		3	2014		Per Tetra Tech Report for EPA and Delaware DNREC
				Western tributary of the headwaters of Hyde Run to the confluence with the next larger stream order	1.2	Biology and Habitat	NPS	1998	2009		5			

WATERBODY ID	WATERSHED NAME	SEGMENT	Overall CALM Code	DESCRIPTION	SIZE	POLLUTANT OR STRESSOR	PROBABLE SOURCE(S)	YEAR LISTED	TARGET DATE FOR TMDL	TMDL DATE	Polllutant CALM Code	Year Changed from Category 5 Per 305(b) Assessment and Methodology	Change this cycle	Notes
DE260-L01	Red Clay Creek	Reservoir	3	Hoopes Reservoir	200.0 acres	Bacteria	PS, NPS	1996			3	2004		This segment was listed in 1996, apparently based on earlier reports but no data were used for the listing. No data has been collected in the interim. The Department will study the segment to determine if a listing is appropriate.

WATERBODY ID	WATERSHED NAME	SEGMENT	Overall CALM Code	DESCRIPTION	SIZE	POLLUTANT OR STRESSOR	PROBABLE SOURCE(S)	YEAR LISTED	TARGET DATE FOR TMDL	TMDL DATE	Polllutant CALM Code	Year Changed from Category 5 Per 305(b) Assessment and Methodology	Change this cycle	Notes
DE320-001	White Clay Creek	Mainstem	5	White Clay Creek from the PA-DE line to the confluence with the Christina River	15.6 miles	Bacteria	PS, NPS	1996	2004	2005	4a	2006		
						Nutrients	PS, NPS	1996		2000	4a	2004		
						Zn (below Paper Mill Road)	PS, NPS	1996		1999	1	2004		Zinc, listed in 1999 delisted 2004 based on improved water quality
						PCBs	PS, NPS	1996, 2006	2003	2003	4a	2012		EPA TMDL for PCBS in Delaware River Zone 5 and tributaries
						Dieldrin	UNK	2016	2029		5		y	
				From the confluence of East Branch White Clay Creek and West Branch White Clay Creek to the confluence with the Christina River	16.2 miles	Biology and Habitat	NPS	1998	2009		1	2014		Per Tetra Tech Report for EPA and Delaware DNREC
				Tidal White Clay from the River mouth to Rt4	1.5 Miles	DDT and Metabolites	UNK	2016	2029		5		y	
						Chlordane					5		y	
DE320-002	White Clay Creek	Mill Creek	5	From the headwaters to the confluence with White Clay Creek	8.3 miles	Bacteria	NPS	1996	2004	2005	4a	2006		
						Nutrients	NPS	1996		2000	1	2004		Nutrients, Listed 1996, Delisted 2012
				From the confluence of the headwaters of Mill Creek to the confluence with the next larger stream order	0.27 miles	Biology and Habitat	NPS	1998	2009		5			
				Second western tributary-- From the headwaters of mainstem Mill Creek	0.04 miles	Habitat	NPS	1998	2009		5			
				From the confluence of the headwaters of Mill Creek to the confluence with White Clay Creek (upper half)	1.64 miles	Habitat	NPS	1998	2009		1	2014		Delisting per Tetra Tech Report for EPA and Delaware DNREC
						Biology	NPS	2014			5			Listing per Tetra Tech report for EPA and Delaware DNREC
				From the confluence of the headwaters of Mill Creek to the confluence with White Clay Creek (lower half)	1.64 miles	Biology and Habitat	NPS	1998	2009		5			

WATERBODY ID	WATERSHED NAME	SEGMENT	Overall CALM Code	DESCRIPTION	SIZE	POLLUTANT OR STRESSOR	PROBABLE SOURCE(S)	YEAR LISTED	TARGET DATE FOR TMDL	TMDL DATE	Polllutant CALM Code	Year Changed from Category 5 Per 305(b) Assessment and Methodology	Change this cycle	Notes
DE320-003	White Clay Creek	Pike Creek	5	From the headwaters to the confluence with White Clay Creek	5.4 miles	Nutrients	NPS	1996		2000	4a	2004		
						Bacteria	NPS	1996	2004	2005	4a	2006		
				Third eastern tributary after the headwaters of Pike Creek (upper half)	0.21 miles	Biology	NPS	1998	2009		3	2014		Per Tetra Tech Report for EPA and Delaware DNREC
				Third eastern tributary after the headwaters of Pike Creek (lower half)	0.21 miles	Biology and Habitat	NPS	1998	2009		3	2014		Per Tetra Tech Report for EPA and Delaware DNREC
				Second eastern tributary after the headwaters of Pike Creek	0.96 miles	Biology and Habitat	NPS	1998	2009		3	2014		Per Tetra Tech Report for EPA and Delaware DNREC
				From the confluence of the headwaters of Pike Creek to the confluence with White Clay Creek	4.7 miles	Biology and Habitat	NPS	1998	2009		5			
DE320-004	White Clay Creek	Middle Run	5	From the headwaters to the confluence with White Clay Creek	4.5 miles	Bacteria	NPS	1996	2004	2005	4a	2006		
						Nutrients	NPS	1996		2000	1	2004		Nutrients, Listed 1996, Delisted 2012
				Eastern tributary of the headwaters of Middle Run to the confluence of the next larger stream order (upper half)	0.89 miles	Biology	NPS	1998	2009		3	2014		
				Eastern tributary of the headwaters of Middle Run to the confluence of the next larger stream order (lower half)	0.89 miles	Biology and Habitat	NPS	1998	2009		3	2014		
				Western tributary of the headwaters of Middle Run to the confluence with the mainstem	1.3 miles	Habitat	NPS	1998	2009		3	2014		
DE320-005	White Clay Creek	All tributaries from the headwaters to the confluence with the Christina River	5	First tributary after State line to the confluence of White Clay Creek, along Thompson Station Road	1.1 miles	Habitat	NPS	1998	2009		5			
				Tributary off The Hunt at Louviers	0.38 miles	Biology	NPS	1998	2009		3	2014		Per Tetra Tech Report for EPA and Delaware DNREC
				Tributary off White Clay Creek that parallels Paper Mill Road-- Jennys Run	0.38 miles	Biology	NPS	1998	2009		3	2014		Per Tetra Tech Report for EPA and Delaware DNREC
				First tributary after Pike Creek--from the headwaters to the confluence with White Clay Creek	1.1 miles	Habitat	NPS	1998	2009		3	2014		Per Tetra Tech Report for EPA and Delaware DNREC

WATERBODY ID	WATERSHED NAME	SEGMENT	Overall CALM Code	DESCRIPTION	SIZE	POLLUTANT OR STRESSOR	PROBABLE SOURCE(S)	YEAR LISTED	TARGET DATE FOR TMDL	TMDL DATE	Pollutant CALM Code	Year Changed from Category 5 Per 305(b) Assessment and Methodology	Change this cycle	Notes
DE120-001	Christina River	Lower Christina River	5	Mainstem Lower Christina River	1.5 miles	Nutrients	NPS, SF	1996		2001	1	2004		Nutrients, Listed 1996, Delisted 2012
						DO	NPS, SF	1996			1	2002		DO, listed in 1996, delisted 2002
						PCBs	NPS, SF	1996	2003	2003	4a	2012		EPA TMDL for PCBS in Delaware River Zone 5 and tributaries
						Bacteria	PS,NPS	2002	2004	2005	4a	2006		
						Dieldrin	PS, NPS	2002	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						D and F TEQs*	UNK	2016	2029		5		y	
						DDT and Metabolites	UNK	2016	2029		5		y	
						Chlordane	UNK	2016	2029		5		y	
DE120-002	Christina River	Mid Christina River	5	Between White Clay Creek and Brandywine River	7.5 miles	Nutrients	NPS	1996		2001	4a	2004	y	Nutrients, Listed 1996, Delisted 2012, relisted 2016
						PCBs	SF	1996	2003	2003	4a	2012		EPA TMDL for PCBS in Delaware River Zone 5 and tributaries
						Bacteria	PS, NPS	2002	2004	2005	4a	2006		
						Dieldrin	NPS	2002	2017		1		y	Delisted 2016 as dieldrin is no longer a contaminant of concern in fish consumption advisories for these waters
						DO	NPS	2008		2001	4a		y	DO Listed 2008, Delisted 2010, Relisted 2016
DE120-003	Christina River	Upper Christina River	5	Mainstem Upper Christina River	6.3 miles	Nutrients	NPS, PS	1996		2001	1	2004		Nutrients, Listed 1996, Delisted 2012
						PCBs	NPS, PS	1996	2003	2003	1	2016	y	Prior to 2016, EPA TMDL for PCBS in Delaware River Zone 5 and tributaries. Delisted 2016 because PCBs are no longer a contaminant of concern in fish consumption advisories for these waters.
						Bacteria	NPS, PS	1996	2004	2005	4a	2006		Bacteria, Listed 1996, Delisted 2010, Relisted 2014
						DO	NPS, PS	2004		2001	1	2006		DO, listed in 2004, delisted 2006
						Chlordane	NPS, PS	2006	2017		1	2016	y	Delisted 2016 because Chlordane is no longer a contaminant of concern in fish consumption advisories for these waters.
				Segments from Smalley's Pond overflow to the confluence with White Clay Creek	5.77 miles	Biology and Habitat	NPS	1998	2009		5			
				Tributary downstream of Smalleys Pond on the Christina River	0.65 miles	Biology	NPS	1998	2009		5			
		Lower Christina		Tributary from Smalleys Pond overflow		Biology and Habitat	NPS	1998	2009		5			

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DE120-003-02	Christina River	Lower Christina Creek	5	Tributary from Smalleys Pond overflow to White Clay Creek	1.0 mile	Nutrients	NPS	2002		2001	4a	2004		
						DO	NPS	2002		2001	4a	2004		
						Bacteria	NPS	2002	2004	2005	4a	2006		

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DE120-004-01	Christina River	Lower Christina Creek	5	Mainstem Lower Christina Creek	8.4 miles	Bacteria	NPS,	1996	2004	2005	4a	2006		
						Nutrients	NPS	1996		2001	1	2004		Nutrients, Listed 1996, Delisted 2012
						PCBs	NPS, SF	1996	2003	2003	4a	2012		EPA TMDL for PCBS in Delaware River Zone 5 and tributaries
						DO	NPS	2002		2001	1	2006		DO, listed in 2002, delisted 2006
						Dieldrin	NPS	2006	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						Copper	UNK	2016	2029		5		y	
				From the confluence of West Branch Christina River to the confluence with the mainstem	6.0 miles	Biology and Habitat	NPS	1998	2009		5			
DE120-004-02	Christina River	Belltown Run	5	From the headwaters above Becks Pond to the confluence with the Christina River	3.8 miles	Bacteria	NPS	1996	2004	2005	4a	2006		
						Nutrients	NPS	2002	2004	2005	4a	2006		
						DO	NPS	2002	2004	2005	4a	2006		
				Eastern tributary of the headwaters of Belltown Run to the confluence with the Christina River	4.2 miles	Biology and Habitat	NPS	1998	2009		5			
				Western tributary of the headwaters of Belltown Run to its confluence	0.88 miles	Habitat	NPS	1998	2009		5			
DE120-004-03	Christina River	Muddy Run	5	From the headwaters above Sunset Pond to the confluence with Belltown Run below Becks Pond	8.0 miles	Bacteria	NPS	1996	2004	2005	4a			
				From the headwaters of Iron Hill Run to the next larger stream order	2.3 miles	Habitat	NPS	1998	2009		5			
				Eastern tributary of the headwaters of Iron Hill Run to the next larger stream order	0.71 miles	Habitat	NPS	1998	2009		5			
				Eastern tributary above Sunset Pond to the confluence of the next larger stream order	2.3 miles	Biology	NPS	1998	2009		5			
				Eastern tributary of the headwaters of Muddy Run to its confluence	0.63 miles	Habitat	NPS	1998	2009		5			
DE120-005-01	Christina River	West Branch	4a	West Branch including Persimmon Run and Stine Haskell Branch	5.3 miles	Bacteria	NPS	1996	2004	2005	4a	2006		
						Nutrients	NPS	1996		2001	4a	2004		

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DE120-006	Christina River	Upper Christina Creek	5	Mainstem Upper Christina Creek	8.3 miles	Bacteria	NPS	1996	2004	2005	4a	2006		
						Nutrients		1996		2001	1	2004		Nutrients, Listed 1996, Delisted 2012
				From the confluence of the headwaters of Upper Christina River to the confluence of West Branch	2.6 miles	Biology and Habitat		1998	2009		5			
				First western tributary after the headwaters of the Upper Christina River to mainstem Upper Christina River (upper half)	0.67 miles	Habitat		1998	2009		5			
				First western tributary after the headwaters of the Upper Christina River to mainstem Upper Christina River (lower half)	0.67 miles	Biology and Habitat		1998	2009		5			
DE120-007-01	Christina River	Little Mill Creek and Willow Run	5	From the confluence of Willow Run and Chestnut Run to the confluence with the Christina River	5.1 miles	Bacteria	NPS	1996	2004	2005	4a	2006		
						Nutrients	NPS	1996		2001	1	2004		Nutrients, Listed 1996, Delisted 2012
						DO		1996		2001	1	2002		DO, listed in 1996, delisted 2002
						PCBs	NPS	1996	2003	2003	4a	2012		EPA TMDL for PCBS in Delaware River Zone 5 and tributaries
						Dieldrin	UNK	2016	2029		5		y	
						Chlordane					5		y	
						Heptachlor Epoxide					5		y	
				First western tributary after the headwaters of Little Mill Creek to the confluence with mainstem Little Mill Creek	1.4 miles	Habitat	NPS	1998	2009		5			
				From the headwaters of Willow Run to the confluence with the Christina River	0.54 miles	Habitat	NPS	1998	2009		5			
				From the confluence of the headwaters of Little Mill Creek to the confluence of Chestnut Run	4.4 miles	Biology and Habitat	NPS	1998	2009		5			
				Little Mill Creek--from the confluence of Chestnut Run to the confluence with the Christina River	3.4 miles	Biology and Habitat	NPS	1998	2009		5			
DE120-007-02	Christina River	Chestnut Run	5	From the headwaters of Chestnut Run to the confluence with the Christina River	2.8 miles	Bacteria	NPS	1996	2004	2005	4a	2006		
				Eastern tributary of the headwaters of Chestnut Run to the confluence of the next larger stream order	1.1 miles	Habitat	NPS	1998	2009		5			
				Left tributary of the headwaters of Chestnut Run to the confluence of the next larger stream order	0.43 miles	Biology and Habitat	NPS	1998	2009		5			

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DE120-L01	Christina River	Smalleys Pond	5	Smalleys Pond east of Newark	30.0 acres	Bacteria	NPS	1996	2004	2005	4a	2006		
						Nutrients	NPS	1996	2004	2004	4a	2006		
						PCBs	NPS	1996	2003	2003	4a	2012		EPA TMDL for PCBS in Delaware River Zone 5 and tributaries
						DO	NPS	2004	2004		4a	2006		
DE120-L02	Christina River	Becks Pond	5	Becks Pond southeast of Newark	25.6 acres	Bacteria	NPS	1996	2004	2005	4a	2006		
						Nutrients	NPS	1996		2004	1	2002		Nutrients, listed in 1996, delisted 2002
						PCBs	NPS	2002	2003		1			Listed in 2002, Delisted 2010 due to removal of
						Mercury	NPS	2002	2009		1			
DE120-L03	Christina River	Sunset Pond	4a	Sunset Pond south of Newark	40.0 acres	Bacteria	NPS	1996	2004	2005	4a	2006		
						Nutrients	NPS	2002	2004	2004	4a			
						DO	NPS	1996	2004	2004	4a	2006		

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CHESAPEAKE BAY BASIN														
DE100-001	Chesapeake Drainage System	Cypress Branch, including tributaries	5	Mainstem	6.6 miles	Bacteria	NPS	1996	2005	2006	4a	2008		
						Nutrients	NPS	2002	2005	2005	4a	2006		
						DO	NPS	1996	2005	2005	4a	2006		
				Cypress Branch--from the confluence of Black Stallion Ditch to the MD-DE line	1.60 miles	Biology	NPS	1998	2010		5			
						DO	NPS	1998	2005	2005	4a	2006		
				Tributary of Cypress Branch--from the confluence of the headwaters to the confluence with the mainstem	0.35 miles	Biology	NPS	1998	2010		5			
DE100-002	Chesapeake Drainage System	Sewell Branch, including tributaries	5	Mainstem	7.2 miles	Bacteria	NPS	1996	2005	2006	1	2008	y	Delisted 2016
						DO	NPS	1996	2005	2005	4a	2006		
						Nutrients	NPS	1996	2005	2005	1	2014		Nutrients, Listed 1996, Delisted 2014
				From the confluence of the headwaters to the confluence with Sewell Branch	8.20 miles	Biology and Habitat	NPS	1998	2010		5			
				From the confluence of the headwaters to the confluence with Sewell Branch		DO	NPS	1998	2005	2005	4a	2006		
DE100-003	Chesapeake Drainage System	Gravelly Run, including tributaries	5	Mainstem	7.7 miles	Bacteria	NPS	1996	2005	2006	4a	2008		
						DO	NPS	1996	2005	2005	1	2008		DO, Listed 1996, delisted 2008
						Nutrients	NPS	1996	2005	2005	4a	2006		
				Gravelly Run--from the confluence of Jamison Branch to the MD-DE line	1.08 miles	Habitat	NPS	1998	2010		5			
				Tributary of Gravelly Run--from the headwaters to the confluence with the mainstem	0.22 miles	Habitat	NPS	1998	2010		5			
				Tributary of Gravelly Run--first western tributary upstream of Gravelly Run	1.21 miles	Biology and Habitat	NPS	1998	2010		5			
				Tributary of Gravelly Run--second eastern tributary from the headwaters of Gravelly Run to the mainstem	1.25 miles	Habitat	NPS	1998	2010		5			
				Gravelly Run--from the start of the third order stream to the confluence with Jamison Branch	2.28 miles	Biology and Habitat	NPS	1998	2010		5			
				From the confluence of Gravelly Run and Jamison Branch to the MD-DE line	1.14 miles	Biology and Habitat	NPS	1998	2010		5			
DE100-004	Chesapeake Drainage System	Tributaries of Elk River	5	First eastern tributary after the headwaters of Great Bohemia Creek	1.55 miles	Habitat	NPS	1998	2010		5			
				Eastern tributary of the headwaters of Back Creek to its confluence	1.26 miles	Biology	NPS	1998	2010		5			

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DE100-005	Chesapeake Drainage System	Tributaries of Sassafras River	5	Western tributary of the headwaters of Sassafras River to its confluence	1.92 miles	Biology	NPS	1998	2010		5			
				From the confluence of the headwaters of Sassafras River to the next larger stream order	0.95 miles	Biology and Habitat	NPS	1998	2010		5			
DE110-001	Choptank	Tappahanna Ditch	5	Mainstem	7.5 miles	Bacteria	NPS	1996	2005	2006	4a	2008		Bacteria, Listed 1996, Delisted 2010, Relisted 2014
						DO	NPS	1996	2005	2005	1	2008		DO, listed 1996, delisted 2008
						Nutrients	NPS	1996	2005	2005	1	2006		Nutrients, Listed 1996, Delisted 2012
				From start of the fourth order stream to the confluence with Tidy Island Creek	6.58 miles	Biology and Habitat	NPS	1998	2010		5			
				Start of third order stream on Tappahanna Ditch to the confluence of the next larger stream order	1.12 miles	Biology and Habitat	NPS	1998	2010		5			
				First western tributary after the headwaters of Tappahanna Ditch to its confluence	0.40 miles	Habitat	NPS	1998	2010		5			
				Tidy Island Creek--from the confluence with Tappahanna Ditch to the MD-DE line	0.21 miles	Habitat	NPS	1998	2010		5			
				Choptank River--from the start of the third order stream to the confluence with Choptank River	2.31 miles	Biology and Habitat	NPS	1998	2010		5			
				Seventh eastern tributary upstream of Tappahanna Ditch	1.30 miles	Habitat	NPS	1998	2010		5			
						DO	NPS	1998	2005	2005	4a	2008		
				Tributary of Tappahanna Ditch--western tributary of the headwaters to its confluence	0.38 miles	Biology and Habitat	NPS	1998	2010		5			
				Second western tributary after the headwaters of Tappahanna Ditch to its confluence	0.88 miles	Biology and Habitat	NPS	1998	2010		5			

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DE110-002	Choptank	Culbreth Marsh Ditch	5	Mainstem	10.0 miles	Bacteria	NPS	1996	2005	2005	4a	2008		Bacteria, Listed 1996, Delisted 2010, Relisted 2014
						DO	NPS	1996	2005	2005	1	2008		DO, listed 1996, delisted 2008
						Nutrients	NPS	1996	2005	2005	1	2006		Nutrients, Listed 1996, Delisted 2012
				Luther Marvel Prong--from the confluence of the headwaters to the confluence with Culbreth Marsh Ditch	1.07 miles	Biology and Habitat	NPS	1998	2010		5			
				From the confluence of Powell Ditch to the confluence with Ross Prong	1.31 miles	Habitat	NPS	1998	2010		5			
				Culbreth Marsh Ditch--from start of the fourth order stream to the confluence with Mud Millpond (lower half)	1.79 miles	Habitat	NPS	1998	2010		5			
				Culbreth Marsh Ditch--from start of the fourth order stream to the confluence with Mud Millpond (upper half)	1.79 miles	Biology and Habitat	NPS	1998	2010		5			
						DO	NPS	1998	2010	2005	4a			
						Temperature	NPS	1998	2010		5			
				Culbreth Marsh Ditch--from the confluence of Ross Prong to the confluence with the next larger stream order	3.62 miles	Biology and Habitat	NPS	1998	2010		5			
				Culbreth Marsh Ditch--from the confluence of Mud Millpond to the confluence of Cow Marsh Creek	1.86 miles	Biology	NPS	1998	2010		5			
				Third western tributary upstream of Culbreth Marsh Ditch	1.99 miles	Biology and Habitat	NPS	1998	2010		5			
				Ross Prong--from the confluence of the headwaters to the confluence with Culbreth Marsh Ditch	2.61 miles	Biology and Habitat	NPS	1998	2010		5			

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DE110-003	Choptank	Cow Marsh Creek	5	Mainstem	15.1 miles	Bacteria	NPS	1996	2005	2006	4a	2008		
						DO	NPS	1996	2005	2005	1	2008		DO, listed 1996, delisted 2008
						Nutrients	NPS	1996	2005	2005	4a	2006		
				First upstream tributary on Meredith Branch	0.46 miles	Habitat	NPS	1998	2010		5			
				From the confluence of the headwaters of Sangston Prong to the confluence Gravelly Branch	1.98 miles	Biology and Habitat	NPS	1998	2010		5			
				Tributary of Gary Mill Pond Branch--from the confluence of the headwaters to the confluence with Gary Mill Pond Branch	1.00 miles	Biology and Habitat	NPS	1998	2010		5			
				First eastern tributary after the headwaters of Wildcat Branch	1.21 miles	Biology and Habitat	NPS	1998	2010		5			
				Willow Grove Prong--from the start of the third order stream to the confluence with Cow Marsh Creek	1.24 miles	Biology and Habitat	NPS	1998	2010		5			
				Tributary of Cow Marsh Creek--first eastern tributary upstream of Cow Marsh Creek	1.32 miles	Biology	NPS	1998	2010		5			
				Cow Marsh Ditch--from start of third order stream to the confluence with Cow Marsh Creek	1.44 miles	Habitat	NPS	1998	2010		5			
				Cow Marsh Ditch--from the confluence of the headwaters to the confluence with the next larger stream order	1.49 miles	Habitat	NPS	1998	2010		5			
				Bullock Prong--mainstem to the confluence with Price Prong	3.12 miles	Habitat	NPS	1998	2010		5			
				Third tributary upstream of Cow Marsh Ditch--from the headwaters to the confluence with Cow Marsh Ditch	1.86 miles	Habitat	NPS	1998	2010		5			
				Iron Mine Prong--from the confluence of Black Swamp to the next larger stream order	2.02 miles	Habitat	NPS	1998	2010		5			
				Meredith Branch--from the start of the third stream order to the confluence with the next larger stream order	2.08 miles	Biology and Habitat	NPS	1998	2010		5			
				White Marsh Branch--from the start of the third order stream to the confluence with Gravelly Branch and Sangston Prong	2.92 miles	Biology	NPS	1998	2010		5			
				Cow Marsh Creek--from the confluence of Iron Mine Prong to the confluence with Choptank River	4.97 miles	Habitat	NPS	1998	2010		5			

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DE110-L01	Choptank	Mud Mill Pond	5	Pond south of Marydel	60.0 acres	Bacteria	NPS	1996	2005	2006	4a	2008		
						DO	NPS	1996	2005	2005	4a	2006		
						Nutrients	NPS	1996	2005	2005	4a	2006		
DE200-001	Marshyhope Creek	Marshyhope Creek	5	From the headwaters to the State Line	19.7 miles	Bacteria	NPS	1996	2005	2006	1	2008		Bacteria, listed 1996, delisted 2008
						DO	NPS	1996	2005	2005	1	2008		DO, listed 1996, delisted 2008
						Nutrients	NPS	1996	2005	2005	1	2014		Nutrients, Listed 1996, Delisted 2014
				Tributary to Black Arm Prong--third tributary upstream of Black Arm Prong	0.56 miles	Habitat	NPS	1998	2010		5			
				Marshyhope Creek--from the confluence of Prospect Branch to the confluence with the MD-DE line	8.78 miles	Habitat	NPS	1998	2010		5			
				From the confluence of Black Prong and Marshyhope Ditch to the confluence of Prospect Branch	4.50 miles	Biology and Habitat	NPS	1998	2010		5			
DE200-002	Marshyhope Creek	Tributaries from the headwaters to the State line	5	Marshyhope Ditch	6.26 Miles	DO	NPS	2002	2005	2005	4a	2006		
						Nutrients	NPS	2002	2005	2005	4a	2006		
						Bacteria	NPS	2002	2005	2006	4a	2008		
				First tributary upstream of Prong No. 2--from the eastern headwater to its confluence	0.55 miles	Habitat	NPS	1998	2010		5			
				Point Branch--from the headwaters to the confluence with the first tributary downstream	0.80 miles	Habitat	NPS	1998	2010		5			
				Tributary of Tomahawk Branch--third eastern tributary downstream of the headwaters	1.54 miles	Habitat	NPS	1998	2010		5			
				Tributary of Tomahawk Branch--first eastern tributary upstream	0.69 miles	Habitat	NPS	1998	2010		5			
				Tributary of Salisbury Creek--from the MD-DE line to the confluence with Salisbury Creek	0.82 miles	Biology and Habitat	NPS	1998	2010		5			
				Salisbury Creek--from the start of the third order stream to the confluence with Cattail Branch (upper half)	0.60 miles	Biology and Habitat	NPS	1998	2010		5			
				Salisbury Creek--from the start of the third order stream to the confluence with Cattail Branch (lower half)	0.60 miles	Habitat	NPS	1998	2010		5			

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	Marshyhope Creek	Tributaries from the headwaters to the State line	5	Prospect Branch--western tributary of the headwaters to its confluence	1.25 miles	Habitat	NPS	1998	2010		5			
				Prong No. 2--from the start of the third order stream to the confluence with Bright-Haines Glade Branch	1.50 miles	Biology and Habitat	NPS	1998	2010		5			
				From the confluence of the headwaters of Green Branch to the confluence with Marshyhope Creek	3.51 miles	Biology and Habitat	NPS	1998	2010		5			
				Tributary of Salisbury Creek--from the MD-DE line to the confluence with Salisbury Creek	1.21 miles	Biology and Habitat	NPS	1998	2010		5			
				Short and Hall Ditch--from the confluence of the headwaters of with Marshyhope Creek	1.45 miles	Habitat	NPS	1998	2010		5			
				Brights Branch--from the start of the third order stream to the MD-DE line	1.78 miles	Habitat	NPS	1998	2010		5			
				Bright-Haines Glade Branch--from the start of the fourth order stream and Prospect Branch to the confluence with	1.30 miles	Habitat	NPS	1998	2010		5			
						DO	NPS	1998	2010	2005	4a	2008		
						Temperature	NPS	1998	2010		5			
				Cattail Branch--from the start of the fourth order stream to the confluence with Salisbury Creek (upper half)	2.17 miles	Biology and Habitat	NPS	1998	2010		5			
				Cattail Branch--from the start of the fourth order stream to the confluence with Salisbury Creek (lower half)	2.17 miles	Habitat	NPS	1998	2010		5			
						DO	NPS	1998	2010	2005	4a	2008		
						Temperature	NPS	1998	2010		5			
				Tributary to Black Arm Prong--second tributary after the headwaters	0.52 miles	Habitat	NPS	1998	2010		5			
				Eastern tributary of the headwaters of Cattail Branch to its confluence	0.87 miles	Habitat	NPS	1998	2010		5			
				From the confluence of the headwaters of Green Branch to the confluence Marshyhope Creek	2.34 miles	Biology and Habitat	NPS	1998	2010		5			
				Tributary to Cattail Branch--fourth western tributary downstream of the headwaters of Cattail Branch	1.08 miles	Biology and Habitat	NPS	1998	2010		5			
				Tributary of Prong No. 2--from the start of the third order stream to the confluence with Bright-Haines Glade Branch	1.50 miles	Habitat	NPS	1998	2010		5			
				Tributary to Cattail Branch--third western tributary upstream of Salisbury Creek	1.06 miles	Habitat	NPS	1998	2010		5			
				Tributary to Tomahawk Branch--first western tributary after the headwaters	0.95 miles	Habitat	NPS	1998	2010		5			

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DE240-001	Nanticoke River	Lower Nanticoke River	4a	From the head of tide in Middleford to the MD-DE State line	15.1 miles	Bacteria	PS, NPS	1996		2006	4a	2004		Bacteria, listed in 1996, delisted 2004, relisted 2014
						Nutrients	PS, NPS	1996		1998	4a	2014	y	Nutrients, Listed 1996, Delisted 2014, relisted 2016
						DO	PS, NPS	1996		1998	1	2004		DO, Listed 1996, Delisted 2010
DE240-002	Nanticoke River	Upper Nanticoke River	5	From the headwaters of the Nanticoke River to the head of tide at Middleford	18.6 miles	Bacteria	PS, NPS	1996		2006	1	2004	y	Bacteria, listed in 1996, delisted 2004, relisted 2012, delisted 2016
						Nutrients	PS, NPS	1996		1998	4a	2004		
						DO		1996		1998	4a	2002	y	DO, listed in 1996, delisted 2002, relisted 2016
				Tributary of White Marsh Branch--first western tributary downstream of the headwaters of White Marsh Branch	0.49 miles	Habitat	NPS	1998	2010		5			
				Kent-Sussex Line Branch--from the start of the third order stream to the confluence with Nanticoke River (lower half)	1.33 miles	Habitat	NPS	1998	2010		5			
				Kent-Sussex Line Branch--from the start of the third order stream to the confluence with Nanticoke River (upper half)	1.33 miles	Biology and Habitat	NPS	1998	2010		5			
				Nanticoke Branch--from the confluence of Polk Branch to the confluence with Gum Branch	2.48 miles	Habitat	NPS	1998	2010		5			
				Grubby Neck Branch--from the confluence of Polk Branch to the confluence with Gum Branch	1.24 miles	Habitat	NPS	1998	2010		5			
				Nanticoke Branch--from the confluence of Kent-Sussex Line Branch to the confluence with Cart Branch	5.23 miles	Habitat	NPS	1998	2010		5			
				Nanticoke River--from the start of the third order stream to the confluence with Kent-Sussex Line Branch.	3.13 miles	Biology and Habitat	NPS	1998	2010		5			
				Tributary to Marsh Branch--first eastern tributary after the headwaters to its confluence	0.83 miles	Habitat	NPS	1998	2010		5			
DE240-003	Nanticoke River	Clear Brook Branch	4a	From the headwaters of Clear Brook, Friedel Prong, and Bucks Branch to the confluence with Williams Pond	12.9 miles	Bacteria	NPS	1996	2005	2006	4a	2006		Bacteria, listed in 1996, delisted 2006, relisted 2010
						Nutrients	NPS	1996		2000	4a	2004		
						DO	NPS	1996		2000	4a	2006	y	DO, listed in 1996, delisted 2006, relisted 2016

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DE240-004	Nanticoke River	Deep Creek Branch	5	From the headwaters above Concord Pond to the confluence with the Nanticoke River, excluding Concord	5.5 miles	Bacteria	NPS	1996	2005	2006	1	2008	y	Bacteria Listed 1996, Delisted 2016
						Nutrients	NPS	1996		2000	1	2004		Nutrients, Listed 1996, Delisted 2012
						DO	NPS	2012		2000	4a			
				McColleys Branch--from the confluence of New Ditch to the confluence with Deep Creek	3.24 miles	Habitat	NPS	1998	2010		5			
				Deep Creek--from the start of the third order stream to the confluence with Deep Creek and McColleys Branch	2.51 miles	Habitat	NPS	1998	2010		5			
				Tyndall Branch--from the start of the third order stream on Stoney Creek to the confluence of Tyndall Branch and Deep Creek	5.00 miles	Habitat	NPS	1998	2010		5			
DE240-005	Nanticoke River	Gravelly Branch	5	From the headwaters of Gravelly Branch above Collins Pond to the confluence with the Nanticoke River, excluding	6.5 miles	Bacteria	NPS	1996	2005	2006	1	2008		Bacteria, listed 1996, delisted 2008
						Nutrients	NPS	1996		2000	1	2004		Nutrients, Listed 1996, Delisted 2012
						Zinc	UNK	2014	2027		5			
				Gravelly Branch--from the start of the third order stream to the confluence with the next larger stream order	2.12 miles	Habitat	NPS	1998	2010		5			
				Prong No. 1--from the start of fourth order stream to the confluence with Gravelly Branch on Nanticoke River	0.73 miles	Habitat	NPS	1998	2010		5			
				Maple Branch-- from the start of the third order stream to the confluence with Prong No. 1	1.0 mile	Habitat	NPS	1998	2010		5			
DE240-006	Nanticoke River	Bridgeville Branch	5	From the headwaters of Bridgeville Branch to the confluence with Nanticoke River	7.2 miles	Bacteria	NPS	1996	2005	2006	4a	2008		
						Nutrients	NPS	1996		2000	4a	2004		
						DO	NPS	1996		2000	4a	2004		
				Bridgeville Branch---from the start of the third order stream to the confluence with Nanticoke River	3.92 miles	Habitat	NPS	1998	2010		5			
DE240-007	Nanticoke River	Gum Branch	5	From the headwaters located northeast of Woodland Ferry to the confluence with	6.0 miles	Bacteria	NPS	1996	2005	2006	4a	2008		
						Nutrients	NPS	1996		2000	4a	2004		
				Gum Branch.--from the start of the third order stream to the confluence with Nanticoke River	2.37 miles	Habitat	NPS	1998	2010		5			
DE240-008	Nanticoke River	Lewes Creek	4a	Lewes Creek, including Butler Mill Branch and Chapel Branch	10.3 miles	Bacteria	NPS	1996	2005	2006	4a	2008		
						Nutrients	NPS	1996		2000	4a	2004		
						DO	NPS	2002		2000	4a	2004		
DE240-009	Nanticoke River	DuPont Gut	n/a	DuPont Gut has been determined by USEPA not to be Waters of the U.S. , therefore the prior listing was withdrawn in 2002. This information is provided for continuity with prior 303(d) lists.	1.0 mile	Temperature	PS	1996				2002		Temperature, listed in 1996, delisted 2002 based on new information and US EPA findings.

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DE240-010	Nanticoke River	Gum Branch on Upper Nanticoke River	5	Gum Branch--from the confluence of Stallion Head Branch to the confluence with West Branch Gum Branch	3.51 miles	Habitat	NPS	1998	2010		5			
				Toms Dam Branch--from the start of the third order stream to the confluence with Gum Branch	5.23 miles	Habitat	NPS	1998	2010		5			
DE240-L01	Nanticoke River	Craigs Pond	4a	Pond southwest of Seaford and below Butler Mill Branch	11.9 acres	Bacteria	NPS	1996	2005	2006	4a	2008		
						Nutrients	NPS	1996		2000	4a	2004		
						DO	NPS	2002		2000	4a	2004		
DE240-L02	Nanticoke River	Concord Pond	4a	Pond east of Seaford on Deep Creek Branch	87.4 acres	Nutrients	NPS	1996		2000	1	2004		Nutrients, Listed 1996, Delisted 2012
DE240-L04	Nanticoke River	Williams Pond	4a	Pond located in Seaford and below Middleford	100.0 acres	Nutrients	NPS	1996		2000	1	2004	y	Nutrients, Listed 1996 delisted 2016
						Bacteria	NPS	2002	2005	2006	1	2006		Bacteria, Listed in 2002, delisted 2006
DE240-L05	Nanticoke River	Hearns Pond	4a	Pond located north of Seaford on Clear Brook Branch	67.0 acres	Bacteria	NPS	1996	2005	2006	4a	2008		
						Nutrients	NPS	1996		2000	4a	2004		
DE050-001	Broad Creek	Lower Broad Creek	5	Lower Broad Creek, including Collins and Culvert Ditch, Holly Ditch, and Rossakatum and Cooper Branches	24.8 miles	Bacteria	PS, NPS	1996	2005	2006	1	2008	y	Bacteria Listed 1996, Delisted 2016
						Nutrients	PS, NPS	1996		1998	4a	2004		
						DO	PS, NPS	2002		1998	1	2004		DO, listed 2002, Delisted 2010
				Cooper Branch--from the start of the third order stream on Rossakatum Branch to the confluence of Broad Creek	2.73 miles	Habitat	NPS	1998	2010		5			
DE050-002	Broad Creek	Tussocky Branch	5	Tributary west of Laurel, excluding Portsville and Tussock Ponds	7.9 miles	Bacteria	NPS	1996	2005	2006	4a	2008		
						Nutrients	NPS	1996		2000	4a	2004		
				Tussocky Branch--from the confluence of Mill Creek to the confluence with Broad Creek	3.42 miles	Habitat	NPS	1998	2010		5			
DE050-003	Broad Creek	Little Creek	5	Tributary south of Laurel, excluding Horsey's Pond	2.4 miles	Bacteria	NPS	1996	2005	2006	4a	2008		
DE050-004	Broad Creek	Chipman Pond Branch	5	Tributary northeast of Laurel, excluding Chipman Pond	6.7 miles	Bacteria	NPS	1996	2005	2006	4a	2008		
						Nutrients	NPS	1996		2000	4a	2004		
				Jobs Ditch--from the headwaters to the confluence with Dukes and Jobs Branch	0.98 miles	Habitat	NPS	1998	2010		5			
				Mirey Branch--from the start of the third order stream to the confluence with Elliott Pond Branch	1.28 miles	Habitat	NPS	1998	2010		5			
				Dukes Ditch--from the headwaters to the confluence with Dukes and Jobs Branch	2.45 miles	Habitat	NPS	1998	2010		5			
DE050-005-01	Broad Creek	James Branch	4a	James Branch, including Pepper Pond Branch, Hitch Pond Branch, and Grays Branch	11.1 miles	Bacteria	NPS	1996	2005	2006	4a	2008		
						Nutrients	NPS	1996		2000	4a	2004		
						DO	NPS	2002		2000	4a	2004		

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DE050-005-02	Broad Creek	Trussum Pond Branch	4a	From the headwaters to the confluence with James Branch, excluding Trussum Pond	3.5 miles	Bacteria	NPS	1996	2005	2006	4a	2008		
				Wards Branch--from the confluence of the headwaters to the confluence with James Branch	3.18 miles	DO	NPS	1998		2000	4a	2004		
DE050-006-01	Broad Creek	Trap Pond Branch	4a	From the headwaters of Trap Pond including Saunders and Thompson	2.9 miles	Bacteria	NPS	1996	2005	2006	4a	2008		
						Nutrients	NPS	1996		2000	4a	2004		
DE050-006-03	Broad Creek	Raccoon Prong	4a	Headwaters of Raccoon Pond and Trap pond	9.11 miles	Bacteria	NPS	2002	2005	2006	4a	2008		Bacteria, listed 2002, delisted 2006, relisted 2008
						Nutrients	NPS	2002		2000	1	2004		Nutrients, Listed 2002, Delisted 2012
						DO	NPS	2002		2000	4a	2004		
DE050-L01	Broad Creek	Portsville Pond	4a	Pond west of Laurel on Tussocky Branch	14.5 acres	Bacteria	NPS	1996	2005	2006	4a	2008		
						Nutrients	NPS	1996		2000	4a	2004		
DE050-L02	Broad Creek	Tussock Pond	4a	Pond southwest of Laurel	8.6 acres	Bacteria	NPS	2002	2005	2006	4a	2008		
						Nutrients	NPS	2002		2000	4a	2004		
DE050-L03	Broad Creek	Horseys Pond	4a	Pond south of Laurel on Little Creek tributary	46.3 acres	Bacteria	NPS	1996		2006	1	2004		Bacteria , listed in 1996, delisted 2004
						Nutrients	NPS	1996		2000	1	2014		Nutrients, Listed 1996, Delisted 2014
DE050-L04	Broad Creek	Records Pond	4a	Pond adjacent to Laurel	91.9 acres	Bacteria	PS, NPS	1996	2005	2006	1	2008		Bacteria, Listed in 1996, delisted 2008
						Nutrients	PS, NPS	1996		2000	4a	2004		
						DO		1996 / 2006		2000	1	2008		DO, listed in 1996, delisted 2002, relisted 2006, delisted 2008
DE050-L05	Broad Creek	Chipman Pond	4a	Pond located north of Laurel on Chipman Branch	47.0 acres	Nutrients	NPS	1996		2000	4a	2004		
						Bacteria	NPS	2002	2005	2006	4a	2008		
DE050-L06	Broad Creek	Trussum Pond	4a	Pond southeast of Laurel on James Branch	58.7 acres	Bacteria	NPS	1996	2005	2006	4a	2008		
						Nutrients	NPS	1996		2000	4a	2004		
						DO	NPS	2002		2000	4a	2004		
DE050-L07	Broad Creek	Trap Pond	4a	Pond east of Laurel on Hitch Pond Branch	88.0 acres	Nutrients	NPS	1996		2000	1	2004		Nutrients, Listed 1996, Delisted 2012
						DO	NPS	2002		2000	1	2014		DO, Listed 2002, Delisted 2014
						Bacteria	NPS	1996		2006	1	2002		Bacteria, listed in 1996, delisted 2002
						Ammonia	NPS	2012		2000	4a			
DE050-L08	Broad Creek	Raccoon Pond	4a	Pond east of Laurel on Hitch Pond Branch	13.5 acres	Bacteria	NPS	1996	2005	2006	4a	2008		
						Nutrients	NPS	1996		2000	4a	2004		
						DO	NPS	2002		2000	4a	2004		
DE250-001	Pocomoke River	Pocomoke River	5	Pocomoke River, from headwaters to the MD-DE State line	11.8 miles	Bacteria	NPS	1996	2005	2006	4a	2008		
						DO	NPS	1996	2005	2005	1	2008		DO, listed 1996, delisted 2008
						Nutrients	NPS	1996	2005	2005	1	2006		Nutrients, Listed 1996, Delisted 2012
				Pocomoke River--from the confluence of Bald Cypress Branch and Gum Branch to the MD-DE line	0.99 miles	Habitat	NPS	1998	2010		5			
				Pocomoke River--from start of the third order stream to the confluence with Bald Cypress Branch and Gum Branch	4.55 miles	Habitat	NPS	1998	2010		5			
DE250-002	Pocomoke River	Tributaries from the headwaters to MD-DE State line	5	Bald Cypress Branch--from the confluence of the headwaters to the confluence with the next larger stream order	3.5 miles	Habitat	NPS	1998	2010		5			
						Bacteria	NPS	2004	2005	2005	4a	2006		
						Nutrients	NPS	2004	2005	2005	4a	2006		
						DO	NPS	2006		2005	4a	2006		

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INLAND BAYS/ATLANTIC OCEAN BASIN														
DE170-001	Lewes and Rehoboth Canal	Lewes and Rehoboth Canal	5	Tidal waters from the confluence of Delaware Bay to the confluence with Rehoboth Bay	8.9 miles	Bacteria	PS, NPS	1996	2006	2006	4a	2014	y	Bacteria, Listed 1996, Delisted 2014, relisted 2016
						Nutrients	PS, NPS	1996	2003	2004	4a	2006		
						DO		1996 , 2004	2003	2004	4a	2006		DO, listed in 1996, delisted 2002 and relisted 2004.
						Copper	UNK	2014	2027		5			
DE280-001-01	Rehoboth Bay	Chapel Branch	5	From the headwaters of Chapel Branch to the confluence of Herring Creek, including Hopkins Prong, Unity Branch, Phillips Branch, and Guinea Creek	27.0 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2003	2004	4a	2006		
						DO	NPS	1996		2004	4a	2004		DO, listed in 1996, delisted 2004, Relisted 2012
						Copper	UNK	2016	2029		5		y	
				Chapel Branch--from the start of the second order stream to the confluence with Herring Creek	3.75 miles	Habitat	NPS	1998	2013		5			
DE280-002	Rehoboth Bay	Love Creek, including tributaries	4a	Love Creek, Bundicks Branch and Goslee Creek to the confluence with Rehoboth Bay	4.2 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2003	2004	4a	2006		
						DO		1996		2004	1	2002		DO, listed in 1996, delisted 2002
DE280-E01	Rehoboth Bay	Rehoboth Bay	5	Near coastal waters extending north from the confluence with Indian River Bay at Burton Island	12.0 sq. mi.	DO	PS, NPS	1996		1998	4a	2006	y	DO, listed 1996, delisted 2006, relisted 2016
						Nutrients	PS, NPS	1996		1998	4a	2004		
						Copper	UNK	2014	2027		5			
DE280-L01	Rehoboth Bay	Burton Pond	4a	Pond northeast of Millsboro	33.0 acres	DO	NPS	2016		2004	4a		y	DO listed 2016
						Nutrients	NPS	1998	2003	2004	4a	2006		
DE140-001	Indian River	White Creek	5	Saline tidal waters extending from the north end of Assawoman Canal to the Indian River Bay	4.9 miles	Bacteria	NPS	1996	2006	2006	1	2008		Bacteria, listed 1996, delisted 2008
						Nutrients	NPS	1996	2003	2004	4a	2006		
						DO	NPS	1996	2003	2004	4a	2008		DO, listed 1996, delisted 2008, Relisted 2010
						Copper	UNK	2014	2027		5			
DE140-002	Indian River	Blackwater Creek	4a	Saline tidal waters from the headwaters to the confluence with Indian River Bay	7.2 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						DO	NPS	2002	2003	2004	4a	2006		
						Nutrients	NPS	2002	2003	2004	4a	2006		
DE140-003	Indian River	Pepper Creek, including tributaries	4a	Pepper Creek including Vines Creek, McCrays Branch, and Deep Hole Branch	24.8 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2003	2004	4a	2006		
						DO	NPS	1996	2003	2004	1	2006		DO, Listed 1996, Delisted 2010
DE140-004	Indian River	Indian River	5	Saline tidal portion of river from Millsboro Pond to Power Plant intake	4.6 miles	Bacteria	PS, NPS	1996	2006	2006	4a	2014	y	Bacteria, Listed 1996, Delisted 2014, relisted 2016
						Nutrients	PS, NPS	1996		1998	4a	2004		
						Temperature	PS, NPS	1996	1998	2004	4a	2004		EPA TMDL December 2004
						Susp Solids	PS, NPS	1996		1998	4a	2004		Inland Bays Nutrient TMDLs addressed Suspended Solids
						DO	PS, NPS	2002		1998	1	2004		DO, listed 2002, Delisted 2012
						Copper	UNK	2014	2027		5			

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DE140-005	Indian River	Swan Creek	4a	Freshwater tidal river from the headwaters of Swan Creek to the confluence with Indian River	8.6 miles	Bacteria	PS, NPS	1996	2006	2006	4a	2008		
						Nutrients	PS, NPS	1996	2003	2004	4a	2006		
						Temperature								Temperature, listed in 1996, delisted in 2002 as sole point source discharger was removed
DE140-006	Indian River	Stockley Branch	1	From the confluence of Alms House Ditch with Stockley Branch to the confluence with Millsboro Pond	8.23 miles	Bacteria	PS, NPS	1996	2006	2006	1	2008		Bacteria, listed 1996, delisted 2008
						Nutrients	PS, NPS	1996	2003	2004	1	2006	y	Nutrients, listed 1996, delisted 2016
						DO	PS, NPS	2002		2004	1	2004		DO, listed in 2002, delisted 2004
DE140-007	Indian River	Eli Walls Tax Ditch	4a	From the headwaters of McGee Ditch, Eli Walls Tax Ditch, and Gills Branch to the confluence with Morris Millpond	13.6 miles	Bacteria	PS, NPS	1996	2006	2006	4a	2008		
						Nutrients	PS, NPS	1996	2003	2004	4a	2006		
DE140-008	Indian River	Deep Branch, including tributary	4a	Deep Branch, including Peterkins Branch, White Oak Swamp Ditch, Sockorockets Ditch, Welsh Branch, and Simpler Branch	16.9 miles	Bacteria	PS, NPS	1996	2006	2006	4a	2008		
						Nutrients	PS, NPS	1996	2003	2004	4a	2006		
						DO	PS, NPS	1996	2003	2004	4a	2006		
DE140-009	Indian River	Mirey Branch, including tributaries	5	Mirey Branch, including Sheep Pen Ditch, and Narrow Drain	23.5 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	2004	2003	2004	4a	2006		
				Mirey Branch-- from the confluence of the headwaters to the confluence with Sheep Pen Ditch	5.40 miles	Habitat	NPS	1998	2013		5			
DE140-010	Indian River	Betts Pond Branch	4a	From the headwaters of the tributaries of Ingrams Pond and Betts Pond to the confluence with Millsboro Pond,	17.5 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						DO	NPS	2002	2003	2004	4a	2006		
						Nutrients	NPS	2002	2003	2004	4a	2006		
DE140-E01	Indian River	Lower Indian River Bay	5	From inlet to Pepper Creek	13.0 sq. mi.	Bacteria	PS, NPS	1996	2006	2006	1	2008		Bacteria, listed 1996, Delisted 2010
						Nutrients	PS, NPS	1996		1998	4a	2004		
						DO	PS, NPS	1996		1998	1	2008		DO, listed 1996, delisted 2008
						Copper	UNK	2014	2027		5			
DE140-E02	Indian River	Upper Indian River Bay	5	Upper portion of estuary from power plant cooling water intake to Pepper Creek, including Island Creek	0.95 sq. mi.	Bacteria	NPS	1996	2006	2006	1	2008		Bacteria, listed 1996, Delisted 2010
						Nutrients	NPS	1996		1998	4a	2004		
						Temperature	NPS	1996	1998	2004	4a	2004		EPA TMDL December 2004
						DO	NPS	2002		1998	1	2014		DO listed 2002, Delisted 2010, Relisted 2012, Delisted 2013
						Susp Solids	NPS	2014		1998	4a			
						Copper	UNK	2014	2027		5			
DE140-L01	Indian River	Millsboro Pond	4a	Pond north of Millsboro	126.0 acres	Bacteria	PS, NPS	1996		2006	1	2006		Bacteria, listed 1996, delisted 2006
						Nutrients	PS, NPS	1996	2003	2004	1	2014		Nutrients, Listed 1996, Delisted 2014

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						DO		1996 , 2004		2004	1	2006		DO, listed in 1996, delisted 2002 , relisted 2004 , delisted 2006

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DE140-L02	Indian River	Betts Pond	4a	Pond northwest of Millsboro	80.0 acres	Nutrients	NPS	1996	2003	2004	4a	2006		
						Bacteria	NPS	1996		2006	1	2004		Bacteria, listed in 1996, delisted 2004
DE140-L03	Indian River	Ingrams Pond	4a	Pond west of Millsboro	48.0 acres	Bacteria	NPS	1996	2003	2006	4a	2008		
						Nutrients	NPS	1996	2003	2004	4a	2006		
DE140-L04	Indian River	Morris Mill Pond	4a	Pond between Millsboro and Georgetown	44.0 acres	Bacteria	PS, NPS	1996	2006	2006	4a	2008		
DE150-001	Iron Branch	Iron Branch	5	From the headwaters of Iron Branch and Whartons Branch to the confluence with Indian River	13.1 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2003	2004	4a	2006		
						DO	NPS	1996	2003	2004	1	2008		DO, listed 1996, delisted 2008
						Copper	UNK	2016	2029		5		y	
				Whartons Ditch--from the start of the third order stream to the confluence with Whartons Branch	3.55 miles	Habitat	NPS	1998	2013		5			
						DO	NPS	1998	2013	2004	4a	2006		
						Temperature	NPS	1998	2013		5			
DE070-001	Buntings Branch	Buntings Branch	5	From the headwaters to the MD-DE State line	4.6 miles	Nutrients	PS, NPS	1996	2003	2004	4b	2008		Delaware DNREC, EPA and MD Dept. of Environment are working cooperatively to implement the MD TMDL for the downstream portion in Delaware's portion of this shared waterbody for these
						DO	PS, NPS	1996	2003	2004	1	2014		
						Bacteria	PS, NPS	2002	2006	2006	4a	2008		
						Copper	UNK	2014	2027		5			
DE350-E01	Assawoman Bay	Assawoman Bay	4a	Portion of the estuary up to the MD-DE State line	0.59 sq. mi.	Bacteria	NPS	1998	2006	2006	4a	2008		
DE180-001	Little Assawoman Bay	Little Assawoman Canal	4a	Saline tidal waters from the confluence with White Creek to the confluence with little Assawoman Bay	3.1 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2003	2004	4a	2006		
						DO	NPS	1996	2003	2004	4a	2006		
DE180-002	Little Assawoman Bay	Miller Creek	5	From the headwaters of Miller Creek to the confluence with Little Assawoman bay	6.5 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						DO	NPS	1996	2003	2004	1	2006	y	DO, listed 1996, Delisted 2016
						Nutrients	NPS	1996	2003	2004	4a	2006		
				Beaver Dam Ditch--from the confluence of Blackwater Creek to the confluence with the next larger stream order	2.31 miles	Habitat	NPS	1998	2013		5			
DE180-003	Little Assawoman Bay	Dirickson Creek	5	From the headwaters of Dirickson Creek to the confluence with Little Assawoman bay	13.3 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2003	2004	4a	2006		
						DO	NPS	2002	2003	2004	1	2006		DO listed 2002, Delisted 2010
						Copper	UNK	2014	2027		5			
				Bearhole Ditch--from the confluence. of the headwaters to the confluence with Batson Branch	2.39 miles	Habitat	NPS	1998	2013		5			
				Agricultural Ditch--from the confluence of the headwaters to the confluence with Dirickson Creek	2.97 miles	Habitat	NPS	1998	2013		5			
DE180-E01	Little Assawoman Bay	Little Assawoman Bay	5	Estuary from the confluence with Assawoman Canal to the confluence with Assawoman Bay	3.0 sq. mi.	Bacteria	NPS	1996	2006	2006	1	2006		Bacteria, Listed 1996, delisted 2006
						DO	NPS	1996	2003	2004	1	2014		DO, listed 1996, delisted 2008, Relisted 2010, Delisted 2014
						Nutrients	NPS	1996	2003	2004	4a	2006		
						Copper	UNK	2014	2027		5			

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DELAWARE BAY BASIN														
NA	Delaware River	DRBC Zone 5	5	From the Pennsylvania- Delaware line to Liston Point, Delaware.	59.0 sq. mi.	Bacteria	PS, NPS	1996	2005		1			Bacteria , listed in 1996, delisted 2004 based on 2004 DRBC 305(b) assessment
						PCBs	PS, NPS, SF	1996	2005	2003	4a	2006		
						Arsenic		2002			1	2006		Not a contaminant of concern in fish consumption advisories for these waters
						D and F TEQs*		2002	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						Mercury		2002	2016		1	2014		Mercury, Listed 2002, Delisted 2014, not a contaminant of concern in fish consumption advisories for these waters.
						Dieldrin		2002	2022		5		y	2016 Changed from "Chlorinated Pesticides" to Dieldrin to be more specific. The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						Chronic Toxicity (DRBC Zones 5a and 5b, 25 sq miles)	PS, NPS, SF	2002			1			Bioassays performed in 2005, 2007, and 2008 indicate no chronic toxicity in Zone 5 mainstem samples. Chronic toxicity, listed in 2002, Delisted in 2012 based on 2011 journal article.
						Iron		2004			3		y	Surface water levels of iron in the segment sometimes exceed the applicable criterion. The Department believes further study of surface water iron levels and a determination of whether a use impairment is resulting from those levels is an appropriate response to the available information.
NA	Delaware River	DRBC Zone 5c	5	Lower portion of DRBC Zone 5	31 sq. mi.	DO	PS, NPS	2006	2019		5			Delaware will work with the DRBC, EPA, other States and Stakeholders to develop and implement a TMDL in these waters.
DE020-001	Army Creek	Lower Army Creek	5	Segment from Route 13 to mouth at Delaware River tidal freshwater segment	3.0 miles	Nutrients		1996	2006	2006	1	2008		Nutrients, Listed 2006, Delisted 2012
						DO		1996	2006	2006	1	2008	y	DO, listed 1996, Delisted 2016
						Bacteria		2002	2006	2006	1	2008		Bacteria, Listed 2002, Delisted 2010
						PCBs		2006	2015	2006	4a	2012		EPA TMDL for PCBS in Delaware River Zone 6 and tributaries
						D and F TEQs*		2006	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						Dieldrin		2006			1	2016	y	Delisted 2016 as dieldrin is no longer a contaminant of concern in fish consumption advisories for these waters

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						Toxaphene		2006			1	2016	y	Delisted 2016 as toxaphene is no longer a contaminant of concern in fish consumption advisories for these waters
				First tributary on Army Creek after the headwaters	0.73 miles	Habitat	NPS	1998	2011		5			
				Segment from Route 13 to the mouth of the Delaware River	2.00 miles	Biology and Habitat	NPS	1998	2011		5			
DE020-002	Army Creek	Upper Army Creek	5	Nontidal segment from headwaters to Route 13	1.1 miles	Nutrients	NPS	1998	2006	2006	1	2008		Nutrients, Listed 1998, Delisted 2012
						DO	NPS	1998	2006	2006	1	2008		DO, Listed 2006, Delisted 2012
						Bacteria	NPS	2002	2006	2006	4a	2008		
						PCBs		2006	2006	2006	4a	2012		EPA TMDL for PCBS in Delaware River Zone 6 and tributaries
						D and F TEQs*		2006	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						Dieldrin		2006	2017		1	2016	y	Delisted 2016 as dieldrin is no longer a contaminant of concern in fish consumption advisories for these waters
						Toxaphene		2006	2017		1	2016	y	Delisted 2016 as toxaphene is no longer a contaminant of concern in fish consumption advisories for these waters
DE020-003	Army Creek	Tributary to Army Creek	4a	Unnamed Tributary to Army Creek, monitored by STORET station 114051	0.78 miles	Bacteria	NPS	2006	2006	2006	4a	2008		
						Nutrients	NPS	2006	2006	2006	4a	2008		
						DO	NPS	2006	2006	2006	1	2008		DO, listed 2006, delisted 2008
DE270-001-01	Red Lion Creek	Lower Red Lion	5	From U.S. Route 13 to the mouth at Delaware River	1.5 miles	DO	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2006	2006	1	2008		Nutrients, Listed 1996, Delisted 2012
						Chlorinated Benzenes		1996			1	2002		Chlorinated Benzene, listed in 1996, delisted 2002 based on improved conditions.
						Bacteria	NPS	2002	2006	2006	4a	2008		
						PCBs	NPS	2002	2006	2006	4a	2012		EPA TMDL for PCBS in Delaware River Zone 6 and tributaries
						D and F TEQs*	NPS	2002	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						Chronic Toxicity	NPS, PS	2012	2025		5			Listed Based on 2011 journal article. Likely cause is a federal superfund site. The Department is working with EPA on the cleanup and possible TMDL.
				First tributary downstream of Doll Run from the headwaters to the confluence with Red Lion Creek	0.91 miles	Biology	NPS	1998	2011		5			
DE270-001-02	Red Lion Creek	Upper Red Lion	5	From the headwaters to the location where Route 13 intersects Red Lion Creek	1.9 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2006	2006	1	2008		Nutrients, Listed 1996, Delisted 2012
						PCBs	NPS	2014		2006	4a	2014		EPA TMDL for PCBS in Delaware River Zone 6 and tributaries
						Dieldrin	NPS	2014	2025		5			

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				First tributary after the headwaters of Red Lion Creek	0.28 miles	Biology	NPS	1998	2011		5			
DE130-001	Dragon Run Creek	Lower Dragon Run Creek	4a	From dam at the water supply pond to the mouth of Delaware River	3.2 miles	Nutrients	NPS	1998	2006	2006	1	2008		Nutrients, Listed 1998, Delisted 2012
						DO	NPS	1998	2006	2006	4a	2008		
						Bacteria	NPS	2002		2006	1	2008		Bacteria, listed 2002, delisted 2006, relisted 2008, Delisted 2010

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DE130-002	Dragon Run Creek	Upper Dragon Run Creek	5	From headwaters to water supply pond	4.1 miles	Bacteria	NPS	1996	2006	2006	4a	2008		Bacteria, Listed 1996, Delisted 2010, Relisted 2012
						DO	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2006	2006	1	2008		Nutrients, Listed 1996, Delisted 2012
				From the confluence of the headwaters to the water supply dam	3.42 miles	Biology	NPS	1998	2011		5			
DE090-001	Chesapeake & Delaware Canal	C&D Canal	5	C&D Canal from the MD Line to Delaware River	15.0M	Nutrients	NPS	2002			1			Nutrients, Listed 2002, Delisted 2012
						PCBs	NPS	2002	2006	2006	4a	2012		EPA TMDL for PCBS in Delaware River Zone 6 and tributaries
						D and F TEQs*	NPS	2002	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						Dieldrin	NPS	2006	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						Chlordane	NPS	2006	2017		1	2014		Not a contaminant of concern in fish consumption advisories for these waters
						DDT	NPS	2012	2017		1	2014		Not a contaminant of concern in fish consumption advisories for these waters
DE090-002	Chesapeake & Delaware Canal	Tributaries of Chesapeake & Delaware Canal	5	Scott Run-- from the headwaters to the confluence with Chesapeake & Delaware Canal	4.81 miles	Biology and Habitat	NPS	1998	2011		5			
						DO	NPS	1998	2006	2012	4a			
				Crystal Run--from the headwaters to the confluence with Chesapeake & Delaware Canal	1.52 miles	Biology	NPS	1998	2011		5			
				Joy Run--from the headwaters to the confluence with Chesapeake & Delaware Canal	1.99 miles	Biology	NPS	1998	2011		5			
				Eastern tributary on Lums Pond--from the headwaters to the confluence with Lums Pond	1.04 miles	Biology and Habitat	NPS	1998	2011		5			
			4a	Unamed tributary referred to as "Southeast Creek", outflowing from Lums Pond to the C&D Canal	0.84 miles	DO	NPS	2012		2012	4a			
DE090-L01	Chesapeake & Delaware Canal	Lums Pond	4a	Pond south of Newark	189.3 acres	Bacteria	NPS	1996			1	2004		Bacteria, listed in 1996, delisted 2004
						Nutrients	NPS	2002		2012	1			Nutrients, Listed 2002, Delisted 2012
		Lower				DO	PS, NPS	1996		1998	4a	2004		
						Nutrients	PS, NPS	1996		1998	1	2004		Nutrients, Listed 1996, Delisted 2012
						Bacteria	NPS	2002	2006	2006	1	2006		Bacteria, listed 2002, delisted 2006
						PCBs	NPS	2002	2006	2006	4a	2012		EPA TMDL for PCBS in Delaware River Zone 6 and tributaries

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DE010-001-01	Appoquinimink River	Lower Appoquinimink River	5	Saline Tidal Reach, excluding Hangman's Run	7.1 miles	D and F TEQs*	NPS	2002	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						Dieldrin	UNK	2016	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						Copper	UNK	2014	2027		5			
DE010-001-02	Appoquinimink River	Upper Appoquinimink River	5	Freshwater Tidal Reach	6.1 miles	Nutrients	PS, NPS	1996		1998	1	2004		Nutrients, Listed 1996, Delisted 2012
						DO	PS, NPS	1996		1998	4a	2004		
						Bacteria	PS, NPS	2002	2006	2006	4a	2008		
						PCBs	NPS	2002	2006	2006	4a	2012		EPA TMDL for PCBS in Delaware River Zone 6 and tributaries
						D and F TEQs*	NPS	2002	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
DE010-001-03	Appoquinimink River	Drawyer Creek	5	From the headwaters of Drawyer Creek to the confluence with the Appoquinimink River, including	8.2 miles	Bacteria	NPS	1996	2006	2006	4a	2008		Bacteria, listed 1996, delisted 2008, Relisted 2010
						Nutrients	NPS	1996		2003	1	2014		Nutrients, Listed 1996, Delisted 2014
						DO	NPS	1996		2003	4a	2008		DO, listed 1996, delisted 2008, Relisted 2014
				Tributary of Drawyer Creek--from the confluence of the headwaters to the confluence with the mainstem	2.30 miles	Biology and Habitat	NPS	1998	2011		5			
				Western tributary of the headwaters of Drawyer Creek to its confluence	2.20 miles	Habitat	NPS	1998	2011		5			
				Tidal Portion	5.45 miles	D and F TEQs*	UNK	2016	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						PCBs	NPS	2002	2006	2006	4a	2012		EPA TMDL for PCBS in Delaware River Zone 6 and tributaries
						DDT	NPS	2002			1	2016	y	Delisted 2016 as DDT is no longer a contaminant of concern in fish consumption advisories for these waters

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DE010-002-01	Appoquinimink River	Wiggins Mill Pond to confluence with Silver Lake	5	From the headwaters of Wiggins Mill Pond to the confluence with Noxontown Pond	3.4 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						DO	NPS	1996		2003	4a	2004		
						Nutrients	NPS	2002		2003	4a	2004		
				From the confluence of the headwaters of Wiggins Mill Pond to the confluence with Noxontown Pond	1.62 miles	Biology	NPS	1998	2011		5			
DE010-002-02	Appoquinimink River	Deep Creek to confluence with Silver Lake	5	From the headwaters of Deep Creek to confluence with Silver Lake, excluding Silver Lake	2.4 miles	Bacteria	NPS	2002	2006	2006	4a	2008		
						Nutrients	NPS	2002		2003	4a	2004		
						DO		1996		2003	4a	2014	y	DO, listed in 1996, delisted 2002 , relisted 2012, delisted 2014, relisted 2016
				First western tributary after the headwaters of Silver Lake	1.98 miles	Biology	NPS	1998	2011		5			
				Deep Creek.-- from the confluence of the headwaters to Appoquinimink River	1.84 miles	Biology	NPS	1998	2011		5			
DE010-L01	Appoquinimink River	Noxontown Pond	1	Pond southwest of Odessa	158.6 acres	Bacteria	NPS	1998		2006	1	2006		Bacteria, listed 1998, delisted 2006
						Nutrients	NPS	1998		2003	1	2004		Nutrients, Listed 1998, Delisted 2012
DE010-L02	Appoquinimink River	Silver Lake	5	Lake adjacent to Middletown, below Deep Creek	38.7 acres	Bacteria	NPS	1996			1	2006		Bacteria, listed in 1996, delisted 2006
						Nutrients	NPS	1996	2001		5			
						PCB	NPS	2002	2006	2006	1	2012	y	Delisted 2016 as PCB is no longer a contaminant of concern in fish consumption advisories for these waters
						Dieldrin	NPS	2002	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						DDT	NPS	2002	2017		1		y	Delisted 2016 as DDT is no longer a contaminant of concern in fish consumption advisories for these waters
						D and F TEQs*	NPS	2002	2017		1		y	Delisted 2016 as these are no longer a contaminant of concern in fish consumption advisories for these waters
DE010-L03	Appoquinimink River	Shallcross Lake	5	Lake above Drawyer Creek	43.1 acres	Nutrients	NPS	1996	2001	2003	1	2004		Nutrients, Listed 1996, Delisted 2012
						Bacteria	NPS	1996			1	2004		Bacteria, listed in 1996, delisted 2004
						Copper	UNK	2016	2029		5		y	
DE030-001	Blackbird Creek	Lower Blackbird	4a	Tidal segment from Route 13 to mouth of the Delaware River	13.8 miles	DO	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2006	2006	4a	2014	y	Nutrients, Listed 1996, Delisted 2014, relisted 2016
						Bacteria	NPS	2002	2006	2006	4a	2008		
DE030-002	Blackbird Creek	Upper Blackbird	5	Nontidal segment from headwaters to Route 13	13.6 miles	Bacteria	NPS	1996	2006	2006	1	2008		Bacteria, Listed 1996, Delisted 2010
						DO	NPS	1996	2006	2006	4a	2008		DO, listed 1996, delisted 2008, Relisted 2010
						Nutrients	NPS	1996	2006	2006	4a	2008		
				First eastern tributary after the headwaters to the confluence with Blackbird Creek	2.19 miles	Biology	NPS	1998	2011		5			

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DE030-002	Blackbird Creek	Upper Blackbird	5	Upper Blackbird Creek--from the confluence of the headwaters to the confluence with Barlow Branch	2.11 miles	Biology	NPS	1998	2011		5			
				From the confluence of the headwaters to the confluence with Barlow Branch	2.27 miles	Biology	NPS	1998	2011		5			
DE030-003	Blackbird Creek	Tributaries on the mainstem	5	Sandom Branch to the confluence with Blackbird Creek (upper half)	1.16 miles	DO	NPS	2004	2006	2006	4a	2008		
						Nutrients	NPS	2006	2006	2006	4a	2008		
						Bacteria	NPS	2006	2006	2006	4a	2008		
						Biology and Habitat	NPS	1998	2011		5			

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DE310-001	Smyrna River	Lower Smyrna River	4a	From the head of tide to the Delaware River	10.2 miles	DO	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2006	2006	4a	2008		
						Bacteria	NPS	2002	2006	2006	4a	2008		
DE310-002	Smyrna River	Mill Creek	5	From the headwaters to Lake Como	5.2 miles	Bacteria	NPS	1996	2006	2006	1	2008		Bacteria, Listed 1996, Delisted 2010
						Nutrients	NPS	1996	2006	2006	1	2008		Nutrients, Listed 1996, Delisted 2012
						DO	NPS	2002	2006	2006	1	2008		DO, listed 2002, delisted 2008
				Providence Creek--from the confluence of the headwaters of Mill Creek to the confluence with Lake Como	2.18 miles	Biology and Habitat	NPS	1998	2011		5			
DE310-003	Smyrna River	Tributary of Smyrna River	5	Tributaries from the headwaters to the confluence with Delaware Bay	4.2 miles	Bacteria	NPS	1998	2006	2006	4a	2008		
						DO	NPS	2004	2006	2006	1	2014		Nutrients, Listed 2004, Delisted 2014
						Nutrients	NPS	1998	2006	2006	4a	2008		
				From the confluence of the headwaters of Paw Paw Branch to the confluence with Providence Creek	2.68 miles	Biology and Habitat	NPS	1998	2011		5			
				First eastern tributary after the headwaters of Paw Paw Branch to the confluence with Smyrna River	0.86 miles	Habitat	NPS	1998	2011		5			
				Eastern tributary of the headwaters of Sawmill Branch to its confluence	0.67 miles	Biology and Habitat	NPS	1998	2011		5			
				Sawmill Branch--from the confluence of the headwaters to the next larger stream order	3.81 miles	Biology	NPS	1998	2011		5			
DE310-L01	Smyrna River	Lake Como and Duck Creek Pond	4a	Lake Como in Smyrna	82.0 acres	Bacteria	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2006	2006	4a	2008		
						DO	NPS	2006	2006	2006	4a	2008		
DE160-001	Leipsic River	Lower Leipsic River	4a	From dam at Garrisons Lake to mouth at Delaware River	13.6 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2006	2006	4a	2008		
						DO	NPS	1996	2006	2006	4a	2008		
DE160-002	Leipsic River	Upper Leipsic River	5	From headwaters to Garrisons Lake, excluding Masseys Mill Pond	5.8 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						DO	NPS	1996	2006	2006	1	2008		DO listed 1996, Delisted 2010
						Nutrients	NPS	1996	2006	2006	4a	2008		
				From the start of the third order stream on Pinks Branch to the confluence with	2.70 miles	Biology	NPS	1998	2011		5			
						DO	NPS	1998	2006	2006	4a	2008		
				Tributary of Leipsic River--from the confluence of the headwaters to the confluence with Leipsic River	0.93 miles	Biology	NPS	1998	2011		5			
DE160-003	Leipsic River	Tributary from the dam at Garrisons Lake to mouth at Delaware Bay	5	From the confluence of the headwaters of Alston Branch to the confluence Leipsic River	2.16 miles	Biology	NPS	1998	2011		5			
				Tributary of Leipsic River--eastern tributary of the headwaters to its confluence	0.91 miles	Habitat	NPS	1998	2011		5			
		Dyke Branch	4a	Dyke Branch from headwaters to confluence with Leipsic River	4.39 miles	DO	NPS	2004	2006	2006	4a	2008		
						Nutrients	NPS	2006	2006	2006	4a	2008		
						Bacteria	NPS	2006	2006	2006	4a	2008		
DE160-004	Leipsic River	Muddy Branch	4a	Muddy Branch from headwaters to the confluence with Leipsic River	5.59 miles	DO	NPS	2004	2006	2006	4a	2008		
						Nutrients	NPS	2006	2006	2006	4a	2008		

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				confluence with Leipsic River	miles	Bacteria	NPS	2006	2006	2006	4a	2008		

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DE160-L01	Leipsic River	Garrisons Lake	4a	Lake south of Smyrna	85.9 acres	Bacteria	NPS	1996		2006	1	2006		Bacteria, Listed 1996, delisted 2006
						Nutrients	NPS	1996	2006	2006	1	2014		Nutrients, Listed 1996, Delisted 2014
						DO	NPS	2002	2006	2006	1	2008		DO, Listed 2002, Delisted 2010
DE160-L02	Leipsic River	Masseys Mill Pond	1	Pond south of Clayton	30.0 acres	Bacteria	NPS	1996	2006	2006	1	2008		Bacteria, Listed 1996, Delisted 2012
						DO	NPS	1996	2006	2006	1	2008		DO, Listed 1996, Delisted 2012
						Nutrients	NPS	1996	2006	2006	1	2008		Nutrients, Listed in 1996, Delisted 2012
DE190-001-01	Little River	Lower Little River	4a	From the confluence of Upper Little River and Pipe Elm Branch with the Lower Little River to the mouth at	2.9 miles	DO	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2006	2006	4a	2008		
						Bacteria	NPS	2002	2006	2006	4a	2008		
DE190-001-02	Little River	Upper Little River	5	From the headwaters to the confluence with Lower Little River	5.5 miles	Bacteria	NPS	1996	2006	2006	1	2008		Bacteria, Listed 1996, Delisted 2010
						DO	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2006	2006	1	2008		Nutrients, Listed 1996, Delisted 2012
				Morgan Branch--from the confluence of the headwaters to the confluence with the next larger stream order	0.60 miles	Habitat	NPS	1998	2011		5			
				Start of the third order stream near the headwaters of Little River to the confluence with Morgan Branch	4.14 miles	Biology and Habitat	NPS	1998	2011		5			
DE190-001-03	Little River	Pipe Elm Branch	4a	From the headwaters to the confluence with Little River	2.1 miles	Bacteria	NPS	1996	2006	2006	4a	2008		Bacteria, Listed 1996, Delisted 2010, Relisted 2012
						DO	NPS	1996	2006	2006	1	2008		DO, Listed 1996, Delisted 2010
						Nutrients	NPS	1996	2006	2006	1	2008		Nutrients, Listed 1996, Delisted 2012
DE290-001-01	Saint Jones River	Lower Saint Jones	5	From Old Lebanon Bridge to the mouth of Delaware Bay	8.3 miles	DO	NPS	1996	2006	2006	4a	2008		
						PCBs	NPS	2002	2006	2006	4a	2012		EPA TMDL for PCBS in Delaware River Zone 6 and tributaries
						Nutrients	NPS	1996	2006	2006	4a	2008		
						Bacteria	NPS	2002	2006	2006	4a	2008		
						Dieldrin	UNK	2016	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						D and F TEQs*	NPS	2002	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						Mercury	NPS	2002	2017		1	2014		Not a contaminant of concern in fish consumption advisories for these waters
						Arsenic	NPS	2002			1	2006		Not a contaminant of concern in fish consumption advisories for these waters
						Bacteria	NPS	1996	2006	2006	4a	2008		
						DO	NPS	1996	2006	2006	4a	2008		
						PCBs	NPS	2002	2006	2006	4a	2012		EPA TMDL for PCBS in Delaware River Zone 6 and tributaries
						Nutrients	NPS	1996	2006	2006	4a	2014	y	Nutrients, Listed 1996, Delisted 2014, relisted 2016

WATERBODY ID	WATERSHED NAME	SEGMENT	Overall CALM Code	DESCRIPTION	SIZE	POLLUTANT OR STRESSOR	PROBABLE SOURCE(S)	YEAR LISTED	TARGET DATE FOR TMDL	TMDL DATE	Polllutant CALM Code	Year Changed from Category 5 Per 305(b) Assessment and Methodology	Change this cycle	Notes
DE290-001-02	Saint Jones River	Upper Saint Jones	5	From the dam at Silver Lake to Old Lebanon Bridge at Road 357	6.7 miles	Dieldrin	UNK	2016	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						D and F TEQs*	NPS	2002	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						Mercury	NPS	2002	2017		1	2014		Not a contaminant of concern in fish consumption advisories for these waters
						Arsenic	NPS	2002			1	2006		Not a contaminant of concern in fish consumption advisories for these waters
				Tributary of Silver Lake in Dover	0.32 miles	Habitat	NPS	1998	2011		5			
				Puncheon Branch--from the confluence of the headwaters to the confluence with the Saint Jones River	1.84 miles	Biology and Habitat	NPS	1998	2011		5			

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DE290-002	Saint Jones River	Isaac Branch	5	From the headwaters to the confluence with Saint Jones River, excluding Moores Lake	9.1 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2006	2006	4a	2008		
						DO		1996		2006	1	2002		DO, listed in 1996, delisted 2002
				From the confluence of Allabands Mill Stream to the confluence with Saint Jones River	3.62 miles	Biology	NPS	1998	2011		5			
				From the confluence of the headwaters of Almhouse Branch to the confluence of Isaac Branch	2.50 miles	Biology	NPS	1998	2011		5			
				Second tributary upstream of Wyoming Lake on Isaac Branch	1.28 miles	Habitat	NPS	1998	2011		5			
				Wyoming Mill Pond	28.5 Acres	PCB	NPS	2002	2006	2006	1	2014		Not a contaminant of concern in fish consumption advisories for these waters
						D and F TEQs*	NPS	2002	2017		1	2014		Not a contaminant of concern in fish consumption advisories for these waters
						DDT	NPS	2002	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
DE290-003	Saint Jones River	Fork Branch	5	From the headwaters to Silver Lake in Dover	7.7 miles	Bacteria	NPS	1996	2006	2006	1	2008	y	Bacteria, Listed 1996, Delisted 2010, Relisted 2014, Delisted 2016
						DO	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2006	2006	1	2008		Nutrients, Listed 1996, Delisted 2012
						Mercury	NPS	2014	2025		5			
				Cahoon Branch--from the confluence of the headwaters to the confluence with the next larger stream order	2.33 miles	Habitat	NPS	1998	2011		5			
				Maidstone Branch- from the confluence of the third order stream to the confluence with Cahoon Branch	3.09 miles	Biology	NPS	1998	2011		5			
				Tributary to Maidstone Branch---from the confluence of the headwaters to the confluence with Maidstone Branch	0.13 miles	Habitat	NPS	1998	2011		5			
				Fork Branch--from the start of the third order stream to the confluence with	6.24 miles	Habitat	NPS	1998	2011		5			
						DO	NPS	1998	2011	2006	4a	2008		
				From the start of the third order stream on Cahoon Branch to the confluence with Maidstone Branch	1.28 miles	Biology	NPS	1998	2011		5			

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DE290-004	Saint Jones River	Tidbury Branch	5	From below Derby Pond to the confluence with the Saint Jones River	3.8 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2006	2006	4a	2008		
						DO		2002	2006	2006	4a	2008		
				From the confluence of the headwaters of Tidbury Creek to the confluence with Derby Pond	1.08 miles	Biology and Habitat	NPS	1998	2011		5			
				Tributary of Tidbury Creek--from the headwaters to the confluence with Tidbury Creek	0.75 miles	Habitat	NPS	1998	2011		5			
				Red House Branch--from the confluence of the headwaters to the confluence with Derby Pond	0.71 miles	Biology	NPS	1998	2011		5			
				Tidbury Creek--from the confluence with Derby Pond to the confluence with Lower Saint Jones River	4.53 miles	Biology	NPS	1998	2011		5			
DE290-L01	Saint Jones River	Moores Lake	5	Lake east of Camden	27.1 acres	Bacteria	NPS	1996	2006	2006	1	2008		Bacteria, listed 2006, delisted 2008
						PCBs	NPS	2002	2006	2006	4a	2012		EPA TMDL for PCBS in Delaware River Zone 6 and tributaries
						Nutrients	NPS	1996	2006	2006	4a	2008		
						DO	NPS	1996	2006	2006	1	2002		DO, listed in 1996, delisted 2002
						DDT	NPS	2002	2017		1	2014		Not a contaminant of concern in fish consumption advisories for these waters
DE290-L02	Saint Jones River	Silver Lake	5	Silver Lake at Dover	157.8 acres	Bacteria	NPS	1996	2006	2006	1	2008		Bacteria, Listed 2006, Delisted 2012
						Nutrients	NPS	1996	2006	2006	1	2008		Nutrients, Listed 1996, Delisted 2012
						PCBs	NPS	2002	2006	2006	4a	2012		EPA TMDL for PCBS in Delaware River Zone 6 and tributaries
						D and F TEQs*	NPS	2002	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						Mercury	NPS	2002	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
DE290-L03	Saint Jones River	Derby Pond	4a	Pond south of Wyoming	23.1 acres	Bacteria	NPS	1996		2006	1	2004		Bacteria, listed in 1996, delisted 2004
						Nutrients	NPS	1996	2006	2006	1	2014		Nutrients, Listed 1996, Delisted 2014
DE220-001	Murderkill River	Lower Murderkill	5	From the confluence with Spring Creek to the mouth at Delaware Bay	7.6 miles	Nutrients	PS, NPS	1996	2006	2001	1	2014		Nutrients, Listed 1996, Delisted 2014
						DO	PS, NPS	1996	2006	2001	4a	2004		
						Bacteria	PS, NPS	2002	2006	2006	4a	2008		
						Copper	UNK	2014	2027		5			
				From the headwaters to the confluence with Murderkill River , excluding Andrews Lake and McGinnis Pond	15.8 miles	Bacteria	PS, NPS	1996	2006	2006	4a	2008		
						DO	PS, NPS	1996		2001	1	2014		DO, Listed 1996, Delisted 2014

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DE220-002	Murderkill River	Spring Creek	5	Andrews Lake and McGinnis Pond		Nutrients	PS, NPS	1996		2001	1	2014		Nutrients, Listed 1996, Delisted 2014
				Tributary of Hudson River--from the headwaters to the confluence with the next larger stream order	0.49 miles	Biology and Habitat	NPS	1998	2011		5			
				Pratt Branch--eastern tributary of the headwaters to its confluence	1.27 miles	Biology	NPS	1998	2011		5			

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DE220-003	Murderkill River	Mid Murderkill River	5	From McCauley and Coursey Pond to the confluence with Spring Creek	9.2 miles	Bacteria	PS, NPS	1996	2006	2006	4a	2008		
						Nutrients	PS, NPS	1996		2001	4a	2004		
				Ash Gut-- from the headwaters to the confluence with the next larger stream order	1.04 miles	Biology and Habitat	NPS	1998	2011		5			
DE220-004	Murderkill River	Browns Branch	5	From the headwaters adjacent to Harrington to the confluence with McCauley Pond	8.8 miles	Bacteria	NPS	1998	2006	2006	4a	2008		
						DO	NPS	1998		2001	1	2008		DO, listed 1998, delisted 2008
						Nutrients	NPS	1998		2001	1	2004	y	Nutrients, listed 1998, Delisted 2016
						Ammonia	PS, NPS	2004		2001	4a	2004		
				Tributary of Browns Branch-- from the confuence of the headwaters wtot he confluence with Browns Branch	1.77 miles	Biology and Habitat	NPS	1998	2011		5			
DE220-005	Murderkill River	Upper Murderkill River	5	From the headwaters to the confluence with Coursey pond, excluding Killens and Coursey Ponds	7.4 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						DO	NPS	2004		2001	1	2006		DO, listed in 2004, delisted 2006
						Nutrients	NPS	1996		2001	4a	2004		
				Spring Branch--tributary on Coursey Pond	2.52 miles	Biology	NPS	1998	2011		5			
				Fan Branch--from the headwaters to the confluence with Murderkill River	2.31 miles	Habitat	NPS	1998	2011		5			
						DO	NPS	1998	2011		5			
						Temperature	NPS	1998	2011		5			
				Tributary of Black Swamp Creek--from the headwaters to its confluence	0.28 miles	Habitat	NPS	1998	2011		5			
				Beaver Dam Branch--from the confluence of the headwaters to the confluence with Murderkill River and Black Swamp Creek	2.96 miles	Biology	NPS	1998	2011		5			
				Black Swamp Creek--from the headwaters of Black Swamp to the confluence with the next larger stream	0.75 miles	Biology and Habitat	NPS	1998	2011		5			
						DO	NPS	1998	2011		5			
DE220-L01	Murderkill River	McGinnis Pond	4a	Pond east of Viola	31.3 acres	Bacteria	NPS	1998		2006	1	2006		Bacteria, listed in 1998, delisted 2006
						Nutrients	NPS	1998		2001	4a	2004		
						DO	NPS	2002		2001	1	2008		DO, listed 2002, delisted 2008
DE220-L02	Murderkill River	Andrews Lake	4a	Pond West of Frederica	17.5acres	Bacteria	NPS	2002	2006		1	2006		Bacteria, listed in 2002, delisted 2006
						Nutrients	NPS	2002		2001	4a	2004		
DE220-L03	Murderkill River	Coursey Pond	4a	Pond southwest of Frederica	58.1 acres	Nutrients	NPS	1996		2001	4a	2004		
						Bacteria	NPS	2002			1	2004		Bacteria, listed in 2002, delisted 2004

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DE220-L04	Murderkill River	Killens Pond	4a	Pond southwest of Felton	75.1 acres	Bacteria	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996		2001	4a	2004		
DE220-L05	Murderkill River	McCauley Pond	4a	Pond northeast of Harrington	49.0 acres	Bacteria	NPS	1996			1	2004		Bacteria, listed in 1996, delisted 2004
						Nutrients	NPS	1996		2001	4a	2004		
DE210-001	Mispillion River	Lower Mispillion	4a	From dam at Silver Lake to mouth at Delaware Bay	13.2 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						DO	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2006	2006	4a	2008		
DE210-002	Mispillion River	Upper Mispillion	5	From the headwaters to Silver Lake in Milford, excluding Silver, Haven, and Griffith Lakes; Blairs, Abbotts, and Tub	11.2 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						DO	NPS	1996		2006	1	2006		DO, listed 1996, delisted 2006
						Nutrients	NPS	1996	2006	2006	4a	2008		
				Tantrough Branch--from the headwaters to the confluence with Blairs Pond	3.24 miles	Biology	NPS	1998	2011		5			
				Beaverdam Branch--western tributary of the headwaters to its confluence	2.69 miles	Biology	NPS	1998	2011		5			
DE210-003	Mispillion River	Johnson Branch including its tributaries	5	Johnson Branch--from the confluence of the headwaters to the confluence with Haven Lake	4.02 miles	Habitat	NPS	1998	2011		5			
						Bacteria	NPS	2006	2006	2006	4a	2008		
						Nutrients	NPS	2006	2006	2006	4a	2008		
DE210-004	Mispillion River	Tributary from the headwaters to Silver Lake	5	Lednum Branch---eastern tributary of the headwaters to its confluence	1.31 miles	Habitat	NPS	1998	2011		5			
						Bacteria	NPS	2006	2006	2006	4a	2008		
						Nutrients	NPS	2006	2006	2006	4a	2008		
DE210-005	Mispillion River	Mispillion Tributaries From Dam At Silver Lake	4a	King's Causeway Branch	2.45 miles	DO	NPS	2004	2006	2006	4a	2008		
						Bacteria	NPS	2006	2006	2006	4a	2008		
						Nutrients	NPS	2006	2006	2006	4a	2008		
DE210-L01	Mispillion River	Tub Mill Pond	4a	Pond north of Milford	4.8 acres	Nutrients	NPS	1996	2006	2006	4a	2008		
						DO	NPS	2006	2006	2006	1	2008		DO, listed 2006, delisted 2008
DE210-L02	Mispillion River	Silver Lake	4a	Silver Lake at Milford	28.5 acres	Bacteria	NPS	1996			1	2006		Bacteria, listed 1996, delisted 2006
						Nutrients	NPS	1996	2006	2006	4a	2008		
DE210-L03	Mispillion River	Haven Lake	4a	Lake west of Milford; upstream of Silver Lake	82.5 acres	Nutrients	NPS	1996	2006	2006	4a	2008		
						DO	NPS	1996		2006	1	2006		DO, listed 1996, delisted 2006
						Bacteria	NPS	2002		2006	1	2004		Bacteria, listed in 2002, delisted 2004
DE210-L04	Mispillion River	Griffith Lake	4a	Lake west of Milford; upstream of Haven Lake	32.2 acres	Nutrients	NPS	1996	2006	2006	4a	2008		
DE210-L05	Mispillion River	Blairs Pond	4a	Pond southwest of Milford	28.5 acres	Bacteria	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2006	2006	4a	2008		
						DO		1996		2006	1	2002		DO, listed in 1996, delisted 2002
DE210-L06	Mispillion River	Abbotts Mill Pond	4a	Pond southwest of Milford	25.6 acres	Bacteria	NPS	1998		2006	1	2006		Bacteria, listed 1998, delisted 2006
						Nutrients	NPS	1998	2006	2006	4a	2008		
						DO	NPS	2002	2006	2006	1	2008		DO, Listed 2002, Delisted 2012
DE080-001	Cedar Creek	Lower Cedar Creek	4a	Tidal segment from Cedar Creek Mill Pond to mouth at Delaware Bay	8.8 miles	DO	NPS	1996	2006	2006	4a	2008		
						Bacteria	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2006	2006	4a	2014	y	Nutrients, Listed 1996, Delisted 2014, relisted 2016

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DE080-002	Cedar Creek	Upper Cedar Creek	4a	From the headwaters to Cedar Creek Mill Pond, including Church Branch and Cedar Mill Pond, Cubbage Pond,	13.0 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2006	2006	4a	2008		
						DO	NPS	2004	2006	2006	4a	2008		
DE080-003	Cedar Creek	Slaughter Creek	4a	From the headwaters to The Confluence with Cedar Creek	7.91 Miles	DO	NPS	2004	2006	2006	4a	2008		
						Nutrients	NPS	2006	2006	2006	4a	2008		
						Bacteria	NPS	2006	2006	2006	4a	2008		
						PCBs	NPS	2010	2006	2006	4a	2012		EPA TMDL for PCBS in Delaware River Zone 6 and tributaries
						D and F TEQs*	NPS	2010	2023					
DE060-001	Broadkill River	Lower Broadkill	4a	From the confluence with Beaver Dam Creek to mouth at Delaware Bay, excluding Red Mill Pond	8.1 miles	Nutrients	NPS	1996	2006	2006	1	2014		Nutrients, Listed 1996, Delisted 2014
						DO	NPS	1996	2006	2006	4a	2008		
						Bacteria	NPS	2002	2006	2006	4a	2008		
DE060-002	Broadkill River	Beaverdam Creek	4a	From the headwaters to the confluence with Broadkill River	8.3 miles	Bacteria	PS, NPS	1996	2006	2006	4a	2008		
						Nutrients	PS, NPS	1996	2006	2006	4a	2008		
						DO	PS, NPS	2002	2006	2006	1	2008	y	DO, listed 2002, delisted 2008, Relisted 2012, Delisted 2016
DE060-003	Broadkill River	Upper Broadkill River	5	Broadkill River from below Waggamons Pond to the confluence with Beaver Dam Creek	5.0 miles	Bacteria	PS, NPS	1998, 2006	2006	2006	1	2004		Bacteria, listed in 1998, delisted 2004 , relisted 2006, delisted 2012
						Nutrients	PS, NPS	1998	2006	2006	1	2008	y	Nutrients, listed 1998, delisted 2016
						DO	PS, NPS	2006	2006	2006	1	2008		DO, Listed 2006, Delisted 2012
DE060-004	Broadkill River	Round Pole Branch	4a	Tributary from the headwaters to confluence with Upper Broadkill River	5.2 miles	Bacteria	NPS	1996		2006	4a	2008		Bacteria, listed 1996, delisted 2006, relisted 2008
						DO	NPS	1996	2006	2006	1	2008		DO, Listed 1996, Delisted 2012
						Nutrients	NPS	1996	2006	2006	4a	2008		
DE060-005	Broadkill River	Ingrams Branch	4a	From the headwaters to Waggamons Pond, including Diamond Pond	7.6 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						DO	NPS	1996	2006	2006	4a	2008		DO, Listed 1996, Delisted 2012, Relisted 2014
						Nutrients	NPS	1996	2006	2006	4a	2008		
				Ingrams Branch-- western tributary of the headwaters	1.70 miles	DO	NPS	1998	2006	2006	4a	2008		
						Habitat	NPS	1998	2012	2006	4a	2008		
DE060-006	Broadkill River	Pemberton Branch	4a	From the headwaters to Waggamons Pond	5.0 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						Nutrients	NPS	1996	2006	2006	4a	2008		
DE060-007-01	Broadkill River	Lower Red Mill Branch	1	From Red Mill Pond to the confluence with Lower Broadkill River	5.3 miles	Nutrients	NPS	1996	2006	2006	1	2008		Nutrients, Listed 1996, Delisted 2012
						DO		1996		2006	1	2002		DO, listed in 1996, delisted 2002
						Bacteria	NPS	2002		2006	1	2004		Bacteria, listed in 2002, delisted 2004
DE060-007-02	Broadkill River	Martin Branch	5	From the headwaters to Red Mill Pond	1.5 miles	DO	NPS	1996		2006	1	2006		DO, listed in 1996, delisted 2006
						Nutrients	NPS	1996	2006	2006	4a	2008		
						Bacteria	NPS	2006	2006	2006	4a	2008		
				Tributary above Red Mill Pond--from start of the second order stream to the confluence with Red Mill Pond	0.06 miles	Habitat	NPS	1998	2011		5			
DE060-007-03	Broadkill River	Heronwood Branch	4a	From the headwaters to Red Mill Pond	1.0 miles	Bacteria	NPS	1996	2006	2006	4a	2008		
						DO	NPS	1996	2006	2006	4a	2008		

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DE060-008	Broadkill River	Primehook Creek	5	Entire Creek	12.6 miles	Mercury	NPS	2010	2022		5		y	The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment
						DO	NPS	2012	2025		5			
DE060-L01	Broadkill River	Red Mill Pond	4a	Pond located on Martin Branch	150.0 acres	Bacteria	NPS	1996		2006	1	2006		Bacteria , listed in 1996, delisted 2006
						Nutrients	NPS	1996	2006	2006	4a	2008		
						DO	NPS	1996	2006	2006	1	2008		DO, listed 1996, delisted 2008
DE060-L02	Broadkill River	Waggamons Pond	4a	Pond adjacent to Milton	35.0 acres	Nutrients	PS, NPS	1996	2006	2006	4a	2008		
DE060-L03	Broadkill River	Waples Pond and Reynolds Pond	4a	Ponds located on Sowbridge Branch of Primehook Creek	88.8 acres	Bacteria	NPS	1998		2006	1	2006	y	Bacteria , listed in 1998, delisted 2006, Relisted 2012, delisted 2016
						Nutrients	NPS	1998	2006	2006	1	2008	y	Nutrients Listed 1998, Delisted 2016
						DO	NPS	1998		2006	1	2014		DO, listed 1998, delisted 2006, Relisted 2012, Delisted 2014
						Mercury	NPS	2010	2022				y	Mercury listing in Waples Pond Only. The Department will complete an evaluation of WATAR data by the end of calendar year 2017 with recommendations for TMDLs, alternatives, or delisting for this segment

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DELAWARE ESTUARY BASIN														
N/A	Delaware Bay	DRBC Zone 6	5	From Liston Point to the confluence with the Atlantic Ocean	782.0 sq. mi.	Bacteria	PS, NPS	1996			1			Bacteria , listed in 1996, delisted 2004 based on 2004 DRBC 305(b) assessment
						PCBs	PS, NPS, SF	1996	2005	2006	4a	2008		
						Mercury		2002	2016		5			TMDL Target date of 2012 changed to 2016 in the 2102 Cycle.
						D and F TEQs*		2002			1	2006		Not a contaminant of concern in fish consumption advisories for these waters
KEY for Pollutant(s) or Stressor(s):														
	DO = Dissolved Oxygen													
	D and F TEQs*													
KEY for Probable Source(s):														
	NPS = Nonpoint Source(s)													
	PS = Point Source(s)													
	SF = Superfund Site(s)													
	UNK = Unknown													
KEY for CALM Code														
1= Fully Supporting for this parameter														
3= Information is insufficent to make a determination														
4a= TMDL has been completed and approved by EPA														
4b= Management Actions are expected to solve impairment														
5= TMDL Needed														
A WATERBODY ID highlighted in light grey is an indication no data was collected in that segment in the assessment period														

Appendix Four: Volunteer Water Quality Monitoring Results

UD Citizen Monitoring Program
Statistics for Total Suspended Solids (TSS), Chlorophyll (Chl a), Dissolved Inorganic Nitrogen (DIN) and Phosphate (DIP), and Total Enterococcus (TE)
1/1/10 - 12/31/14

Test Site Code	Test Site Location	# of TSS Samples	Average TSS (mg/L)	# of Chl a Samples	Average Chl a (µg/L)	# of DIP Samples	Average DIP (mg/L) [Std=0.01]	# of DIN Samples	Average DIN (mg/L) [Std=0.14]	# of TE Samples	Marine Water TE geomean (MPN/100 ml) [Std=35]	Fresh Water TE geomean (MPN/100 ml) [Std=100]
	Delaware Bay											
DB01	End of Cape Shores pier	0		0		0		0		76	9	
	Broadkill River Watershed - Fresh											
BR06	Ingram Ditch at the intersection of Rds 212 and 231.	70	3.3	70	1.4	26	0.033	26	5.853	67		356
BR10	Ingram Branch at Rt 319	73	5.6	73	3.2	27	0.443	27	12.032	70		438
BR44	Wagamon's Pond on Northern Shoreline, Milton	66	13.6	66	19.8	52	0.046	52	1.803	61		238
BR47	Sowbridge Branch 1/2 mile upstream of Reynolds Pond	25	2.1	25	0.5	0		0		25		538
BR48	Diamond Pond at Spillway	73	4.2	74	15.5	59	0.014	59	1.665	71		11
BR54	Red Mill Pond outlet at Rt 1	0		0		0		0		7		94
	Broadkill River Watershed - Tidal											
BR01	Broadkill river @ PEL dock.	74	66.0	75	10.8	39	0.018	39	0.152	72	11	
BR03	Prime Hook Creek at Boat Ramp at Refuge Headquarters	71	81.2	72	100.4	44	0.099	44	0.292	68	71	
BR19	Canary Creek at New Road	37	39.1	37	30.0	30	0.031	30	0.392	35	204	
BR20	Broadkill River at Milton tidal pond	74	5.2	74	11.0	59	0.013	59	2.219	71	46	
BR21	Old Mill Creek downstream from Red Mill Pond	67	25.8	69	23.8	45	0.017	45	0.405	66	200	
BR40	Canary Creek at Pilottown Rd	73	48.8	73	10.3	39	0.016	39	0.128	71	12	
	Rehoboth Bay Watershed											
ML	Massey's Landing	49	67.6	48	6.8	49	0.010	49	0.061	45	7	
RB04	Herring Creek, Mid-Section	47	35.4	47	14.7	47	0.006	47	0.465	43	36	
RB05	Mouth of Guinea Creek (Pot Nets Creekside)	74	83.3	74	12.1	30	0.005	30	0.162	71	16	
RB06	Guinea Creek (Winding Creek Village)	74	32.8	75	14.3	63	0.008	63	0.607	75	216	
RB06A	Guinea Creek @ Rd 298 Bridge	0		0		0		0		58	637	
RB07	West Bay Park	67	65.4	68	10.0	68	0.010	68	0.078	65	15	
RB10	Guinea Creek above golf course	0		0		0		0		57		425
RB16E	Rusty Rudder Pier End	0		0		0		0		6	33	
RB16M	Rusty Rudder Pier Middle	0		0		0		0		6	34	
RB16N	Rusty Rudder Pier Near	0		0		0		0		6	43	
RB34	Love Creek at Rt 24 Bridge	74	33.0	74	25.2	62	0.009	62	0.688	72	161	
RB34B	Love Creek at Rt 24 bridge by boat	0		0		0		0		5	200	
RB80B	Upper Love Creek at Webb Landing by boat	0		0		0		0		5	153	
RB81	Bundicks Branch at Beaverdam Rd	0		0		0		0		6		646
RB82	Goslee Creek at Jimtown Rd	0		0		0		0		6		675
RB83	Love Creek at Robinsonville Rd	0		0		0		0		6	33	
RB84B	Upper reach of Hetty Fisher Glade	0		0		0		0		5	1067	
RB85B	Mouth of Stillman Glade	0		0		0		0		5	192	
RB86B	Mouth of Hetty Fisher Glade	0		0		0		0		5	251	
RB87B	Upper Love Creek, Upstream of Webb Landing	0		0		0		0		5	106	
RB88B	Upper Love Creek, just below marsh area	0		0		0		0		5	97	
RB90	Burton Prong	0		0		0		0		6	622	
	Indian River Bay Watershed											
IR04	Warwick Cove	72	47.4	72	20.9	72	0.012	72	0.537	68	19	
IR07	Holt's Landing State Park	0		0		0		0		44	16	
IR11	Pot Nets Seaside Pier	71	54.6	71	8.1	71	0.008	71	0.052	68	8	
IR20	Bay Colony	67	43.5	67	13.9	67	0.017	67	0.408	65	21	
IR24	Iron Branch - County road 331 at bridge	15	28.2	15	19.0	0		0		15	421	
IR32	Holly Terrace Acres Canal Dead End, White Creek	74	45.1	75	21.3	30	0.009	30	0.331	72	61	
IR36/36B	James Farm, Pasture Point, Knee deep 150 yds from shore or by boat	72	61.1	73	8.3	39	0.010	39	0.096	71	27	
IR38	Vines Lane	74	43.1	74	23.5	74	0.011	74	0.570	73	46	

UD Citizen Monitoring Program
Dissolved Oxygen Statistics
1/1/10 - 12/31/14, Sites with more than 4 measurements.
Aquatic Life Use is not supported if 2 or more DO samples are less than 4.0 mg/L in the 5 year period.

Test Site Code	Test Site Description	# of D.O. Samples	Average D.O. (mg/L)	# of D.O. Samples less than 4.0 (mg/L)
	Delaware Bay			
DB01	End of Cape Shores pier	112	8.12	0
	Broadkill River Watershed - Fresh			
BR06	Ingram Ditch at the intersection of Rds 212 and 231.	70	6.75	9
BR10	Ingram Branch at Rt 319	70	7.01	2
BR19	Canary Creek at New Road	44	4.49	24
BR40	Canary Creek at Pilottown Rd	139	6.61	21
BR47	Sowbridge Branch 1/2 mile upstream of Reynolds Pond	24	7.70	0
BR48	Diamond Pond at Spillway	107	10.31	1
BR54	Red Mill Pond outlet at Rt 1	8	12.66	0
	Broadkill River Watershed - Tidal			
BR01	Broadkill river @ PEL dock.	260	6.94	8
BR02	Prime Hook NWR Petersfield Ditch water control structure, 50m N of Rt 16.	50	4.68	28
BR03	Prime Hook Creek at Boat Ramp at Refuge Headquarters	167	5.45	71
BR13	2707 S. Bayshore Drive	70	5.06	27
BR20	Broadkill River at Milton tidal pond	149	7.40	1
BR21	Old Mill Creek downstream from Red Mill Pond	176	4.47	91
	Rehoboth Bay Watershed			
ML	Massey's Landing	49	8.00	0
RB04	Herring Creek, Mid-Section	48	7.65	2
RB05	Mouth of Guinea Creek (Pot Nets Creekside)	109	7.10	13
RB06	Guinea Creek (Winding Creek Village)	133	6.13	20
RB06A	Guinea Creek @ Rd 298 Bridge	58	5.68	18
RB06B	Guinea Creek (Winding Village) by Boat	22	4.41	7
RB07	West Bay Park	104	6.40	5
RB10	Guinea Creek above golf course	57	5.25	14
RB16E	Rusty Rudder Pier End	6	5.06	1
RB16M	Rusty Rudder Pier Middle	6	5.31	1
RB16N	Rusty Rudder Pier Near	6	5.37	0
RB34	Love Creek at Rt 24 Bridge	73	6.90	10
RB46	Torquay Canal at East bulkhead on Land's End.	16	5.73	7
RB63	Upper Love Creek near Webb Landing	41	5.64	3
RB64	Torquay Canal, west side of Land's End near UD Site #1	124	3.99	71
RB75B	Junction of Guinea and Herring Creeks	26	4.53	9
RB76B	Herring Creek at Rehoboth Bay	25	4.87	4
RB77B	Lower Central Rehoboth Bay	26	6.34	0
RB78B	Mid Central Rehoboth Bay	24	6.26	0
RB79B	Upper Central Rehoboth Bay	25	5.98	0
RB82	Goslee Creek at Jimtown Rd	6	6.51	0
RB90	Burton Prong	11	4.80	1
RLC1W	shellfish site, mouth of Love Creek.	19	5.17	3
RWPMV	Tower Road Bayside	12	5.79	1
	Indian River Bay Watershed			
IR03	Yellow Bank	6	7.00	0
IR04	Warwick Cove	115	8.48	0
IR07	Holt's Landing State Park	62	6.64	2
IR11	Pot Nets Seaside Pier	71	8.12	0
IR12	Broken marshes, 1/4 mile SE of Quillens Point - 300 Bayfront Drive	111	6.27	8
IR20	Bay Colony	92	5.58	27
IR24	Iron Branch - County road 331 at bridge	41	7.37	2
IR28B	White Creek Green #7	18	5.60	0
IR29	Holly Terrace Acres Canal, White Creek	136	5.24	52
IR32	Holly Terrace Acres Canal Dead End, White Creek	148	4.64	80
IR36/36B	James Farm, Pasture Point - shoreline	53	6.82	0
IR38	Vines Lane	148	5.49	38
IR39	North side of Inlet at Wheelchair fishing platform under new bridge.	81	7.49	0
IR41B	Indian River buoy #1	23	6.36	0
IR42B	Indian River buoy #R26, N of Grey's Pt	24	6.09	0
IR43B	Indian River buoy #R22; N of Holt's Lnd	24	6.36	0
IR46B	Pepper Creek Buoy #1	24	5.91	1
IR48B	Indian River green buoy #G5 west of White Creek	24	6.07	0
IR50	Assawoman Canal at N end, Ocean View Marina	138	6.27	25
IR51	Pepper Creek, Creekside	96	6.50	6
IR62	Loop Canal, Pa Ave terminus, Bethany Beach	66	3.72	40
IR73	Western edge of Salt Pond	78	4.43	37

UD Citizen Monitoring Program

Dissolved Oxygen Statistics

1/1/10 - 12/31/14, Sites with more than 4 measurements.

Aquatic Life Use is not supported if 2 or more DO samples are less than 4.0 mg/L in the 5 year period.

Test Site Code	Test Site Description	# of D.O. Samples	Average D.O. (mg/L)	# of D.O. Samples less than 4.0 (mg/L)
Little Assawoman Bay Watershed				
JC08B	SB, Jefferson Creek Basin between Assawoman canal extensions, access by bo	40	5.23	3
LA02B	North of Fenwick Island	20	4.90	2
LA03	Mulberry Landing	72	7.00	5
LA03B	Mulberry Landing by boat at mid channel	20	5.35	0
LA09	Dirickson Creek at Road 381 bridge.	82	6.10	21
LA10	Assawoman Canal S end, Kent Ave Bridge	73	5.39	33
LA15B	Near red channel marker #12	40	5.65	0
LA19B	Mid Dirickson Creek off Swann Keys	40	4.87	8
LA38	The Hamlet at Dirickson Pond	113	8.52	0
LA42B	Narrows, South of state beach at point	40	5.23	1
LA43	Fenwick Island Lagoon	96	5.72	23
LA44	Fenwick Island Cove	94	6.06	17
LA45	Fenwick Island Bayside	112	6.16	20
LA46	Fenwick Island Tide Gauge	36	6.63	1
LA47	Fenwick Island, Dagsboro Street, South Side	24	6.28	4
LA48	W. Georgetown St. Canal - Fenwick	83	5.81	13
SB01	Anchorage Canal @ Rt 1	156	4.10	94
SB02	Anchorage Canal near elbow	155	5.93	40
SB04	Petherton canal/rt1	156	4.60	83
SB05	Petherton canal, between lots 156 and 162	156	5.97	30
SB06	Brandywine Canal	84	4.78	35
SB07	Layton Canal, South Bethany	156	6.07	28
SB09	Carlisle canal	155	5.17	72
SB10E	Russell Canal east dead end	168	4.10	87
SB10W	Russell Canal west dead end	168	4.63	72
SB12	Jefferson Canal West side @ tidal gage	156	5.90	29
Assawoman Bay Watershed				
AB01	Bayside Point Pier	13	5.72	0
BA01	Keenwick on Bay, Roy Creek	45	6.63	6

UD Citizen Monitoring Program

Statistics for Total Suspended Solids (TSS), Chlorophyll (Chl a), Dissolved Inorganic Nitrogen (DIN) and Phosphate (DIP), and Total Enterococcus (TE)

1/1/10 - 12/31/14

Test Site Code	Test Site Location	# of TSS Samples	Average TSS (mg/L)	# of Chl a Samples	Average Chl a (µg/L)	# of DIP Samples	Average DIP (mg/L) [Std=0.01]	# of DIN Samples	Average DIN (mg/L) [Std=0.14]	# of TE Samples	Marine Water TE geomean (MPN/100 ml) [Std=35]	Fresh Water TE geomean (MPN/100 ml) [Std=100]
	Little Assawoman Bay Watershed											
LA03	Mulberry Landing	73	39.4	73	11.6	73	0.004	73	0.205	69	14	
LA09	Dirickson Creek at Road 381 bridge.	74	22.0	76	26.1	64	0.064	64	0.680	74	249	
LA10	Assawoman Canal S end, Kent Ave Bridge	72	45.6	72	7.5	28	0.009	28	0.172	70	286	
LA38	The Hamlet at Dirickson Pond	1	7.0	1	3.5	0		0		54		13
LA43	Fenwick Island Lagoon	0		0		0		0		38	87	
LA44	Fenwick Island Cove	0		0		0		0		37	74	
LA45	Fenwick Island Bayside	59	48.9	60	6.3	60	0.008	60	0.144	60	59	
LA46	Fenwick Island Tide Gauge	12	51.0	12	6.2	12	0.007	12	0.113	38	9	
LA47	Fenwick Island, Dagsboro Street, South Side	0		0		0		0		26	17	
LA48	W. Georgetown St. Canal - Fenwick	0		0		0		0		53	20	
SB01	Anchorage Canal @ Rt 1	75	35.3	76	20.1	74	0.014	74	0.253	74	93	
SB04	Petherton canal/rt1	0		0		0		0		74	128	
SB06	Brandywine Canal	0		0		0		0		41	81	
SB07	Layton Canal, South Bethany	75	41.4	76	7.1	58	0.005	58	0.110	74	23	
	Assawoman Bay Watershed											
AB01	Bayside Point Pier	0		0		0		0		6	6	
BA01	Keenwick on Bay, Roy Creek	45	51.5	45	7.8	45	0.004	45	0.125	42	11	

Nanticoke Creek Watchers 2014 Data

SampleID	CollectionDate	Description	TNbyN0302	TPhos	FecalCol	FecalEntero
161748	3/23/2014	BACR2	3.24	0.049	20 *	10
162633	4/6/2014	BACR2	3.23	0.049	30 *	9
163449	4/21/2014	BACR2	3.11	0.06		
164072	5/5/2014	BACR2	2.96	0.099		
164900	5/18/2014	BACR2	2.51	0.09	300 *	70 *
165631	6/2/2014	BACR2	2.82	0.24	60	140
166513	6/15/2014	BACR2	1.94	0.049	130 *	440 *
167284	6/29/2014	BACR2	2.25	0.049	120 *	100 *
168099	7/14/2014	BACR2	2.1	0.049	390	180
168858	7/28/2014	BACR2	1.92	0.049	80	120 *
171231	9/7/2014	BACR2	1.76	0.07	>800 *	801
172161	9/21/2014	BACR2	1.78	0.06	60 *	100
173002	10/6/2014	BACR2	2.04	0.08	30 *	50
173865	10/19/2014	BACR2	2.08	0.06	360 *	40 *
174532	11/3/2014	BACR2	2.78	0.06	150 *	170 *
161780	3/24/2014	BRCR1	5.43	0.049	20 *	10
162601	4/6/2014	BRCR1	4.77	0.05	<10.0 *	10
163436	4/21/2014	BRCR1	3.92	0.08	20	10
164041	5/5/2014	BRCR1	4.03	0.15	20 *	10
164924	5/19/2014	BRCR1	3.28	0.07	40	10
165639	6/2/2014	BRCR1	3.03	0.11	40	70
166494	6/16/2014	BRCR1	2.18	0.049	70 *	40
167250	6/30/2014	BRCR1	1.88	0.049	30	80
168064	7/14/2014	BRCR1	1.7	0.049	600	110
168869	7/28/2014	BRCR1	1.32	0.049	90	70
169674	8/11/2014	BRCR1	1.62	0.049	330 *	230
170424	8/24/2014	BRCR1	1.44	0.049	50 *	220
171246	9/8/2014	BRCR1	1.86	0.05	40	340
172159	9/22/2014	BRCR1	1.41	0.07	80	150
172976	10/6/2014	BRCR1	1.98	0.08	80	160
173852	10/20/2014	BRCR1	3.03	0.1	40	20
174506	11/3/2014	BRCR1	3.08	0.049	20 *	30
161787	3/24/2014	BRCR2	5.86	0.049	20 *	10
162602	4/6/2014	BRCR2	4.89	0.06	30 *	20
163437	4/21/2014	BRCR2	4.7	0.08	40 *	10
164042	5/5/2014	BRCR2	3.69	0.15	50	9
164925	5/19/2014	BRCR2	4.42	0.09	30	30
165640	6/2/2014	BRCR2	5.13	0.23	320	480
166495	6/16/2014	BRCR2	3.57	0.08	40 *	120
167251	6/30/2014	BRCR2	3.31	0.049	190	370
168065	7/14/2014	BRCR2	3	0.05	350	180
169675	8/11/2014	BRCR2	2.94	0.049	<10.0	9
170425	8/24/2014	BRCR2	3.35	0.049	90 *	120
171247	9/8/2014	BRCR2	3.66	0.049	370	200
172160	9/22/2014	BRCR2	3.5	0.06	150	110
172977	10/6/2014	BRCR2	3.87	0.049	210	470
173853	10/20/2014	BRCR2	4.72	0.05	200	120
174507	11/3/2014	BRCR2	5.28	0.049	80 *	20
161783	3/24/2014	BRCR3	5.18	0.049	90 *	40
162603	4/7/2014	BRCR3	4.68	0.049	80	20
163435	4/21/2014	BRCR3	4.23	0.06	70 *	20
164043	5/5/2014	BRCR3	3.22	0.1	70	10
164923	5/19/2014	BRCR3	3.26	0.07	150	50
165638	6/1/2014	BRCR3	4.5	0.3	60 *	20

Nanticoke Creek Watchers 2014 Data

SampleID	CollectionDate	Description	TNbyN0302	TPhos	FecalCol	FecalEntero
166493	6/16/2014	BRCR3	3.83	0.049	650 *	50
167249	6/30/2014	BRCR3	4.03	0.049	180	40
168063	7/13/2014	BRCR3	3.49	0.049	>800 *	170
168868	7/28/2014	BRCR3	3.53	0.049	230	110
169673	8/11/2014	BRCR3	3.24	0.049	290	80
170436	8/25/2014	BRCR3	3.5	0.049	60	60
171234	9/8/2014	BRCR3	3.54	0.06	>800	690
172176	9/22/2014	BRCR3	4.57	0.049	140	801
172975	10/6/2014	BRCR3	4.71	0.049	500	60
173854	10/20/2014	BRCR3	4.19	0.049	100	70
174505	11/3/2014	BRCR3	5.43	0.049	100 *	60
161752	3/24/2014	CHIC1	3.18	0.049	<10.0 *	10
162624	4/7/2014	CHIC1	2.99	0.049	20 *	20
163443	4/21/2014	CHIC1	2.84	0.11	<10	10
164067	5/5/2014	CHIC1	2.93	0.15	140 *	60
164913	5/19/2014	CHIC1	2.57	0.08	180	500
165630	6/2/2014	CHIC1	3.47	0.57	130	801
166517	6/16/2014	CHIC1	2.6	0.049	350 *	610
167277	6/30/2014	CHIC1	1.96	0.049	50	330
168095	7/14/2014	CHIC1	1.21	0.049	750	160
168854	7/28/2014	CHIC1	1.18	0.099	210	180
169644	8/11/2014	CHIC1	1.13	0.049	320 *	90
170419	8/25/2014	CHIC1	0.86	0.049	80	30
171254	9/8/2014	CHIC1	0.88	0.099	40	90
172193	9/22/2014	CHIC1	0.79	0.049	80	20
173001	10/6/2014	CHIC1	0.88	0.05	640	140
173867	10/20/2014	CHIC1	0.83	0.28	30	30
174530	11/3/2014	CHIC1	0.79	0.15	30 *	130
161792	3/23/2014	COBR1	6.68	0.049	<10.0 *	10
162611	4/6/2014	COBR1	5.25	0.06	<10.0 *	9
163429	4/21/2014	COBR1	5.21	0.08	130 *	9
164050	5/4/2014	COBR1	4.07	0.12	50 *	30
164897	5/18/2014	COBR1	3.88	0.05	360 *	50
165653	6/2/2014	COBR1	3.43	0.12	260 *	290
166482	6/15/2014	COBR1	2.66	0.049	>800 *	300
167256	6/30/2014	COBR1	2.6	0.049	160	140
168068	7/14/2014	COBR1	2.54	0.049	390 *	220
168839	7/27/2014	COBR1	1.63	0.049	460 *	140
169662	8/10/2014	COBR1	1.44	0.049	330 *	300
170433	8/24/2014	COBR1	1.53	0.049	340 *	100
171241	9/7/2014	COBR1	1.91	0.06	>800 *	320
172173	9/21/2014	COBR1	1.77	0.049	90 *	70
172985	10/6/2014	COBR1	4.158	0.32	140 *	290
173839	10/19/2014	COBR1	2.66	0.1	70 *	80 *
174516	11/2/2014	COBR1	2.92	0.049	210 *	100 *
164059	5/5/2014	COBR2	6.07	0.11	30 *	80
166489	6/16/2014	COBR2	2.98	0.049	40 *	9
167262	6/30/2014	COBR2	2.18	0.049	20	9
168077	7/14/2014	COBR2	1.14	0.049	70	60
168837	7/27/2014	COBR2	1.12	0.09	10 *	60
169660	8/10/2014	COBR2	2.43	0.16	<10 *	10
170427	8/24/2014	COBR2	1.69	0.13	30 *	20
171248	9/7/2014	COBR2	1.11	0.11	<10 *	20
172164	9/22/2014	COBR2	1.16	0.11	20 *	20

Nanticoke Creek Watchers 2014 Data

SampleID	CollectionDate	Description	TNbyN0302	TPhos	FecalCol	FecalEntero
173006	10/5/2014	COBR2	1.06	0.18	<10.0 *	9
173847	10/19/2014	COBR2	0.99	0.18	30 *	10 *
174512	11/2/2014	COBR2	1.4	0.049	20 *	20 *
161760	3/24/2014	DECR1	3.35	0.049	50 *	10
162610	4/7/2014	DECR1	3.15	0.049	20 *	10
163438	4/21/2014	DECR1	3.27	0.05	9	9
164052	5/5/2014	DECR1	2.67	0.08	30	30
164895	5/19/2014	DECR1	2.73	0.05	220	40
165652	6/2/2014	DECR1	3.36	0.1	230 *	210
166486	6/16/2014	DECR1	2.77	0.049	>800 *	230
167264	6/30/2014	DECR1	2.82	0.049	80	80
168072	7/14/2014	DECR1	2.44	0.07	320	100
168843	7/28/2014	DECR1	2.62	0.049	200	120
169667	8/11/2014	DECR1	2.35	0.049	270	130
170431	8/25/2014	DECR1	2.2	0.049	110 *	110
171243	9/8/2014	DECR1	2.36	0.049	180 *	140
172171	9/22/2014	DECR1	2.2	0.049	80	30
172987	10/6/2014	DECR1	2.17	0.56	190	280
173841	10/19/2014	DECR1	2.17	0.049	150 *	260 *
174508	11/3/2014	DECR1	3.42	0.049	150 *	40
161777	3/23/2014	DECR2	1.72	0.049	<10.0 *	10
162606	4/6/2014	DECR2	1.79	0.049	<10.0 *	10
163425	4/20/2014	DECR2	1.68	0.049	20 *	10
164046	5/4/2014	DECR2	1.93	0.09	10 *	10
164904	5/18/2014	DECR2	1.58	0.049	660 *	60
165650	6/1/2014	DECR2	2.06	0.06	20 *	20
166487	6/15/2014	DECR2	1.55	0.049	190 *	60
167257	6/29/2014	DECR2	1.71	0.049	40 *	10
168075	7/14/2014	DECR2	1.55	0.06	400 *	210
168840	7/27/2014	DECR2	1.5	0.049	>800 *	801
169663	8/10/2014	DECR2	1.52	0.049	350 *	30
170430	8/24/2014	DECR2	1.48	0.049	60 *	20
171239	9/7/2014	DECR2	1.48	0.049	150 *	50
172169	9/21/2014	DECR2	1.67	0.049	40 *	10
172982	10/5/2014	DECR2	1.87	0.32	130 *	20
173848	10/19/2014	DECR2	2.74	0.05	30 *	20 *
174513	11/2/2014	DECR2	2.01	0.049	10 *	<10.0 *
161773	3/23/2014	DEHE1	4.66	0.049	<10.0 *	10
162607	4/6/2014	DEHE1	4.43	0.049	70 *	10
163426	4/20/2014	DEHE1	5.31	0.05	10 *	10
164047	5/4/2014	DEHE1	4.55	0.09	10 *	10
164905	5/18/2014	DEHE1	4.04	0.049	30 *	20
165648	6/1/2014	DEHE1	4.61	0.07	TNV *	
166483	6/15/2014	DEHE1	4.26	0.049	200 *	30
167253	6/29/2014	DEHE1	5.14	0.049	70 *	10
168069	7/13/2014	DEHE1	4.3	0.049	290 *	40
168841	7/27/2014	DEHE1	4.81	0.049	190 *	120
169664	8/10/2014	DEHE1	4.3	0.049	>800 *	50
170428	8/24/2014	DEHE1	4.3	0.049	150 *	70
171237	9/7/2014	DEHE1	4.2	0.049	150 *	180
172167	9/21/2014	DEHE1	5.55	0.049	70 *	40
172980	10/5/2014	DEHE1	5.86	0.4	170 *	210
173849	10/19/2014	DEHE1	5.52	0.049	100 *	120 *
174514	11/2/2014	DEHE1	5.87	0.049	40 *	50 *

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SampleID	CollectionDate	Description	TNbyN0302	TPhos	FecalCol	FecalEntero
161776	3/23/2014	DEHE2	5.32	0.049	<10.0 *	10
162608	4/6/2014	DEHE2	5.25	0.049		
163427	4/20/2014	DEHE2	5.23	0.05	10 *	9
164048	5/4/2014	DEHE2	5.19	0.05	30 *	10
164906	5/18/2014	DEHE2	4.97	0.049	40 *	10
165649	6/1/2014	DEHE2	5.12	0.08	<10.0 *	10
166484	6/15/2014	DEHE2	5.02	0.049	60 *	130
167254	6/29/2014	DEHE2	5.89	0.049	100 *	60
168070	7/13/2014	DEHE2	4.88	0.049	400 *	110
168842	7/27/2014	DEHE2	4.99	0.049	410 *	590
169665	8/10/2014	DEHE2	5.34	0.049	300 *	30
170429	8/24/2014	DEHE2	5.05	0.049	60 *	60
171238	9/7/2014	DEHE2	4.47	0.049	610 *	420
172168	9/21/2014	DEHE2	5.85	0.049	90 *	50
172981	10/5/2014	DEHE2	6.15	0.16	180 *	90
173850	10/19/2014	DEHE2	5.9	0.049	100 *	160 *
174515	11/2/2014	DEHE2	6.14	0.049	60 *	80 *
161770	3/24/2014	DEHE3	4.04	0.049	<10.0 *	10
162609	4/7/2014	DEHE3	4.07	0.049	60 *	40
163439	4/21/2014	DEHE3	3.66	0.05	30	10
164051	5/5/2014	DEHE3	3.73	0.14	20	10
164894	5/19/2014	DEHE3	3.24	0.049	50	9
165651	6/2/2014	DEHE3	4.09	0.11	120 *	340
166485	6/16/2014	DEHE3	3.63	0.049	190 *	120
167263	6/30/2014	DEHE3	3.92	0.049	50	220
168071	7/14/2014	DEHE3	2.89	0.049	400	550
168844	7/28/2014	DEHE3	3.07	0.049	220	270
169666	8/10/2014	DEHE3	3.78	0.049	180 *	100
170432	8/25/2014	DEHE3	3.72	0.049	110 *	60
171242	9/8/2014	DEHE3	3.73	0.049	150 *	170
172170	9/22/2014	DEHE3	4.37	0.049	130	200
172986	10/6/2014	DEHE3	3.72	0.049	210	230
173840	10/19/2014	DEHE3	4.43	0.09	60 *	20 *
174520	11/3/2014	DEHE3	4.75	0.049	70.0 *	110
161791	3/23/2014	DEHE4	3.56	0.049	<10.0 *	9
162600	4/6/2014	DEHE4	3.2	0.049	10 *	9
163424	4/21/2014	DEHE4	3.54	0.05	40	10
164039	5/4/2014	DEHE4	3.24	0.11	40 *	20
164901	5/18/2014	DEHE4	2.70	0.06	550 *	50
165636	6/1/2014	DEHE4	3.3	0.23	150 *	80
166491	6/15/2014	DEHE4	2.69	0.1	400 *	130
167259	6/30/2014	DEHE4	2.68	0.049	120	80
168074	7/14/2014	DEHE4	2.53	0.11	290	180
168846	7/28/2014	DEHE4	2.43	0.049	340	90
169671	8/11/2014	DEHE4	2.36	0.049	230	20
170423	8/24/2014	DEHE4	2.19	0.049	560 *	260
171245	9/7/2014	DEHE4	2.7	0.09	280 *	200
172158	9/21/2014	DEHE4	2.46	0.19	120 *	120
172972	10/5/2014	DEHE4	2.56	0.06	200 *	110
173845	10/19/2014	DEHE4	2.75	0.12	40 *	180 *
174510	11/2/2014	DEHE4	3.16	0.049	140 *	260 *
161765	3/23/2014	DENA2	3.84	0.049	10 *	10
162612	4/6/2014	DENA2	3.73	0.049	10 *	10
163428	4/21/2014	DENA2	3.61	0.14	20 *	9

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SampleID	CollectionDate	Description	TNbyN0302	TPhos	FecalCol	FecalEntero
164049	5/4/2014	DENA2	3.16	0.41	40 *	70
164896	5/18/2014	DENA2	2.88	0.07	210 *	100
165654	6/2/2014	DENA2	3.36	0.16	210 *	380
166481	6/15/2014	DENA2	2.57	0.049	140 *	50
167255	6/30/2014	DENA2	2.54	0.049	100 *	260
168067	7/14/2014	DENA2	2.46	0.07	280 *	100
168838	7/27/2014	DENA2	2.01	0.09	590 *	400
169661	8/10/2014	DENA2	1.78	0.64	650 *	130
170434	8/24/2014	DENA2	1.92	0.049	290 *	100
171240	9/7/2014	DENA2	1.67	0.07	120 *	250
172172	9/21/2014	DENA2	1.95	0.07	50 *	220
172984	10/6/2014	DENA2	1.92	0.09	160 *	300
173851	10/19/2014	DENA2	2.64	0.08	150 *	380 *
174517	11/2/2014	DENA2	3.14	0.08	150 *	300 *
161788	3/23/2014	DENA4	4.55	0.049	20 *	9
162599	4/6/2014	DENA4	4.21	0.05	10 *	20
163423	4/21/2014	DENA4	3.84	0.07	70	10
164040	5/4/2014	DENA4	4.02	0.12	70 *	10
164902	5/18/2014	DENA4	3.38	0.08	200 *	10
165635	6/1/2014	DENA4	3.33	0.3	160 *	170
166490	6/15/2014	DENA4	2.43	0.049	140 *	90
167258	6/30/2014	DENA4	2.14	0.049	60 *	70
168073	7/14/2014	DENA4	2.06	0.11	250 *	220
168845	7/28/2014	DENA4	1.56	0.049	80	320
169670	8/11/2014	DENA4	1.83	0.049	180	200
170422	8/24/2014	DENA4	1.77	0.049	80 *	100
171244	9/7/2014	DENA4	1.54	0.06	90 *	90
172157	9/21/2014	DENA4	1.64	0.12	70 *	180
172973	10/5/2014	DENA4	1.89	0.06	240 *	180
173844	10/19/2014	DENA4	2.11	0.09	20 *	50 *
174509	11/2/2014	DENA4	2.87	0.05	40 *	70 *
161768	3/23/2014	GRBR1	2.09	0.049	40 *	10
162605	4/6/2014	GRBR1	2.08	0.049	<10.0 *	20
163430	4/20/2014	GRBR1	1.88	0.05	90 *	9
164045	5/4/2014	GRBR1	1.87	0.06	30 *	10
164903	5/18/2014	GRBR1	1.47	0.049	110 *	10
165647	6/1/2014	GRBR1	2.06	0.1	90 *	30
166480	6/15/2014	GRBR1	1.34	0.049	180 *	130
167252	6/29/2014	GRBR1	2.4	0.049	50 *	120
168066	7/13/2014	GRBR1	1.75	0.049	320 *	130
168836	7/27/2014	GRBR1	1.48	0.049	300 *	140
169659	8/10/2014	GRBR1	1.68	0.049	260 *	80
170426	8/24/2014	GRBR1	1.95	0.049	190 *	130
171236	9/7/2014	GRBR1	2.3	0.049	190 *	270
172166	9/21/2014	GRBR1	3.58	0.049	200 *	200
172978	10/5/2014	GRBR1	2.1	0.049	70 *	80
173846	10/19/2014	GRBR1	1.76	0.049	30 *	10 *
174511	11/2/2014	GRBR1	1.65	0.049	90 *	130 *
161786	3/24/2014	JABR1	4.05	0.049	110 *	10
162604	4/7/2014	JABR1	3.9	0.049	90	40
163434	4/21/2014	JABR1	3.62	0.08	120 *	80
164044	5/5/2014	JABR1	3.51	0.11	100 *	50
164922	5/19/2014	JABR1	3.12	0.09	180	70
165637	6/1/2014	JABR1	4.47	0.18	190 *	290

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SampleID	CollectionDate	Description	TNbyN0302	TPhos	FecalCol	FecalEntero
166492	6/16/2014	JABR1	4.6	0.08	>800 *	530
167248	6/30/2014	JABR1	6.31	0.049	370	370
168062	7/13/2014	JABR1	5.95	0.049	75.0 *	400
168867	7/28/2014	JABR1	4.64	0.049	640	490
169672	8/11/2014	JABR1	5.14	0.049	>800 *	430
170435	8/25/2014	JABR1	5.05	0.049	310	370
171233	9/8/2014	JABR1	3.02	0.06	>00	801
172175	9/22/2014	JABR1	6.07	0.049	370	240
172974	10/6/2014	JABR1	5.57	0.2	300	170
173855	10/20/2014	JABR1	4.82	0.06	250	250
174504	11/3/2014	JABR1	5.81	0.049	90 *	200
161754	3/24/2014	LIBL1	0.57	0.58	10 *	9
162627	4/7/2014	LIBL1	1.22	0.15	70 *	40
163446	4/21/2014	LIBL1	1.24	0.28	160 *	20
164068	5/5/2014	LIBL1	1.7	0.39	200 *	70
165633	6/2/2014	LIBL1	1.91	0.55	>800	590
166507	6/16/2014	LIBL1	1.23	0.21	>800 *	490
167278	6/30/2014	LIBL1	1.48	0.2	220 *	210
168091	7/14/2014	LIBL1	1.41	0.26	300 *	320
168855	7/28/2014	LIBL1	0.99	0.15	290	700
169647	8/11/2014	LIBL1	0.92	0.14	140 *	520
170417	8/25/2014	LIBL1	0.89	0.08	>800	801
171255	9/8/2014	LIBL1	1.04	0.12	>800	801
172188	9/22/2014	LIBL1	0.71	0.12	240 *	600
173005	10/6/2014	LIBL1	0.62	0.09	60 *	280
173872	10/20/2014	LIBL1	0.86	0.21	300	440
174537	11/3/2014	LIBL1	0.65	0.14	550 *	>800 *
161755	3/24/2014	LIBL2	1.29	0.68	<10.0 *	9
162628	4/7/2014	LIBL2	1.71	0.27	50 *	70
163447	4/21/2014	LIBL2	2.05	0.58	320	200
164069	5/5/2014	LIBL2	1.88	0.41	390 *	250
166508	6/16/2014	LIBL2	3.95	2.05	>800 *	460
167279	6/30/2014	LIBL2	3.59	0.68	160	110
168092	7/14/2014	LIBL2	2.62	0.84	>800 *	801
170415	8/25/2014	LIBL2	1.06	0.21	>800 *	801
171256	9/8/2014	LIBL2	1.23	0.17	410	801
161753	3/24/2014	LIBL4	0.48	0.62	30 *	20
162629	4/7/2014	LIBL4	1.05	0.29	50	180
163448	4/21/2014	LIBL4	0.82	0.3	30	20
164070	5/5/2014	LIBL4	1.74	0.64	70	50
165634	6/2/2014	LIBL4	2.4	0.93	40	350
166509	6/16/2014	LIBL4	1.29	0.54	350 *	230
167282	6/30/2014	LIBL4	2.01	0.71	110	170
168093	7/14/2014	LIBL4	1.89	0.73	>800	350
168856	7/28/2014	LIBL4	1.67	0.63	50	110
169648	8/11/2014	LIBL4	1.07	0.36	650 *	250
170416	8/25/2014	LIBL4	1.82	0.66	190 *	480
171257	9/8/2014	LIBL4	1.12	0.4	370	801
172189	9/22/2014	LIBL4	1.04	0.43	90	310
173004	10/6/2014	LIBL4	2.23	0.48	>800	801
173873	10/20/2014	LIBL4	1.28	0.56	50	230
174538	11/3/2014	LIBL4	1.11	0.38	50 *	130
161769	3/23/2014	MAHO2	3.91	0.049	20 *	9
162613	4/6/2014	MAHO2	4.06	0.049	60 *	10

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SampleID	CollectionDate	Description	TNbyN0302	TPhos	FecalCol	FecalEntero
163432	4/21/2014	MAHO2	3.66	0.06	40 *	10
164053	5/5/2014	MAHO2	3.61	0.09	40	20
164907	5/19/2014	MAHO2	3.65	0.11	140	40
165655	6/2/2014	MAHO2	0.99	0.19	80	40
166488	6/16/2014	MAHO2	3.09	0.049	300 *	60
167260	6/30/2014	MAHO2	3.11	0.049	250	250
168078	7/14/2014	MAHO2	2.22	0.049	600	260
168847	7/28/2014	MAHO2	2.56	0.049	270	450
169668	8/11/2014	MAHO2	2.68	0.049	>800	140
170438	8/25/2014	MAHO2	2.9	0.049	190	80
171229	9/8/2014	MAHO2	2.66	0.06	120	240
172174	9/22/2014	MAHO2	3.23	0.049	90	60
172983	10/6/2014	MAHO2	3.28	0.049	390	100
173842	10/20/2014	MAHO2	3.09	0.049	80	70
174518	11/3/2014	MAHO2	3.25	0.05	440 *	200
161763	3/24/2014	MAHO3	3.28	0.049	30 *	9
162614	4/7/2014	MAHO3	3.52	0.049	100	70
163431	4/21/2014	MAHO3	3.12	0.07	90 *	10
164054	5/5/2014	MAHO3	3.24	0.12	200	30
164898	5/19/2014	MAHO3	3.38	0.11	160	20
165624	6/2/2014	MAHO3	3.52	0.12	150 *	120
166506	6/16/2014	MAHO3	3.19	0.08	250 *	50
167261	6/30/2014	MAHO3	3.31	0.049	130	140
168076	7/14/2014	MAHO3	2.79	0.11	600	290
168848	7/28/2014	MAHO3	1.84	0.049	280	410
169669	8/11/2014	MAHO3	2.8	0.049	130	150
170437	8/25/2014	MAHO3	2.95	0.049	190	50
171235	9/8/2014	MAHO3	2.6	0.049	240	300
172185	9/22/2014	MAHO3	3.64	0.049	110	210
172979	10/5/2014	MAHO3	3.56	0.049	120 *	30
173843	10/20/2014	MAHO3	3.07	0.12	140	80
174519	11/3/2014	MAHO3	3.65	0.09	70 *	70
161764	3/24/2014	MAHO5	4.7	0.049	<10.0 *	10
162616	4/6/2014	MAHO5	3.1	0.08	<10.0 *	9
163433	4/21/2014	MAHO5	3.99	0.06	10 *	10
164087	5/5/2014	MAHO5	3.18	0.049	40 *	9
164920	5/19/2014	MAHO5	2.75	0.06	70	10
165646	6/1/2014	MAHO5	2.78	0.1	10 *	710
166499	6/16/2014	MAHO5	1.66	0.049	60 *	180
167271	6/30/2014	MAHO5	1.51	0.049	10	170
168080	7/14/2014	MAHO5	1.34	0.049	350	350
168861	7/28/2014	MAHO5	1.08	0.049	80	260
169657	8/11/2014	MAHO5	0.9	0.049	100 *	110
170405	8/25/2014	MAHO5	0.88	0.049	70 *	180
171230	9/7/2014	MAHO5	1.31	0.09	170 *	330
172178	9/22/2014	MAHO5	0.91	0.049	80 *	110
172988	10/5/2014	MAHO5	0.98	0.22	110 *	110
173862	10/19/2014	MAHO5	1.08	0.14	<10 *	<10.0 *
174522	11/3/2014	MAHO5	1.45	0.08	<10.0 *	40 *
161749	3/23/2014	MANA1	5.05	0.65	10 *	10
162630	4/7/2014	MANA1	3.85	0.05	<10.0 *	20
163444	4/21/2014	MANA1	3.76	0.1	20 *	10
164060	5/5/2014	MANA1	3.74	0.07	<10 *	10
164908	5/19/2014	MANA1	2.90	0.05	100 *	10

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SampleID	CollectionDate	Description	TNbyN0302	TPhos	FecalCol	FecalEntero
165625	6/2/2014	MANA1	2.79	0.05	70	90
166514	6/16/2014	MANA1	1.82	0.049	80 *	120
167272	6/30/2014	MANA1	1.61	0.049	10 *	50
168089	7/14/2014	MANA1	1.52	0.049	250 *	140
168849	7/28/2014	MANA1	2.28	0.049	120 *	220
169649	8/11/2014	MANA1	1.06	0.049	250	550
170420	8/25/2014	MANA1	1.12	0.049	80	170
171249	9/8/2014	MANA1	0.92	0.049	120 *	150
172190	9/22/2014	MANA1	0.92	0.049	190 *	360
172998	10/6/2014	MANA1	1.18	0.11	80 *	70
173869	10/20/2014	MANA1	1.74	0.07	40	150
174533	11/3/2014	MANA1	2.44	0.06	<10.0 *	10 *
161750	3/23/2014	MANA2	4.7	0.049	10 *	9
162631	4/7/2014	MANA2	3.52	0.07	10 *	10
163445	4/21/2014	MANA2	4	0.08	20 *	10
164061	5/5/2014	MANA2	3.36	0.07	10 *	10
164909	5/19/2014	MANA2	2.55	0.06	100 *	9
165626	6/2/2014	MANA2	2.63	0.31	50 *	440
166515	6/16/2014	MANA2	1.38	0.049	70 *	110
167273	6/30/2014	MANA2	1.41	0.049	40 *	80
168090	7/14/2014	MANA2	1.34	0.049	490 *	250
168850	7/28/2014	MANA2	0.9	0.049	160	330
169650	8/11/2014	MANA2	1.14	0.049	800 *	190
170421	8/25/2014	MANA2	0.93	0.049	60	140
171250	9/8/2014	MANA2	1.18	0.06	70 *	490
172191	9/22/2014	MANA2	1.09	0.07	190 *	220
172999	10/6/2014	MANA2	0.89	0.12	50	801
173868	10/20/2014	MANA2	1.07	0.08	40 *	50 *
174534	11/3/2014	MANA2	1.48	0.06	<10.0 *	<10.0 *
161756	3/24/2014	MANA3	4.72	0.049	<10.0 *	10
162621	4/7/2014	MANA3	3.74	0.06	30	9
163440	4/21/2014	MANA3	3.55	0.1	60	10
164062	5/5/2014	MANA3	3.06	0.07	40 *	10
164910	5/19/2014	MANA3	2.29	0.08	90	10
165627	6/2/2014	MANA3	2.25	0.26	20	110
166510	6/16/2014	MANA3	1.16	0.049	40 *	180
167274	6/30/2014	MANA3	1.31	0.049	20	90
168087	7/14/2014	MANA3	1.15	0.049	340	180
168851	7/28/2014	MANA3	0.96	0.049	200	370
169646	8/11/2014	MANA3	0.91	0.049	350 *	210
170413	8/25/2014	MANA3	0.94	0.049	120	300
171251	9/8/2014	MANA3	0.87	0.05	130	170
172186	9/22/2014	MANA3	0.87	0.05	150	270
172996	10/6/2014	MANA3	0.78	0.15	130	260
173870	10/20/2014	MANA3	0.69	0.11	60	20
174535	11/3/2014	MANA3	1.04	0.08	60 *	60
161757	3/24/2014	MANA4	4.37	0.07	<10.0 *	9
162622	4/7/2014	MANA4	3.88	0.08	10 *	9
163441	4/21/2014	MANA4	3.39	0.13	<10 *	10
164063	5/5/2014	MANA4	2.78	0.07	40 *	20
164911	5/19/2014	MANA4	1.65	0.07	20	10
165628	6/2/2014	MANA4	1.8	0.21	<10.0	20
166511	6/16/2014	MANA4	0.8	0.1	60 *	30
167275	6/30/2014	MANA4	0.94	0.049	60	30

Nanticoke Creek Watchers 2014 Data

SampleID	CollectionDate	Description	TNbyN0302	TPhos	FecalCol	FecalEntero
168088	7/14/2014	MANA4	1.02	0.049	210	120
168852	7/28/2014	MANA4	0.92	0.049	120	100
169645	8/11/2014	MANA4	0.96	0.049	400 *	210
170414	8/25/2014	MANA4	0.87	0.049	70	160
171252	9/8/2014	MANA4	0.87	0.07	90	140
172187	9/22/2014	MANA4	0.89	0.05	50	110
172997	10/6/2014	MANA4	0.93	0.049	80	90
173871	10/20/2014	MANA4	0.64	0.08	50	40
174536	11/3/2014	MANA4	0.79	0.08	30 *	20
161743	3/24/2014	MANA5	1.89	0.049	10 *	9
162617	4/7/2014	MANA5	1.59	0.049	10 *	10
163420	4/21/2014	MANA5	1.82	0.15	20 *	9
164080	5/5/2014	MANA5	1.57	0.049	<10 *	9
164916	5/19/2014	MANA5	1.04	0.049	10 *	9
165643	6/2/2014	MANA5	1.09	0.14	10 *	9
166500	6/16/2014	MANA5	0.11	0.1	<10.0 *	9
167268	6/30/2014	MANA5	0.4	0.049	10 *	10
168082	7/13/2014	MANA5	1	0.049	80.0 *	10
168864	7/28/2014	MANA5	0.94	0.049	40	10
169652	8/11/2014	MANA5	0.72	0.049	50 *	9
170407	8/24/2014	MANA5	0.77	0.049	30 *	10
171223	9/7/2014	MANA5	0.62	0.049	100 *	30
172179	9/22/2014	MANA5	0.88	0.05	40 *	20
172990	10/6/2014	MANA5	0.55	0.049	30 *	30
173858	10/20/2014	MANA5	0.52	0.1	10 *	<10.0 *
174523	11/3/2014	MANA5	0.8	0.09	20 *	10 *
161744	3/24/2014	MANA6	1.48	0.07	<10.0 *	10
162618	4/7/2014	MANA6	1.23	0.05	<10.0 *	9
163419	4/21/2014	MANA6	1.6	0.049	10 *	9
164079	5/5/2014	MANA6	1.19	0.07	10 *	9
164917	5/19/2014	MANA6	0.80	0.049	<10 *	9
165642	6/2/2014	MANA6	0.93	0.06	10 *	9
166503	6/16/2014	MANA6	0.19	0.06	<10 *	9
167267	6/30/2014	MANA6	0.35	0.049	<10.0 *	20
168081	7/13/2014	MANA6	0.9	0.049	40.0 *	20
168863	7/28/2014	MANA6	1.08	0.049	100	70
169651	8/11/2014	MANA6	0.8	0.69	70 *	9
170406	8/24/2014	MANA6	0.93	0.049	<10 *	9
171224	9/7/2014	MANA6	0.71	0.049	10 *	9
172180	9/22/2014	MANA6	1.27	0.15	10 *	150
172991	10/6/2014	MANA6	0.48	0.049	10 *	9
173859	10/20/2014	MANA6	0.46	0.14	<10 *	<10.0 *
174524	11/3/2014	MANA6	0.89	0.1	40 *	20 *
161740	3/24/2014	QUCR1	1.13	0.049	30 *	70
162615	4/6/2014	QUCR1	0.88	0.099	70 *	10
163416	4/20/2014	QUCR1	0.784	0.099	90 *	35
164090	5/4/2014	QUCR1	0.7	0.049	110 *	30
164921	5/18/2014	QUCR1	0.72	0.1	130 *	140
165641	6/1/2014	QUCR1	1.35	0.25	120 *	260
166496	6/15/2014	QUCR1	0.84	0.099	>800 *	130
167283	6/30/2014	QUCR1	1.93	0.14	>800	801
168079	7/13/2014	QUCR1	1.98	0.14	>800 *	801
168862	7/27/2014	QUCR1	5.86	0.73	>800 *	760
169658	8/11/2014	QUCR1	2.19	0.15	>800 *	600

Nanticoke Creek Watchers 2014 Data

SampleID	CollectionDate	Description	TNbyN0302	TPhos	FecalCol	FecalEntero
170412	8/24/2014	QUCR1	1.71	0.21	>800 *	801
171258	9/7/2014	QUCR1	1.16	0.07	>800 *	801
172177	9/21/2014	QUCR1	3.22	0.42	>800 *	801
172989	10/5/2014	QUCR1	1.56	0.16	>800 *	801
173863	10/19/2014	QUCR1	0.78	0.22	310 *	370 *
174521	11/2/2014	QUCR1	0.72	0.11	200 *	150 *
161747	3/23/2014	RECR1	2.54	0.08	20 *	60
162632	4/6/2014	RECR1	2.44	0.13	50 *	50
163450	4/21/2014	RECR1	1.88	0.17		
164071	5/5/2014	RECR1	1.81	0.21		
164899	5/18/2014	RECR1	2.00	0.22	90 *	60
165632	6/2/2014	RECR1	1.86	0.38	170	801
166512	6/15/2014	RECR1	1.11	0.06	210 *	280
167285	6/29/2014	RECR1	1.32	0.049	280 *	450
168097	7/14/2014	RECR1	1.44	0.07	>800	390
168857	7/28/2014	RECR1	1.2	0.09	160	801
171232	9/7/2014	RECR1	1.04	0.12	470 *	801
172162	9/21/2014	RECR1	0.98	0.12	220 *	390
173003	10/5/2014	RECR1	1.31	0.3	300 *	801
173864	10/19/2014	RECR1	1.13	0.15	350 *	140 *
174531	11/3/2014	RECR1	1.22	0.09	340 *	580 *
161742	3/24/2014	RECR2C	3.19	0.049	<10.0 *	10
162625	4/7/2014	RECR2C	2.9	0.049	30 *	10
163418	4/21/2014	RECR2C	2.76	0.05	70 *	20
164084	5/5/2014	RECR2C	2.72	0.05	50 *	9
164915	5/19/2014	RECR2C	2.09	0.11	10 *	40
165623	6/2/2014	RECR2C	2.06	0.28	<10.0 *	160
166498	6/16/2014	RECR2C	1.4	0.08	70 *	160
167266	6/30/2014	RECR2C	0.95	0.049	40 *	70
168085	7/14/2014	RECR2C	0.71	0.06	600 *	290
168860	7/28/2014	RECR2C	1.82	0.049	220	801
169656	8/11/2014	RECR2C	2.57	0.099	>800 *	280
170411	8/25/2014	RECR2C	0.95	0.049	50	240
171228	9/8/2014	RECR2C	1.18	0.11	>800	801
172184	9/22/2014	RECR2C	1.15	0.07	80	200
172995	10/6/2014	RECR2C	1.56	0.06	40	140
173857	10/20/2014	RECR2C	1.26	0.16	40 *	210 *
174528	11/3/2014	RECR2C	1.38	0.07	<10.0 *	100
161741	3/24/2014	RECR2P	3.29	0.049	<10.0 *	10
162626	4/7/2014	RECR2P	2.91	0.049	10 *	10
163417	4/21/2014	RECR2P	2.72	0.07	80 *	9
164083	5/5/2014	RECR2P	2.55	0.05	50 *	9
164914	5/19/2014	RECR2P	1.91	0.09	20 *	90
165622	6/2/2014	RECR2P	2.06	0.25	10 *	110
166497	6/16/2014	RECR2P	1.15	0.05	60 *	110
167265	6/30/2014	RECR2P	0.63	0.049	90 *	290
168086	7/14/2014	RECR2P	0.59	0.049	650 *	150
168859	7/28/2014	RECR2P	1.07	0.05	70	330
169655	8/11/2014	RECR2P	1.28	0.049	800 *	60
170410	8/25/2014	RECR2P	1.63	0.049	50 *	50
171227	9/8/2014	RECR2P	1.09	0.08	>800 *	801
172183	9/22/2014	RECR2P	1.14	0.049	40	10
172994	10/6/2014	RECR2P	1.75	0.049	<10.0	20
173856	10/20/2014	RECR2P	1.36	0.17	50 *	60 *

Nanticoke Creek Watchers 2014 Data

SampleID	CollectionDate	Description	TNbyN0302	TPhos	FecalCol	FecalEntero
174527	11/3/2014	RECR2P	1.48	0.049	<10.0 *	<10.0 *
161751	3/24/2014	TRAN1	2.84	0.56	80 *	20
162623	4/7/2014	TRAN1	1.54	0.1	150 *	40
163442	4/21/2014	TRAN1	2.77	0.25	50 *	40
164064	5/5/2014	TRAN1	2.83	0.21	260 *	130
164912	5/19/2014	TRAN1	9.26	0.25	520	220
165629	6/2/2014	TRAN1	5.21	0.52	750	801
166516	6/16/2014	TRAN1	7.32	0.11	>800 *	650
167276	6/30/2014	TRAN1	11.2	0.049	>800	801
168094	7/14/2014	TRAN1	34.8	0.26	800	480
168853	7/28/2014	TRAN1	20.5	0.25	>800	801
169643	8/11/2014	TRAN1	4.77	0.33	>800 *	680
170418	8/25/2014	TRAN1	3.18	0.4	>800	700
171253	9/8/2014	TRAN1	13.9	0.46	>800	801
172192	9/22/2014	TRAN1	24.3	0.62	>800	680
173000	10/6/2014	TRAN1	16.2	0.78	>800	801
173866	10/20/2014	TRAN1	2.48	0.33	400	320
174529	11/3/2014	TRAN1	21.5	0.1	>800 *	470
161745	3/24/2014	WECR1	2.29	0.06	<10.0 *	9
162619	4/7/2014	WECR1	2.26	0.06	30 *	9
163421	4/21/2014	WECR1	2.43	0.1	20 *	20
164081	5/5/2014	WECR1	1.79	0.05	40 *	30
164918	5/19/2014	WECR1	1.29	0.06	80	30
165644	6/2/2014	WECR1	1.34	0.16	110	50
166504	6/16/2014	WECR1	0.49	0.049	390 *	80
167269	6/30/2014	WECR1	0.54	0.049	110	40
168083	7/13/2014	WECR1	1.02	0.049	140 *	30
168865	7/28/2014	WECR1	0.92	0.049	390	160
169653	8/11/2014	WECR1	0.8	0.049	>800 *	210
170408	8/24/2014	WECR1	0.8	0.049	30 *	9
171225	9/7/2014	WECR1	0.65	0.049	150 *	150
172181	9/22/2014	WECR1	0.79	0.049	270	200
172992	10/6/2014	WECR1	0.66	0.15	210	90
173860	10/20/2014	WECR1	0.7	0.09	120	180
174525	11/3/2014	WECR1	0.84	0.12	50 *	<10.0
161746	3/24/2014	WECR2	0.33	0.57	<10.0 *	10
162620	4/7/2014	WECR2	0.81	0.099	50	30
163422	4/21/2014	WECR2	0.951	0.55	560	20
164082	5/5/2014	WECR2	1.09	0.07	230	10
164919	5/19/2014	WECR2	0.93	0.08	180	180
165645	6/2/2014	WECR2	1.47	0.13	160	90
166505	6/16/2014	WECR2	0.43	0.049	460 *	100
167270	6/30/2014	WECR2	0.75	0.049	170	20
168084	7/13/2014	WECR2	1.17	0.049	400 *	100
168866	7/28/2014	WECR2	0.87	0.049	240	150
169654	8/11/2014	WECR2	0.87	0.049	>800 *	420
170409	8/24/2014	WECR2	0.81	0.049	130 *	510
171226	9/7/2014	WECR2	0.79	0.05	320 *	801
172182	9/22/2014	WECR2	0.85	0.049	300	801
172993	10/6/2014	WECR2	0.79	0.16	330	801
173861	10/20/2014	WECR2	0.75	0.12	560	>800
174526	11/3/2014	WECR2	0.76	0.05	290 *	670

Nanticoke Creek Watchers Site Key

Site Number:	Site Name:
BACR2	Mardela Springs Boat Ramp
BRCR1	Phillips Landing
BRCR2	Bethel Dock
BRCR3	Laurel Dock
CHIC1	Chicamicomico HW
COBR1	Seaford Canoe Launch
COBR2	Bridgeville Hwy
DECR1	Concord Rd
DECR2	Old Furnace Rd
DEHE1	Redden Rd
DEHE2	Rifle Range Rd
DEHE3	Middleford
DEHE4	Glen Sizemore
DENA2	Seaford Boat Launch
DENA4	Woodland Ferry
GRBR1	Coverdale Rd
JABR1	James Branch
LIBL1	Little BW HW
LIBL2	Little BW Trib 2
LIBL4	Little BW Trib 4
MAHO2	Federalsburg Marina
MAHO3	Noble Road
MAHO5	Henson Scout Reservation
MANA1	Cherry Beach Park
MANA2	Riverton Wharf
MANA3	Vienna Docks
MANA4	Lewis Wharf
MANA5	Bivalve Wharf
MANA6	Nanticoke Harbor
QUCR1	Quantico Creek
RECR1	Rewastico Creek
RECR2c	Rewastico Creek
RECR2p	Rewastico Pond
TRAN1	Transquaking HW
WECR1	Wetipquin Boat Ramp
WECR2	Nanticoke Rd, Wetipquin

Appendix Five: Public Participation

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Mr. John Schneider, Manager
Watershed Assessment and Management Section
Division of Watershed Stewardship
Delaware Department of Natural Resources
and Environmental Control
89 Kings Highway
Dover, Delaware 19901

SEP. 0 3 2016

Dear Mr. Schneider:

Thank you for the opportunity to comment on Delaware Department of Natural Resources and Environmental Control's (DNREC) draft 2016 Clean Water Act Section 303(d) list of impaired waters still requiring a TMDL and draft 303(d) Vision Prioritization Framework. Outlined below are comments from the Environmental Protection Agency (EPA) on the 303(d) list.

General Comments:

1. As in previous years, DNREC chose to public notice the 303(d) list and supporting information rather than the entire Integrated Report (IR). EPA requests that DNREC make the IR, which would include Delaware's Section 305(b) report, available for public review so that they have the opportunity to comment, as well as submit the report to EPA
2. DNREC's email to stakeholders on July 27, 2016 states "The Department will be advertising the availability of these documents in the News Journal, State News and on the Department's website in the near future". EPA is unaware of any published notification of the availability of Delaware's draft 2016 Clean Water Act Section 303(d) list of impaired waters still requiring a TMDL and draft 303(d) Vision Prioritization Framework for public comment. If notification to the public beyond an email to stakeholders has not occurred, EPA recommends DNREC publish a proper notification to the public (e.g., in a newspaper and DNREC website) and hold an additional 30-day public comment period. The public ability to review and comment on Delaware's draft Section 303(d) list and 303(d) Vision Framework is a very important part of the Integrated Reporting process. Part E of EPA's 2006 Integrated Report Guidance outlines the public participation process for Integrated Reports.

303(d) List Comments:

1. Upper Christina River (DE120-003) was delisted for chlordane this listing cycle. The 'Notes' field reads: "Delisted 2016 because PCBs are no longer a contaminant of concern in fish consumption advisories for these waters." EPA assumes that this is a typo and should read: "Delisted 2016 because chlordane…" Please correct.

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2. EPA was pleased to see that data from the Watershed Approach to Toxics Assessment and Restoration (WATAR) project is being used to inform impairment decisions in the 2016 303(d) list and has the following comments with regards to these new listings:
    a. Many of the toxic pollutants that were listed for the first time in 2016 were attributed to nonpoint sources, however these pollutants can also be originate from point sources and Superfund sites. It may be appropriate to characterize these as source unknown, rather than nonpoint sources. EPA encourages DNREC to recognize the complexity of sources of these pollutants and reflect that in the 303(d) list.
    b. New listings for dieldrin in Lower Appoquinimink (DE-010-001-01), D and F TEQs in Drayers Creek (DE010-001-03), and dieldrin in Upper and Lower St Jones River (DE290-001-02 and DE290-001-01, respectively) have TMDL target dates of 2017. EPA is unaware of TMDLs or TMDL alternatives that are slated for completion in FY2017 upon review of DNREC's draft FY17 106 grant commitments. Please provide more information on how these listings will be addressed.

3. An iron listing for the Delaware River DRBC Zone 5 was moved from category 3 to category 1 this listing cycle and DNREC notes on your draft 2016 303(d) list "Surface water levels of iron in the segment sometimes exceed the applicable criterion. The Department believes these levels are due to natural conditions." EPA is aware of industrial sources of iron in DRBC Zone 5. A natural conditions conclusion for this segment may not be appropriate. If there are exceedances of Delaware's applicable iron criterion, EPA suggests DNREC list the segment as impaired in Category 5 and suggests future monitoring and analysis to identify iron sources. EPA recommends DNREC conduct a detailed analysis that documents iron exceedances in the segment are due to natural conditions and anthropogenic sources (permitted and unpermitted) of iron are not present. EPA suggests DNREC work with DRBC to investigate iron issues in Zone 5 and retain the listing in category 3 until those questions are answered.

4. As a minor editorial comment, the listing for Tributaries on the Blackbird Creek (DE030-003) is split between pages 28-29, making it difficult to read. Please correct.

5. The mainstem of Red Clay Creek (DE260-001) includes a Category 3 DDT listing and attributes the source to upstream in Pennsylvania. EPA recommends that Red Clay Creek (DE260-001) be added to Category 5 for DDT. If there are exceedances of a water quality standard in any Delaware water the waterbody should be listed as impaired regardless of the source. Red Clay Creek DDT sources being upstream in Pennsylvania is not sufficient reason not to list the waterbody as impaired. In addition, EPA requests to see results of the 2015 WATAR data and whether it ruled out sources of DDT in Delaware.

6. Please define 'D and F TEQs' in the 'Key for Pollutants' as it is not stated.

In November 2015, EPA submitted comments on the draft assessment methodology that was available for public review. As these comments were not explicitly addressed in the current assessment methodology, they are included below. EPA requests that these comments be addressed prior to finalizing the 2016 303(d) list.

Methodology Comments:

1. General: Please explain why DNREC did not include an assessment methodology for toxics as was done for the 2014 IR cycle.

2. Nutrient Enrichment Assessment: For stations with fewer than 10 different sampling days that are considered as having insufficient data, EPA suggests incorporating volunteer monitoring data from citizen monitoring groups, if available, to supplement DNREC data (as appropriate) to make an assessment.

3. Total Suspended Solids Assessments in tidal Inland Bays Watershed: For stations with fewer than 10 different sampling days that are considered as having insufficient data, EPA suggests incorporating volunteer monitoring data from citizen monitoring groups to supplement DNREC data (as appropriate) to make an assessment.

    a. The methodology mentions that the confidence interval will be determined, however what percentile will be used to set the confidence interval?

4. Primary Contact Recreation Use Assessments: Please explain why DNREC requires 10 data points over an assessment period to calculate a geometric mean.

5. Assessment of Aquatic Life Use Support Using Site-Specific Data That Results from Environmental Assessments and Other Programs: A regulatory mechanism must be designed to achieve water quality standards with enforceable requirements for a waterbody to be placed in category 4B. Otherwise, the waterbody should be listed in category 5 and scheduled for a TMDL.

6. Assessments of Biology and Habitat: Lack of data to identify a stressor is not sufficient justification to remove a biology and/or habitat listing. Waters can be listed as impaired due to poor biology with an unknown cause until additional data can be collected. Additional water quality monitoring is frequently required to perform a stressor analysis and determine cause(s) of impairment.

7. Please revise the 'Rationale Used to Designate a Lower Category for Segments Previously Designated for TMDL Development' to be consistent with the language in the Draft Prioritization document. For example, 'Assessment and interpretation of more recent or accurate data demonstrate that applicable Water Quality Standards are being met. (Move to Category 1 or 2, as appropriate).

EPA looks forward to working with DNREC staff on finalizing the 2016 303(d) list. If you have any questions pertaining to EPA's comments, please contact me or have your staff contact Bill Richardson at richardson.william@epa.gov or 215-814-5675.

Sincerely,

Evelyn S. MacKnight

Evelyn S. MacKnight, Associate Director
Office of Standards, Assessment and TMDLs

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Mr. John Schneider, Manager
Watershed Assessment and Management Section
Division of Watershed Stewardship
Delaware Department of Natural Resources and Environmental Control
89 Kings Highway
Dover, Delaware 19901

Dear Mr. Schneider:

EPA was pleased to see that DNREC released a draft 2016 303(d) list for public comment on July 27, 2016. Upon review of the draft list, EPA requested additional information regarding DNREC's conclusion that exceedances of Delaware's chronic iron criterion are due to natural conditions. EPA requested additional justification from DNREC to support the Integrated Report (IR) status change for iron in Delaware River-DRBC Zone 5 from IR Category 3 (unassessed - needs additional information) to Category 1 (unimpaired).

After reviewing the supporting information supplied by DNREC, it is clear that multiple anthropogenic sources of iron are present within the Delaware watershed which are likely contributing to elevated iron concentrations in Zone 5. EPA's 2008 Integrated Reporting guidance[1] outlines recommended procedures for evaluating waterbodies with both anthropogenic and natural sources of a pollutant. Based on the process described in the 2008 guidance, EPA recommends that the Delaware River-DRBC Zone 5 remain in Category 3 in DNREC's final 2016 Integrated Report submission. EPA understands that available iron data may be limited for the Delaware Estuary and also recommends additional iron monitoring in both the Delaware River-DRBC Zone 5 and Shellpot Creek to ensure iron exceedances are not a persistent issue.

If you have any additional questions, please contact me at 215-814-5717 or Michelle Peck at 215-814-5192 or peck.michelle@epa.gov.

Sincerely,

Evelyn S. MacKnight

Evelyn S. MacKnight, Associate Director
Office of Standards, Assessment and TMDLs

cc: Mr. John Yagecic (DRBC)

[1] https://www.epa.gov/tmdl/integrated-reporting-guidance

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