Draft State of Delaware 305(b) and 303(d) Integrated Report - Assessment Methodology

June 30, 2023

General Provisions

Data Considered

Readily available data and information for the period of January 1, 2018, through December 31, 2022 are 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 are made with an abundance of caution.

Data Quality and Quantity

The Department of Natural Resources and Environmental Control (DNREC or the Department) utilize variety of internal and external sources for updating assessments. In order for data to be considered, quality assurance and control methods must be used must be in place for collection and analyses of samples. Data from DNREC's Environmental Laboratory Section (ELS) are considered usable if it is collected and analyzed in accordance with the DNREC ELS Quality Assurance Project Plan. The Department routinely 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 30 sampling dates or more. For those stations in place for a more limited time and have smaller data sets a minimum of ten samples are required for station assessment. Other readily available data and reports are requested in advance of each assessment from parties outside of the Department and are used when they are available and meet assessment requirements. An open call for data is made via email requests to specific organizations and interested parties, a notice is published to DNREC's website, and notices in the Delaware State News and the News Journal.

For the 2024 assessment, the Department is considering data and information received before August 31, 2023 from the following sources:

- Reports of ambient water quality data including:
  - state ambient water quality monitoring programs
  - citizen volunteer monitoring programs
  - complaint investigations
  - data and information provided by other institutions, the public and other readily available data sources (e.g., EPA's Storage and Retrieval System (STORET) or the United States Geological Survey and research reports)
- Reports and updates prepared to satisfy Clean Water Act (CWA) Sections 305(b), 303(d) and 314
- Fish and shellfish advisories
- Identified restrictions on water sports or recreational contact
- Data or reports developed in 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 2024 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 cooperation 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

U.S. EPA has guidance online for preparation of Integrated Reports at the following URL: https://www.epa.gov/tmdl/integrated-reporting-guidance

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 assessment unit (AU) (Assessment unit in this document infer same meaning as "segment", from here on "assessment unit" will be used) 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.

The Department has created a sub-category of Category 5 waters based on recommendations in a March 2018 report prepared by the Department titled "An Evaluation of Clean Water Act Section 303(d) listings of Delaware Waters Affected by Fish Consumption Advisories". That evaluation recommends that for some waters where trends indicate a downward slope in fish tissue contaminant concentrations that should be below fish tissue target levels within five to ten years without implementing a TMDL a subcategory of impaired waters be created. That subcategory is 5(MNR) in which MNR stands for "Monitored Natural Recovery". As implied by the name, the Department plans to continue monitoring fish tissue in those waterbodies in accordance with the Fish Tissue Advisory program protocols until such time as the contaminants in the fish are no longer above levels of concern and beyond. When the data supports removing the fish tissue advisories, the Department will consider that information for delisting decisions with stakeholder input. The Department also plans to pursue remediation efforts in affected watersheds in accordance with the WATAR program and process as discussed in other sections of this report and online at https://dnrec.alpha.delaware.gov/waste-hazardous/remediation/watar/. Waters in Category 5(MNR) remain in EPA Category 5 and as such will require a TMDL at a future date if expected decreases do not actually occur. If trends analyzed at later dates show that trends in 5(MNR) waters are not in fact trending downward, or reaching their target levels, the Department will reclassify those waters as Category 5 and TMDLs for those pollutants will be developed.

Over the last several cycles, the Department has worked with US EPA to transition Delaware's 303(d) listing information into EPA's Assessment, Total Maximum Daily Load (TMDL) Tracking and Implementation System (ATTAINS) database which allows EPA and stakeholders to track the conditions of the Nation's surface waters. As part of that effort, the Department has converted the tabular list of impaired waters into a format more compatible with the ATTAINS database and geographical information systems (GIS). The new format varies significantly from the older format, but much

easier to use in those environments. Future Integrated Reports are expected to be compiled largely within the ATTAINS system and reports for stakeholders will be prepared as needed for the public comment period.

The Department assesses data for a varying suite of parameters based on sufficient available data that is readily available in each assessment unit. Data is mainly collected at each of the identified stations throughout the state. Based on the assessment results, an assessment unit is then assigned the appropriate EPA category as identified above for each parameter and assessment unit combination. This gives the Department more information about specific parameters of concern and allows more detailed tracking of those concerns over time. Each of Delaware's monitored waterbody assessment units are assigned to the appropriate category for each designated use and then get assigned a final categorization for the assessment unit. If there are multiple stations within an assessment unit and one or more show impairment, then the entire assessment unit is considered impaired.

Dissolved Oxygen Aquatic Life Use Support

The following types of Dissolved Oxygen (DO) data are generally 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.

For the purposes of this report, salinity less than 5 parts per thousand is considered to be freshwater and salinity above that is considered to be marine water. To determine Aquatic Live Use Support (ALUS) with regard to DO, the following methodology is 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 meet 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 will be 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. The DO criteria in the Murderkill River are different from the statewide averages for the period of May 16 to September 30; data from that period are 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 are assessed using the method that follows. 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 assessment unit, 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 a station daily average (SDA) has been determined for each station, 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 an assessment unit, the assessment unit will be fully supporting (Category 1) for the DO average portion of ALUS. If the UCL from any station in an assessment unit is below the applicable average, the assessment unit 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}= Nonparametric estimate of the 10th percentile of available data.

Following are the conditions in which a station or assessment unit would not meet ALUS:

- If either the minimum DO criteria (i.e., two or more samples in five years are less than 4 mg/L throughout the state or 3.5 mg/L for Murderkill River)
- The 10th percentile DO (i.e., 10th percentile DO is lower than the average DO standard – 5 mg/L for marine and 5.5 mg/l for freshwater)
- If one or more sampling stations in a specific assessment unit are not meeting the above-mentioned criteria, then that assessment unit will be considered impaired in terms of DO.

Assessments of Minimum DO Criteria Attainment

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

Assessments of data provided by other Organizations

The Department assesses data provided by outside organizations and determines use on a case-by-case basis. An open call for data is made via email requests to specific organizations and interested parties, a notice is published to DNREC's website, and notices in the Delaware State News and the News Journal. Data will be accepted for review from June 30, 2023, through August 31, 2023.

Nutrient Enrichment Assessment

From a state-wide perspective, nutrient over enrichment 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 flora, 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, and for dissolved inorganic phosphorus a seasonal average of 0.01 mg/l. For those stations where sampling events occur on at least ten different days during the assessment period, the available data for the months of March to October from each station are averaged and confidence intervals on the averages are determined. The lower confidence limit on the averages is compared to the above values to assess attainment of desired nutrient levels in those waters. Assessment units with one or more stations whose lower confidence limit on the seasonal average will be above the criteria will 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 TMDLs to achieve DO targets. The state utilizes threshold values of 2-3 mg/l for total nitrogen and 0.1 to 0.2 mg/l for total phosphorus to meet TMDL goals. These target values were developed in order to implement the narrative

provisions in the Surface Water Quality Standards (WQS). For those stations with sampling events on at least ten different days during the five-year assessment period, data are averaged and lower confidence limits on the averages are calculated and compared to the maximum values above.

- Stations whose lower confidence limit for the 5-year average total nitrogen or total phosphorus levels are above documented threshold levels will not be fully supporting the aquatic life use (Category 5).
- Assessment units with one or more stations whose lower confidence limit for the average nutrient concentrations are above the target values will not be fully supporting the aquatic life use (Category 5).

Any of the following conditions will also result in assessment units being listed in Category 5:

- 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.
- 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.
- For waters of exceptional recreational or ecological significance (ERES), 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 are determined. The lower confidence limit on the averages is compared to the above values to assess attainment of desired TSS levels in these waters. Assessment units with one or more stations whose lower confidence limit on their seasonal average are above the criteria will be not fully supporting the aquatic life use (Category 5).

Primary Contact Recreation Use Assessments

Generally, total *Enterococcus* fecal indicator 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 and additional state specific beach monitoring. Assessment of the above two situations for primary contact recreation use support are as follows.

For assessment units 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. For assessment units with no beach monitoring, one or more station geometric means above the values in the table will be considered not supporting 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

For assessment units that are monitored beaches under the Recreational Monitoring Program, the Department considered beach closure because of high bacteria counts as evidence of failure to support the Primary Contact Recreation Use.

Temperature Assessments

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

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 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:

- 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.
- Sanitary shoreline survey findings which indicate potential for theoretical pollution loading, also non-detectable via conventional sampling methodology.
- The 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 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 considered the data and reports to FDA for waters that are not administratively closed. Waters that were administratively closed for shellfish harvesting as a result of 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.

2. Waters of the state shall be free from pollutants that may endanger public health.

Any assessment unit 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. If fish consumption advisories were lifted, or any chemical of concern has been removed from an advisory, any requirements to develop a TMDL for that chemical in that assessment unit will be removed if the fish tissue data was originally the sole cause for placement of the assessment unit 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 independently against the applicable criteria.

For the 2024 assessments, the Department will incorporate the Fish Tissue Advisories issued by the Delaware Departments of Health and the Department of Natural Resources and Environmental Control.

Aquatic Life Assessments for toxicity from Ammonia, Copper and Zinc

Aquatic life criteria for toxics are not to be exceeded more than once in a three-year period. Criteria can be based on a formula that accounts for other factors like pH, hardness or temperature or in the case of the Biotic Ligand Model (BLM), multiple chemicals of interest. Some criteria are based on measured quantities of the pollutant alone. For this cycle, formulas will be used for ammonia and zinc in freshwater and fixed criteria will be used for copper in marine waters. Where two or more sampling events are above the fixed or calculated criteria in three years, the aquatic life use in the assessment unit will be determined to be not supported for the pollutant of interest.

In freshwater ammonia's toxicity is known to be controlled by both the temperature and pH of the water. Delaware's ammonia criteria should not be exceeded more than one time in a three-year period. The 30-days average applicable criterion, using equation 1, is calculated for the sampling event at each station. If two or more sampling events (i.e., 30-days average) from the same station result in exceedances of the calculated criteria within three years, the station will be deemed not supporting for the aquatic life use support based on ammonia toxicity.

Equation 1:

$$CCC = 0.8876 \times \left(\frac{0.0278}{1 + 10^{7.688-pH}} + \frac{1.1994}{1 + 10^{pH-7.688}}\right) \times (2.126 \times 10^{0.028\times(20-MAX(T,7)}$$

Where:
CCC = Ammonia Chronic Criteria

pH=pH of interest
T= temperature degrees Celsius

Similarly, freshwater zinc criteria are based on hardness. For stations whose average salinity during the assessment period is below 5 ppt, hardness data is used to calculate the applicable criterion and measured dissolved zinc concentrations are compared to the calculated acute and chronic criterion. Zinc Acute and Chronic criterion are calculated using equations 2 and 3. If two or more sampling events from the same station result in exceedances of the calculated criteria within three years, the station will be deem not supporting for the aquatic life use support based on zinc toxicity.

Equation 2:

$$Zinc\ Acute\ Criteria = 0.978 \times EXP^{(0.8473 \times LN(hardness) + 0.884)}$$

Equation 3:

$$Zinc\ Chronic\ Criteria = 0.986 \times EXP^{(0.8473 \times LN(hardness) + 0.884}$$

Where:
EXP = e = 2.71828
LN = natural log base e

The dissolved copper criterion for marine waters is fixed at 3.1µg/l. For stations with average salinity during the assessment period above 5 ppt, available dissolved copper data is compared to the 3.1 µg/l standard. If two or more sampling events from the same station resulted in exceedances of the criteria within three years, the station will be deemed not supporting for the aquatic life use support based on copper toxicity. For freshwater, DNREC is funding a research study in few Delaware watersheds to identify humic acid (HA) fractions of organic matter. Humic acid fraction is important and have important role in binding copper. It is an important parameter in identifying freshwater copper criteria using EPA recommended BLM. The BLM model assumes 10% of HA fraction in organic matter. Outcome of the research study will determine freshwater copper criteria in Delaware waters.

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 assessment units.

- 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 assessment unit 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 assessment unit 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 assessment unit will be listed in Category 5.

Assessments of Biology and Habitat

The Department has been working with EPA Region 3 in an effort to address longstanding listings for Biology and Habitat. As new or updated stressor analyses, data and other information become available, appropriate measures will be taken to address these listings. Where no specific pollutant can be determined, the Department will delist those assessment units (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, Advance Restoration Plans (ARPs) or other actions will be taken to address those pollutants.

Setting Priorities for Water Quality Limited Assessment Units Still Needing TMDLs

The Department has set TMDL and ARP priorities for assessment units that remain in Category 5 or 5(MNR) according to the following protocol.

Assessment units where TMDL development is not expected for five or more years were assigned to the “Low” priority group. For 2024 that includes assessment units listed for Habitat and Biology TMDL development as the Department continues working with EPA Region 3 to update our monitoring protocols and tools. Assessment units in Category 5(MNR) where waters are expected to be attaining for toxics in fish tissues within five to ten years are also assigned “Low” priority. As discussed above, the Department will change the priority of 5(MNR) assessment units if, for some reason, data shows that attainment of the use is not expected in a short period of time. Finally, some Delaware assessment units that are also part of the DRBC waters are currently listed as “Low” priority. The DRBC and EPA are taking the lead for TMDL development here.

For assessment units which the Department expects to develop TMDLs or ARPs in more than 2 years, but less than 5 or more, the Department will show them as “Medium”

priority. In those assessment units, plans are underway to collect data and other information to develop appropriate TMDLs or ARPs. At this time, there are four assessment units in the “Medium” priority category.

If the Department expects to develop TMDLs in the next two years or less, those assessment units have been shown as “High” priority. The Department currently has five assessment units in the “High” priority category.

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

The Department may move assessment units 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.

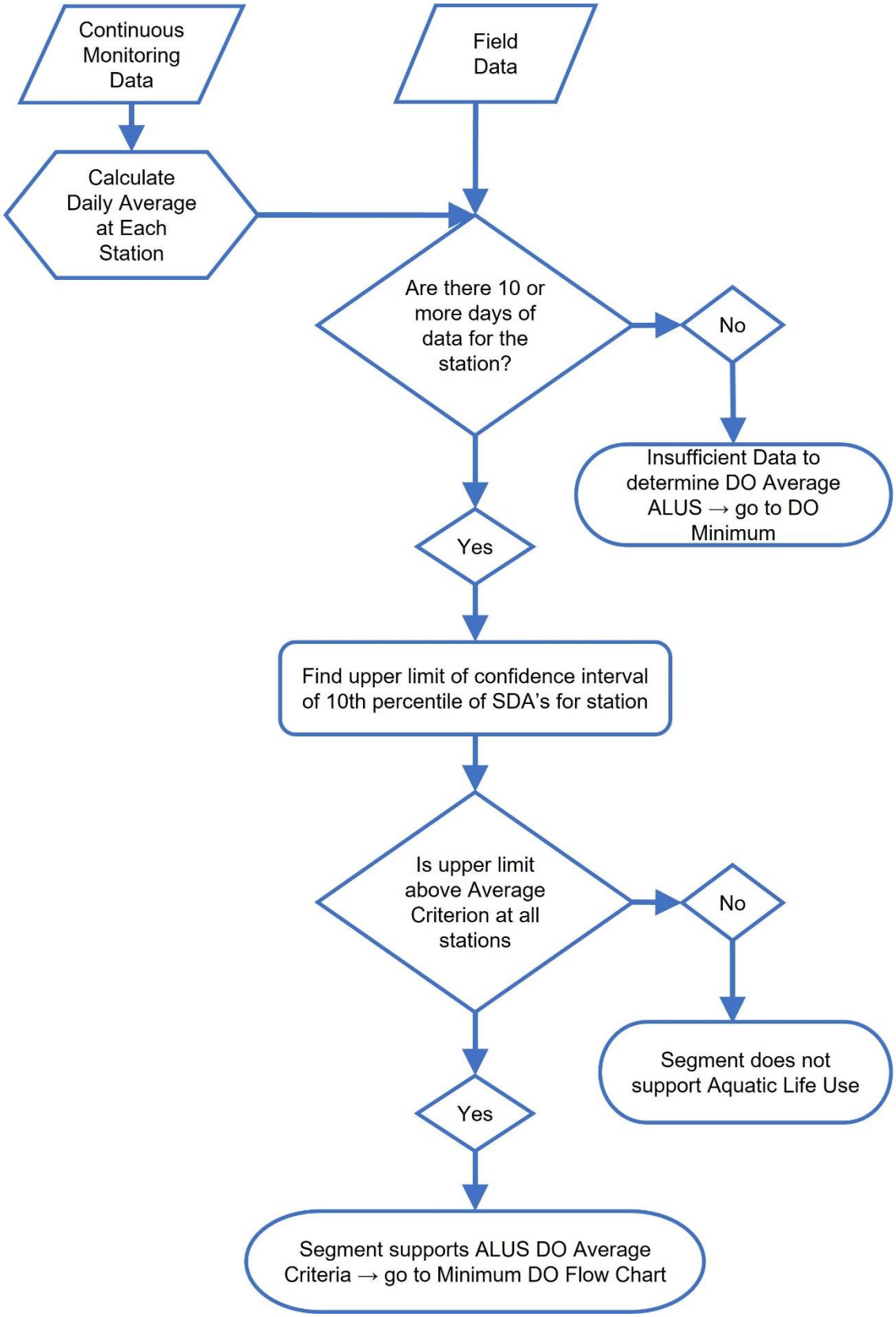
- The assessment and interpretation of more recent or more accurate data demonstrate that the applicable WQS(s) is being met.
    - Move to category 1
- The results of more sophisticated water quality modeling demonstrate that the applicable WQS(s) is being met.
    - Move to category 1
- Demonstration 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

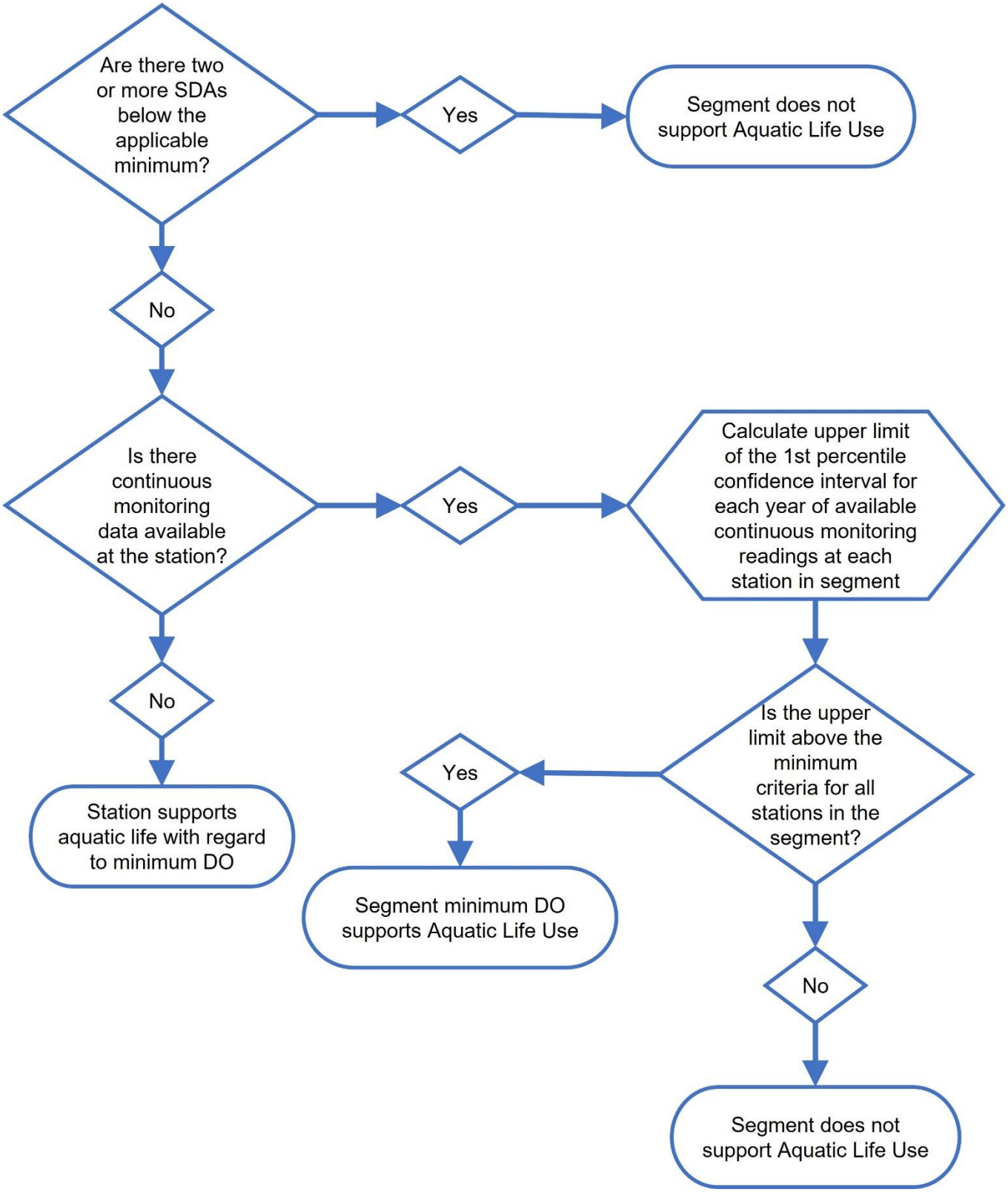
Other factors may also be used to change categories on a case-by-case basis, subject to EPA approval and appropriate stakeholder involvement.

Flow Charts for Designated Use Attainment

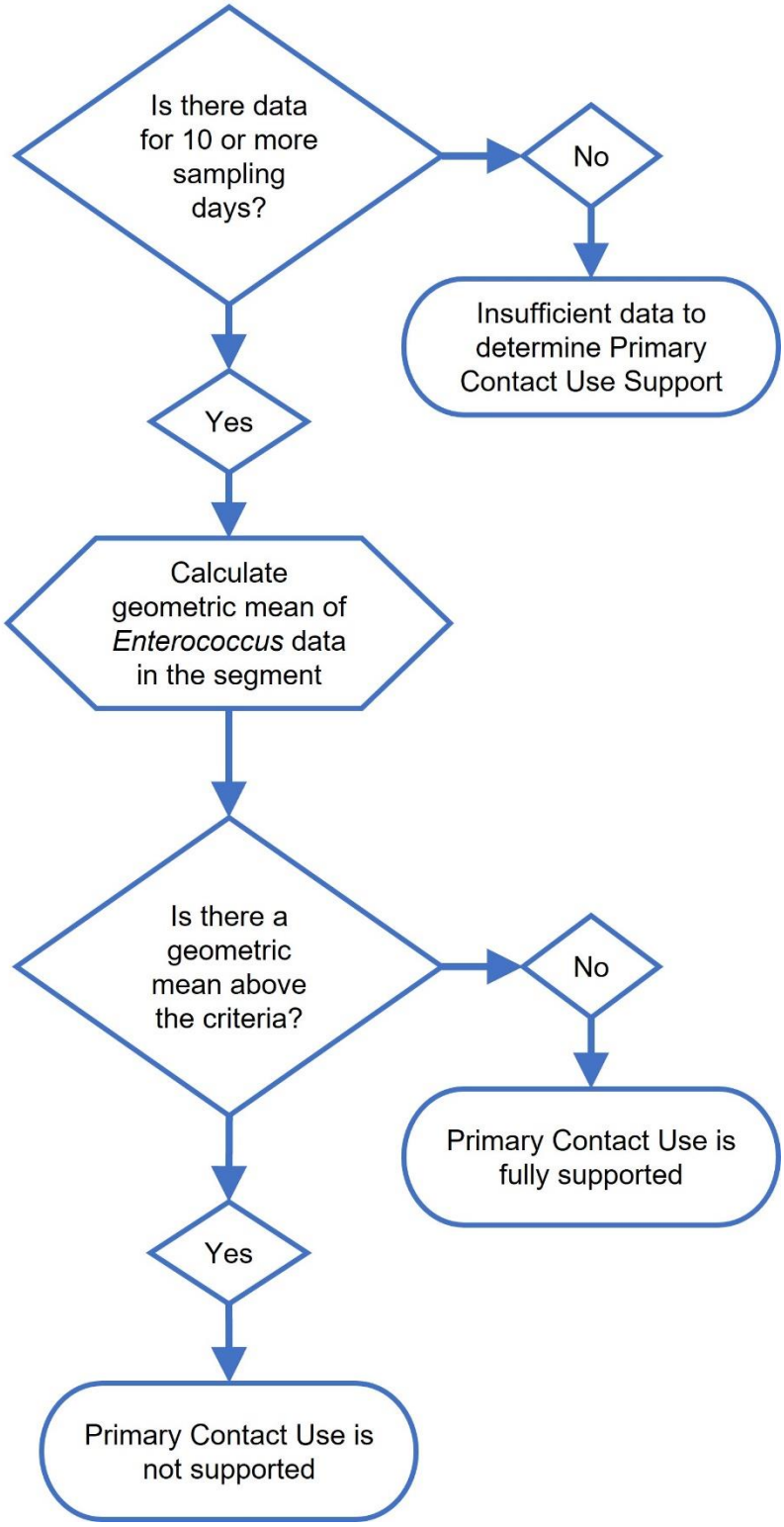
Assessment of Aquatic Life Use Support Using Average Dissolved Oxygen Criteria



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