

US EPA ARCHIVE DOCUMENT

## V. FIVE-PART CATEGORIZATION OF WATERS

Use of the Integrated Report format and the use of the five-part categorization scheme envisions that each state provides a comprehensive description of the water quality standards attainment status of all segments within a state. In this guidance, the term “segment” is synonymous with the term “assessment unit” (AU) used in previous IR Guidance. Fundamental to this accounting is the use of a consistent and rational segmentation and geo-referencing approach for all segments including rivers, streams, lakes, wetlands, estuaries, and coastal waters. There is no single approach to the development of a segmentation scheme. However, it is important that the selected segmentation approach be consistent with the state’s water quality standards and be capable of providing a spatial scale that is adequate to characterize the WQS attainment status of the segment. The IRG provides some recommendations on how states may develop a segmentation scheme for monitoring, assessing and categorizing water quality conditions. Additionally, the IRG provides recommendations for assigning individual segments to the five-category system.

### A. Recommendations for Segmenting Waters

EPA recommends that states consider using the National Hydrography Dataset (NHD)<sup>15</sup> coding scheme to georeference their segments, where segments may comprise part of an NHD reach, an individual NHD reach, or a collection of NHD reaches or parts of reaches. Alternatively, if a state has already developed a comparable Geographic Information System (GIS) framework, EPA requests that states provide any relevant information necessary to allow consistent georeferencing. Additionally, this information should be included in the state’s ADB submission. States generally partition waters to represent homogeneity in physical, biological or chemical conditions. This segmentation may reflect an *a priori* knowledge of factors such as flow, channel morphology, substrate, riparian condition, adjoining land uses, confluence with other waterbodies, and potential sources of pollutant loadings (both point and nonpoint). While there is no single default dimension for a segment size, states have utilized these or similar principles when they defined the segments used in their water quality standards. Other factors may include the following:

- The expected natural variability of the measured criteria associated with the WQSs.
- The type of water (e.g., a small stream, a wide river, a tidal and stratified estuary, and coastal shoreline).
- Time of travel of a parcel of water in the waterbody or segment or the magnitude of any tidal excursions.
- The amount of and type of data and information necessary to provide a reasonably accurate characterization of the criteria (or core indicators) associated with the designated uses in the segment or waterbody.
- Any expected changes in significant influences in the watershed (land use, point or nonpoint sources of pollutants).
- Any site-specific concerns such as patchy or unique habitat distribution patterns or biological population distributions.

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<sup>15</sup> By making this recommendation, EPA is not equating availability of geographical information on a water segment in the NHD with the legal definition of water of the U.S. under CWA.

Using NHD or other comparable GIS framework, a state should assign a discrete “address” or geo-location to each segment, and document the process used for defining water segments in their methodologies. The physical boundaries (beginning and end points) of a segment should be defined in such a manner that a scientifically valid assessment of each and every segment can be made. The individual size of a segment will vary based upon methodologies. Segments should, however, be larger than a sampling station but small enough to represent a relatively homogenous parcel of water (with regard to hydrology, land use influences, point and nonpoint source loadings, etc.).

**B. How should segments be assigned to EPA’s five reporting categories?**

EPA continues to advocate the use of the five category approach for classifying the WQS attainment status for each segment. In this guidance document EPA refers to “designated uses” as the basis and unit for reporting water quality. A segment is considered impaired when WQS<sup>16</sup> are not being supported and/or met, and is considered threatened when WQS are not expected to be fully supported and/or met in the next listing cycle. In classifying the status of water quality in 2006, states have the option to report each segment in one or more categories. EPA recommends that states use the following five reporting categories to classify segments as meeting or not meeting applicable WQS:

Category 1: All designated uses are supported, no use is threatened;

Category 2: Available data and/or information indicate that some, but not all of the designated uses are supported;

Category 3: There is insufficient available data and/or information to make a use support determination;

Category 4: Available data and/or information indicate that at least one designated use is not being supported or is threatened, but a TMDL is not needed;

Category 5: Available data and/or information indicate that at least one designated use is not being supported or is threatened, and a TMDL is needed.

Exhibit 5-1 provides an example of how to consider designated uses in the categorization process. EPA believes that the placement of segments into the five reporting categories best allows states to document attainment of applicable WQSs, and to develop monitoring strategies that effectively respond to the needs identified in the assessment, while ensuring that the attainment status of each water quality standard applicable to a particular segment is addressed.

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<sup>16</sup> Water quality standards include designated use(s), criteria, and the antidegradation policy. Water quality criteria are important elements of water quality standards and attainment of criteria should also be evaluated in making listing decisions (See 40 CFR 130.7 (b)(3)). Failure to meet WQC warrant listing of waters under section 303(d). EPA has not developed guidance at this time on determining attainment status for antidegradation policies. EPA recognizes that such policies, while an important part of WQS, may not lend themselves to "attainment" determinations on a segment specific basis.

### Exhibit 5-1. 2006 Integrated Reporting Guidance: Segment Categorization Guide

The following schematic describes a process states might consider using for determining the placement of segments into the Integrated Report (IR) Categories. The process begins with the assessment of the water quality standard attainment status (designated use(s), criteria) of each segment, and concludes with the placement of each segment into one or more of the five IR Categories. The assessment of the water quality standards attainment status should be consistent with the state's assessment and listing methodology and must ensure that segments not meeting or not expected to meet applicable water quality standards are identified. While the schematic focuses on the assessment of designated uses (DU) for each segment, as previously stated all components of the water quality standard are considered in the categorization of a segment.

#### Step-by-step process to categorize a segment

1. For each segment, assemble and consider all existing and readily available data and/or information to determine the support status for each individual designated use.
2. Based on the data and information available, make support decisions for each DU in the segment and assign the appropriate symbol (✓+, ✓-, ?, T, 4a, 4b, 4c – See *Symbols and Definitions*).
3. Using the results of Step 2, place the segment into the appropriate category or categories.

#### Symbols and Definitions:

✓+ = The existing data and information shows that a use *is supported*.

✓- = The existing data and information shows that a use *is not supported*.

? = There is insufficient existing data and information to make a use support determination, consistent with the state's assessment and listing methodology.

T = A use in this segment is currently being supported, but is **THREATENED** and it is projected not to be supporting by the next scheduled list submission date.

4a = A TMDL to address a specific segment/pollutant combination has been approved or established by EPA.

4b = A use impairment caused by a pollutant is being addressed by the state through other pollution control requirements.

4c = A use is impaired, but the impairment is not caused by a pollutant.

In the following schematic, each box represents one (1) segment. Each segment may contain one or more DUs. After compiling and considering all existing and readily available data and information for each DU in a specific segment, support decisions are made. Placement of the segment into the appropriate category or categories is based on the sufficiency of the data and information, and the analysis of whether the data demonstrates that the DU is supported.

SEGMENT #1 (1 DU)

DU1



ASSESSMENT

✓+

SEGMENT #2 (2 DUs)

DU1, DU2



ASSESSMENT

T, ✓-

SEGMENT #3 (3 DUs)

DU1, DU2, DU3



ASSESSMENT

✓+, ✓+, ?

SEGMENT #4 (4 DUs)

DU1, DU2, DU3, DU4



ASSESSMENT

✓-, 4a, ?, ✓+

SEGMENT CATEGORIZATION

|           | DU1 | DU2 | DU3 | DU4 | Single Category | Multi-Category   |
|-----------|-----|-----|-----|-----|-----------------|------------------|
| SEGMENT 1 | ✓+  | /   | /   | /   | C1              | C1               |
| SEGMENT 2 | T   | ✓-  | /   | /   | C5              | C5               |
| SEGMENT 3 | ✓+  | ✓+  | ?   | /   | C2              | C2 & C3          |
| SEGMENT 4 | ✓-  | 4a  | ?   | ✓+  | C5              | C5, C4a, C3 & C2 |

Additional examples are provided below to further illustrate the process of segment classification into multiple categories.

|           | DU1 | DU2 | DU3 | DU4 | Single-Category | Multi-Category   |
|-----------|-----|-----|-----|-----|-----------------|------------------|
| SEGMENT A | ✓+  | ✓+  | ✓+  | ✓+  | C1              | C1               |
| SEGMENT B | ✓-  | ✓-  | ✓-  | ✓-  | C5              | C5               |
| SEGMENT C | ✓-  | ✓-  | ✓-  | T   | C5              | C5               |
| SEGMENT D | ?   | ?   | ?   | ?   | C3              | C3               |
| SEGMENT E | 4b  | ✓-  | ✓-  | ✓-  | C5              | C4b, C5          |
| SEGMENT F | ✓+  | ✓+  | ✓-  | ✓-  | C5              | C2 & C5          |
| SEGMENT G | ✓+  | ✓+  | ?   | ?   | C2              | C2 & C3          |
| SEGMENT H | ?   | ?   | ?   | ✓-  | C5              | C3 & C5          |
| SEGMENT I | ✓+  | ✓+  | ✓+  | 4c  | C4c             | C2, C4c          |
| SEGMENT J | ?   | ?   | 4c  | T   | C5              | C3, C4c, & C5    |
| SEGMENT K | ✓+  | ?   | ?   | ✓-  | C5              | C2, C3, & C5     |
| SEGMENT L | ✓+  | ✓+  | ?   | T   | C5              | C2, C3 & C5      |
| SEGMENT M | ✓+  | ?   | 4b  | ✓-  | C5              | C2, C3, C4b & C5 |

States have the option to place segments into more than one of the five categories when appropriate. The placement of segments into more than one category will allow states to:

1. Demonstrate progress in the efforts to develop TMDLs,
2. Track progress as segments incrementally attain some, but not all water quality standards, and
3. Identify those segments where there is a need to obtain additional data and information for purposes of determining attainment status of some water quality standards.

While EPA recommends that states adopt and utilize the IR format for reporting the status of their water quality in 2006, states may choose to submit separate 303(d) and 305(b) reports. Furthermore, even if a state chooses to use the IR format, it may choose to place each segment into only one category and rely on the reporting capability of ADB to provide detail on the support status of all individual uses. More detailed guidance for determining the appropriate categorization of segments is provided below. It is important to note that states must consider all existing and readily available data and information in developing their section 303(d) lists, and may choose to assess a segment and assign the segment to a category using data and information other than monitored data (e.g., land use, pollutant loading coefficients, remote sensing data, modeling, etc.).

**C. May a state use subcategories or additional categories in its Integrated Report?**

Yes, in order to refine their classifications, states may choose to establish new or additional subcategories in addition to the proposed five major categories. For example, a state may decide to divide Category 3 into two subcategories in order to distinguish between those segments for which no data and/or information exist from those segments for which some data and/or information exist, but the data are insufficient to make a determination whether the segment is attaining applicable standards. A state may also choose to use subcategories for segments placed into Category 3 when establishing monitoring priorities. For example, the state may place its segments into different subcategories depending on whether the segment is high, medium, or low priority for follow-up monitoring based on information from probability-based monitoring, landscape or water quality models, land use data, or limited site-specific monitoring.

**D. Which segments should states include in Category 1?**

Segments may be placed into Category 1 if all designated uses are supported, and no use is threatened. When a segment meets the Category 1 requirements, the state has concluded, consistent with their water quality standards (and their assessment methodology) that sufficient data and information exist to determine that *all applicable water quality standards are being attained*, thereby making the use of Category 2 unnecessary for this segment, (see Category 2 discussion below). By placing a segment into Category 1, the state is also concluding that there are adequate data and there is sufficient information to make a determination for any water quality standard, making the use of Category 3 unnecessary for this segment (see Category 3 discussion below).

1. *In order to place a segment in Category 1, must states have specific data and information regarding the status of each water quality standard?*<sup>17</sup>

No. States may describe in either their assessment methodology or in their water quality standards a subset or hierarchy of indicators (as described in the CALM guidance and *Elements of a State Water Monitoring and Assessment Program*) that serve to characterize whether conditions in a segment are capable of meeting all applicable water quality standards.

Because limited resources affect the design of water quality monitoring programs, the state should use a tiered approach to monitoring that includes a core set of baseline indicators selected to represent each applicable designated use, plus supplemental indicators selected according to site-specific or project-specific decision criteria. Using this tiered approach, the state should be able to make the best use of its resources to meet water quality decision needs, including assessing water quality standards attainment and designated use support, identifying needed changes to water quality standards, describing causes and sources of impairments, developing water quality-based source controls, and assessing whether water quality standards are attained. Where the assessment of the supplemental indicators applicable to every designated use in a segment documents that all uses are supported and no use is threatened, that segment should be placed into Category 1.

The monitoring strategy should define a core set of indicators (e.g., water quality parameters) for each water resource type that include physical/habitat, chemical/toxicological, and biological/ecological endpoints as appropriate, that reflect designated uses, and that can be used routinely to assess attainment with applicable water quality standards throughout the state. This core set of indicators is monitored to provide Statewide or basin/watershed level information on the fundamental attributes of the aquatic environment and to assess water quality standards attainment/impairment status. Previously, chemical and physical indicators were emphasized; however, biological monitoring and assessment should assume a prominent role in state monitoring as well.

The monitoring strategy should also describe the process the state uses for identifying supplemental indicators to monitor. Supplemental indicators are often key to identifying causes and sources of impairments and targeting appropriate source controls. These supplemental indicators may include each water quality criteria in the state's water quality standards, any pollutants controlled by the National Pollutant Discharge Elimination System (NPDES), and any other constituents or indicators of concern.

Table 5-1 presents examples of recommended core and supplemental water quality indicators. The Consolidated Assessment and Listing Methodology provides additional information on considerations for selection of supplemental indicators (see <http://www.epa.gov/owow/monitoring/calm.html>, Chapter 10).

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<sup>17</sup> Part D(1) of Section V has been adapted from Section II (Part D) of *Elements of a State Water Monitoring and Assessment Program*; Office of Water, US EPA; EPA 841-B-03-003, March 2003.



**Table 5-1. Recommended Water Quality Indicators for General Designated Use Categories**

|                                    | <b>Aquatic Life &amp; Wildlife</b>   | <b>Recreation</b>   | <b>Drinking Water</b>   | <b>Fish/Shellfish Consumption</b>   |
|------------------------------------|--|---|---|---|
| <b>Recommended Core Indicators</b> | <ul style="list-style-type: none"> <li>*Condition of biological communities (EPA recommends the use of at least two assemblages)</li> <li>*Dissolved oxygen</li> <li>*Temperature</li> <li>*Conductivity</li> <li>*pH</li> <li>*Habitat assessment</li> <li>*Flow</li> <li>*Nutrients</li> <li>*Landscape conditions (e.g., % cover of land uses)</li> </ul> <p>Additional indicators for lakes:</p> <ul style="list-style-type: none"> <li>*Eutrophic condition</li> </ul> <p>Additional indicators for wetlands:</p> <ul style="list-style-type: none"> <li>*Wetland hydrogeomorphic settings and functions</li> </ul> | <ul style="list-style-type: none"> <li>*Pathogen indicators (E. coli, enterococci)</li> <li>*Nuisance plant Growth</li> <li>*Flow</li> <li>*Nutrients</li> <li>*Chlorophyll</li> <li>*Landscape conditions (e.g., % cover of land uses)</li> </ul> <p>Additional indicators for lakes:</p> <ul style="list-style-type: none"> <li>*Secchi depth</li> </ul> <p>Additional indicators for wetlands:</p> <ul style="list-style-type: none"> <li>*Wetland hydrogeomorphic settings and functions</li> </ul> | <ul style="list-style-type: none"> <li>*Trace metals</li> <li>*Pathogens</li> <li>*Nitrates</li> <li>*Salinity</li> <li>*Sediments/TDS</li> <li>*Flow</li> <li>*Landscape conditions (e.g., % cover of land uses)</li> </ul>                | <ul style="list-style-type: none"> <li>*Pathogens</li> <li>*Mercury</li> <li>*Chlordane</li> <li>*DDT</li> <li>*PCBs</li> <li>*Landscape conditions (e.g., % cover of land uses)</li> </ul> |
| <b>Supplemental Indicators</b>     | <ul style="list-style-type: none"> <li>*Ambient toxicity</li> <li>*Sediment toxicity</li> <li>*Other chemicals of concern in water column or sediment</li> <li>*Health of organisms</li> </ul>   | <ul style="list-style-type: none"> <li>*Other chemicals of concern in water column or sediment</li> <li>*Hazardous chemicals</li> <li>*Aesthetics</li> </ul>  | <ul style="list-style-type: none"> <li>*Volatile organic compounds (VOCs) (in reservoirs)</li> <li>*Hydrophyllic pesticides</li> <li>*Nutrients</li> <li>*Other chemicals of concern in water column or sediment</li> <li>*Algae</li> </ul> | <ul style="list-style-type: none"> <li>*Other chemicals of concern in water column or sediment</li> </ul>   |

Source: *Elements of a State Water Monitoring and Assessment Program*; Office of Water, US EPA; EPA 841-B-03-003, March 2003.



2. *Should states use biosurvey data to list a segment as in attainment for aquatic life use support?*

EPA encourages the use of biosurvey data in concert with other specified and supplemental indicators for making an aquatic life use attainment determination. Properly developed biosurvey data can provide direct evidence of aquatic life use support. States may develop, consistent with their assessment methodology and water quality standards, their own bioassessment approach to assessing aquatic life use support. CALM and the 2003 *Elements of a State Water Monitoring and Assessment Program*, recommend the use of at least two assemblages (e.g., fish and macroinvertebrates) in such assessments (See Table 5-1 taken from *Elements of a State Water Monitoring and Assessment Program*).

3. *What data should states have to determine that a segment is meeting a “fish consumption” use?*

Assessment determinations regarding fish/shellfish consumption uses should be based on parameter-specific data for two groups of pollutants: (1) human pathogens, or indicators thereof, and (2) chemicals with high bioaccumulation potential. Among the bioaccumulative pollutants, EPA recommends mercury, chlordane, Dichloro-diphenyl-trichloroethane (DDT), and polychlorinated biphenyls (PCBs) as core indicators.

**E. Which segments should states include in Category 2?**

Segments should be placed in Category 2 if the state determines that available data and/or information indicate that some, but not all of the designated uses are supported. If the state has chosen to use the multi-category approach, segments reported in Category 2 may also be reported in Categories 3, 4, or 5 depending upon the results of the analysis of all available data and information on the other uses in the segment. However, if a single-category approach is used, Category 5 takes precedence over all other categories.

**F. Which segments should states include in Category 3?**

Segments should be placed in Category 3 when there is insufficient available data and/or information to make a use support determination. Category 3 is consistent with and responds to one of the recommendations in the National Research Council's (NRC) report, *Assessing the TMDL Approach to Water Quality Management* (2001), in which the authors suggested that a category be created for those segments where there existed insufficient data and/or information to assess the use. The state should identify those segments that are higher and lower priority for followup monitoring, and may do so using predicative tools such as probability surveys or landscape models. Category 3 provides states with the flexibility to monitor these segments in a manner consistent with their overall monitoring strategy and schedule.

**G. Which segments should states include in Category 4?**

Segments may be placed in Category 4 if available data and/or information indicate that at least one designated use is not being supported or is threatened, but a TMDL is not needed. States may place segments that meet this definition in one of the following three subcategories:

- a state developed TMDL has been approved by EPA or a TMDL has been established by EPA for any segment-pollutant combination (Category 4a);

- other required control measures are expected to result in the attainment of an applicable water quality standard in a reasonable period of time (Category 4b);
- the non-attainment of any applicable water quality standard for the segment is the result of pollution and is not caused by a pollutant (Category 4c).

1. *Which segments should states include in Category 4a?*

Segments should be placed in Category 4a when a TMDL to address a specific segment/pollutant combination has been approved or established by EPA. Once the TMDL has been approved or established, the state should implement the TMDL as soon as practicable. Additionally, EPA encourages states to provide monitoring schedules for these segments to ensure that sufficient data and information are obtained to document progress of the implementation actions towards meeting the applicable water quality standards. Segments in this category may also be included in other categories, as appropriate (See Exhibit 5-1).

2. *Which segments should states include in Category 4b?*

EPA regulations recognize that alternative pollution control requirements may obviate the need for a TMDL. Segments are not required to be included on the section 303(d) list if technology-based effluent limitations required by the Act, more stringent effluent limitations required by state, local, or federal authority, or “[o]ther pollution control requirements (e.g., best management practices) required by local, State or Federal authority” are stringent enough to implement applicable water quality standards (see 40 CFR 130.7(b)(1)) within a reasonable period of time. This guidance acknowledges that the most effective method for achieving water quality standards for some water quality impaired segments may be through controls developed and implemented without TMDLs (referred to as a “4b alternative”). The discussion below focuses on the use of “other pollution control requirements” as a basis for the conclusion that a segment does not need a TMDL.

a. What demonstration does EPA expect a state to make to support a successful Category 4b proposal?

EPA will evaluate on a case-by-case basis a state’s decisions to exclude certain segment/pollutant combinations from Category 5 (the section 303(d) list) based on the 4b alternative. States should provide in their submission the rationale which supports their conclusion that there are “other pollution control requirements” sufficiently stringent to achieve applicable water quality standards within a reasonable period of time.

Specifically, this rationale should include: (1) a statement of the problem causing the impairment, (2) a description of the proposed implementation strategy and supporting pollution controls necessary to achieve water quality standards, including the identification of point and nonpoint source loadings that when implemented assure the attainment of all applicable water quality standards, (3) an estimate or projection of the time when water quality standards will be met, (4) a reasonable schedule for implementing the necessary pollution controls, (5) a description of, and schedule for, monitoring milestones for tracking and reporting progress to EPA on the implementation of the pollution controls, and (6) a commitment to revise as necessary the implementation strategy and corresponding pollution controls if progress towards meeting water quality standards is not being shown. EPA acknowledges that the level of rigor necessary to support the state’s rationale will vary depending on the complexity of the

water impairments and corresponding implementation strategies. Note that a state could pursue water quality trading under 4b, so long as it follows the principles described in the Agency's relevant guidance.

If the Agency determines that the controls are not, in fact, "requirements," or that they will not result in attainment of applicable water quality standards within a reasonable time, then EPA may disapprove the state's failure to include the segment at issue on the section 303(d) list (i.e., Category 5) and add the segment to the list. In subsequent list submissions, EPA may determine that a segment that has been placed into Category 4b must go back into Category 5, if the circumstances have changed such that the state can no longer support its original 4b demonstration.

b. What constitutes acceptable "pollution control requirements" to support Category 4b alternatives?

Because of the case-specific nature of water quality impairments and controls designed to address such impairments, EPA cannot identify classes of controls that will always be adequate to support a conclusion that a segment is not required to be included in Category 5. In evaluating whether a particular set of pollution controls are in fact "requirements" as specified in EPA's regulation, the Agency will consider a number of factors including: (1) authority (local, state, federal) under which the controls are required and will be implemented with respect to sources contributing to the water quality impairment (examples may include: self-executing state or local regulations, permits, and contracts and grant/funding agreements that require implementation of necessary controls), (2) existing commitments made by the sources to implementation of the controls (including an analysis of the amount of actual implementation that has already occurred), (3) the availability of dedicated funding for the implementation of the controls, and (4) other relevant factors as determined by EPA depending on case-specific circumstances.

Since the overriding objective of the 4b alternative is to promote implementation activities designed to achieve water quality standards in a reasonable period of time, for all of the factors listed above, EPA will evaluate each 4b alternative on a case-by-case basis, including in particular the existence of identifiable consequences for the failure to implement the proposed pollution controls. Depending on the specific situation, "other pollution control requirements" may be requirements other than those based on statutory or regulatory provisions, as long as some combination of the factors listed above are present and will lead to achievement of WQSs within a reasonable period of time. For example, established plans of government agencies that require for attainment of WQS with a reasonable period of time may qualify even when their components include incentive-based actions by private parties. States may also choose to rely on controls that have already been implemented where there is sufficient certainty that implementation will continue until WQS are achieved and will not be reversed. Because the controls are already in place and achieving progress, EPA may consider such controls to be requirements even if their implementation did not occur pursuant to binding legal authority.

c. What constitutes a reasonable period of time for purposes of 4b?

EPA expects that segments impaired by a pollutant but not listed under section 303(d) based on the implementation of existing control requirements will attain WQSs within a reasonable period of time. What constitutes a "reasonable time" will vary depending on factors such as the initial severity of the impairment, the cause of the impairment (e.g., point source discharges, in place sediment fluxes, atmospheric deposition, nonpoint source runoff), riparian condition, channel condition, the nature and behavior of the specific pollutant (e.g., conservative, reactive), the size and complexity of the segment (a

simple first-order stream, a large thermally-stratified lake, a density-stratified estuary, and tidally-influenced coastal segment), the nature of the control action, cost, public interest, etc. States should consider such factors and provide, as stated in Section IV.G.2.A. above, a time estimate by which the controls will result in WQS attainment, including an explanation of the basis for their conclusion. EPA will evaluate on a case-specific basis whether the estimated time for WQS attainment is reasonable.

d. What are some examples to illustrate how the preceding guidance would be applied?

EPA will evaluate on a case-specific basis each set of controls a state uses to support a decision to include a segment in Category 4b. The following circumstances are examples of controls which may be sufficient to support such a decision, depending on the facts of the specific case:

- A waterbody is impaired solely by point sources. Each point source has an NPDES permit containing limits sufficient to implement WQS in that waterbody by the end of the permit terms.
- A waterbody is impaired by nonpoint source sediment input. The state has adopted regulations requiring sources to implement certain best management practices (BMPs), and can enforce the regulatory requirements under state law. The state demonstrates that implementation of BMPs by these sources will result in meeting WQS in the waterbody in a reasonable time.
- A waterbody is impaired by nonpoint sources and the state has entered into contracts for source remediation. Implementation of the contract terms will result in attainment of WQS in the waterbody in a reasonable time. While the state cannot obtain specific performance as a contract remedy, it can file a claim for significant monetary damages if the terms are not met.
- A waterbody is impaired by nonpoint sources which have already implemented some or all of certain measures that will result in attainment of WQS in that waterbody in a reasonable time. The controls are unlikely to be removed or reversed (e.g., watershed restoration measures pursuant to 319 grant).
- A waterbody is impaired by nonpoint sources within federal lands where a forest management plan has been developed and is being implemented. In this case, certain elements are included in the forest management plan emphasizing BMP certification programs, require adaptive adjustments of practices, and specify monitoring options needed to demonstrate compliance with state water quality standards.

3. *Which segments should states include in Category 4c?*

Segments should be placed in Category 4c when the states demonstrates that the failure to meet an applicable water quality standard is not caused by a pollutant, but instead is caused by other types of pollution. Segments placed in Category 4c do not require the development of a TMDL. Pollution, as defined by the CWA is “the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water” (section 502(19)). In some cases, the pollution is caused by the presence of a pollutant and a TMDL is required. In other cases, pollution does not result from a pollutant and a TMDL is not required. States should schedule these segments for monitoring to confirm that there continues to be no pollutant associated with the failure to meet the water quality standard and to support water quality management actions necessary to address the cause(s) of the impairment. Examples of circumstances where an impaired segment may be placed in Category 4c include segments impaired solely due to lack of adequate flow or to stream channelization.

EPA encourages the state to collect or assemble additional data and/or information to verify the initial placement of the segment, and to re-categorize the segment based on the assessment of the additional data and/or information where appropriate.

#### **H. Which segments should states include in Category 5?**

This category constitutes the section 303(d) list that EPA will review and approve or disapprove pursuant to 40 CFR 130.7. States must include on their section 303(d) list those waters required to be listed by the Clean Water Act and EPA's implementing regulations. Segments must be placed in Category 5 when, based on existing and readily available data and/or information, technology-based effluent limitations required by the Act, more stringent effluent limitations, and other pollution control requirements are not sufficient to implement an applicable water quality standard and a TMDL is needed. 40 CFR 130.7(b)(1).

A segment that is included in Category 5 may also be included in other categories where appropriate. For example, the segment may be attaining some applicable standards, in which case it may also be included in Category 2. As the state develops and EPA approves TMDLs for the pollutants identified as causing a Category 5 segment to exceed an applicable standard, the segment can be placed in Category 4a, but must also remain in Category 5 if it is exceeding any applicable standard and a TMDL needs to be developed for the pollutant causing that exceedance. However, note that Category 5 takes precedence if the state chooses to list a segment in only one category.

- 1. Is Category 5 of the Integrated Report for 2006 a new section 303(d) list, and must the state account for all segments previously listed as needing a TMDL in the 2004 list?*

The section 303(d) list (segments in Category 5) once approved (or, if necessary, established by EPA following disapproval of a state's list) is a new list that replaces the previous list. The time frame for establishing TMDLs should be 8 to 13 years from the date of the original listing. For example, a segment originally included on the 1998 section 303(d) list, and still identified on the 2006 submission as requiring a TMDL, should be addressed by 2011.

Segments included on previous 303(d) lists or previously placed in Category 5 should be accounted for in subsequent submissions. However, the fact that a segment was previously included in Category 5 (or on the 303(d) list) does not necessarily mean that it must remain in Category 5 until a TMDL is established. In some cases, removing a segment from Category 5 prior to TMDL development may be warranted. For example, the state may determine that the conditions have changed such that the segment is no longer required to be on the section 303(d) list (e.g., if new data and/or information shows that the applicable standard is met). Alternatively, the state may determine that other required control measures are sufficient to implement the applicable standard, and therefore may move the segment to Category 4b. The state may also determine based on the assessment of new data and information that pollutants do not cause or contribute to the impairment of the segment and therefore may move the segment to Category 4c. The state may also demonstrate that the original Category 5 listing was erroneous (i.e., not consistent with its assessment methodology or WQSs).

EPA may request, as discussed below, that the state demonstrate good cause for not including individual segments (including previously listed segments) in Category 5 (40 CFR 130.7(b)(6)(iv)). EPA may request this demonstration if the state does not develop an adequate record supporting the basis for



the decision or does not specifically explain its decision to move segments previously listed in Category 5 to other categories.

2. *What constitutes good cause for not including in the current submission segments that were previously included in Category 5 (the section 303(d) List)?*

To provide interested stakeholders with a more complete understanding of the changes that may have occurred from one IR cycle (or 303(d) submission) to the next, and to help expedite EPA's review and approval/disapproval action for those segments in Category 5, EPA recommends that states submit with their IR (or their 303(d) list) a table documenting changes in segment placement or categorization from the 2004 IR, and a brief summary of the basis for those changes. Table 5-2 provides an example of how states might do this.

**Table 5-2. Documentation of "Good Cause" to Move Segments from Category 5.**

| Segment previously in Category 5 | New placement in 2006 | Explanation for change   |
|----------------------------------|-----------------------|--|
| Segment 214                      | Category 4a           | TMDL completed and approved by EPA for Chromium.   |
| Segment 266                      | Category 4c           | The analysis of new data concluded that the aquatic life use impairment is solely due to low river flow.                                 |
| Segment 321                      | Category 4b           | The state has proposed an alternative approach to attain WQS by implementing required controls via NPDES permits.                        |
| Segment 349                      | Category 1            | The assessment of new data documents that applicable WQS are now being attained.   |
| Segment 350                      | Category 3            | Previous listing in Category 5 was inconsistent with assessment methodology. Available data insufficient to determine attainment status. |

In addition, EPA may request that states provide "good cause" for not including on the 2006 section 303(d) list (Category 5) submission segments that were previously included on the list. If EPA makes such a request, the state must explain its basis for not including the segment on the list. Consistent with 40 CFR 130.7(b), "good cause" for not including segments in Category 5 may be based on the following determinations:

- The assessment and interpretation of more recent or more accurate data in the record demonstrate that the applicable WQS(s) is being met.
- The results of more sophisticated water quality modeling demonstrate that the applicable WQS(s) is being met.
- Flaws in the original analysis of data and information led to the segment being incorrectly listed.
- 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.

- 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 (i.e., 4b).
- Documentation that the state included on a previous section 303(d) list an impaired segment that was not required to be listed by EPA regulations, e.g., segments where there is no pollutant associated with the impairment.
- Approval or establishment by EPA of a TMDL since the last section 303(d) list.
- A state inappropriately listed a segment that is within Indian country, as defined in 18 U.S.C. section 1151.
- Other relevant information that supports the decision not to include the segment on the section 303(d) list.

EPA has the authority to disapprove a submission if EPA identifies existing and readily available information that shows a segment is required by the CWA and EPA regulations be included in Category 5 (the section 303(d) list). In that situation, EPA will partially disapprove the state's list and identify additional segments for inclusion in Category 5.

3. *Can previously listed segments (without new data or information) be delisted solely because they have not yet been assessed with a new methodology?*

No. EPA does not believe it would be appropriate to remove segments previously listed in Category 5 (without new data or information) **solely** because they have not yet been assessed with a new methodology. However, there are some situations where a segment may be removed from Category 5 without relying on data and information collected after the date of the previous list. For example, if the state evaluates the pre-existing data and information using a new or revised methodology that accurately reflect the applicable WQS, and the results of that evaluation provide a "good cause" basis for not including the segment on the 2006 section 303(d) list, the segment would no longer need to be included in Category 5. However, the delisting should only occur if it is determined that the basis for the decision is consistent with the state's applicable WQSs and is reasonable.

4. *Must Category 5 include threatened segments?*

Yes, states must include threatened segments in Category 5 where appropriate (40 CFR 130.7(b)). The definition of "water quality limited segment" in EPA's regulations implementing CWA section 303(d) includes waters not expected to meet applicable water quality standards, which EPA refers to as "threatened" waters. 40 CFR 130.2(j). EPA recommends that states consider as threatened those segments that are currently attaining WQS, but are projected as the result of applying a valid statistical methodology to exceed WQS by the next listing cycle (every two years). For example, segments should be listed if the analysis of existing data and information demonstrates a declining trend in the segment's WQS, and the projected trend will result in a failure to meet that standard by the date of the next list (i.e., 2008 for purposes of the 2006 assessment cycle). The state assessment and listing methodology should describe how the state identifies threatened segments.



5. *Must Category 5 include an impaired segment if the specific pollutant causing the impairment has not been identified?*

Yes, if a designated use is not supported and the segment is impaired or threatened, the fact that the specific pollutant is not known does not provide a basis for excluding the segment from Category 5. These segments must be listed unless the state can demonstrate that no pollutant(s) causes or contribute to the impairment. Prior to establishing a TMDL for such segments the pollutant causing the impairment must be identified.

If the assessment of the new data and information demonstrates that the use impairment is not associated with a pollutant and is attributable only to other types of pollution (e.g., flow or habitat alteration) the segment may be placed into Category 4c. EPA has developed guidance to assist states in identifying the causes of a biological impairment. This document, "Stressor Identification Guidance," was released in December 2000 (EPA 822-B-00-025). This document is also available on the Internet at: <http://www.epa.gov/ost/waterscience/biocriteria/stressors/stressorid.pdf>.

6. *When should Category 5 include segments covered by fish and shellfish consumption advisories?*

EPA generally believes that fish and shellfish consumption advisories and certain shellfish growing area classifications based on segment specific information demonstrate impairment of CWA section 101(a) "fishable" uses. This applies to fish and shellfish consumption advisories and certain shellfish area classifications for all pollutants that constitute potential risks to human health, regardless of the source of the pollutant. Furthermore, advisories based on the results from probability surveys or other predictive tools having a high degree of confidence (i.e., 95%) may also form the basis of listing segments as impaired. States, on their own prerogative, may choose to place segments into Category 5 (or on the section 303(d) list) using probability surveys when fish and shellfish consumption advisories and certain shellfish area classifications constitute potential risks to human health.

For purposes of determining whether a segment is impaired and should be included on section 303(d) lists states are required to consider all existing and readily available data and information (see 40 CFR 130.7). This should include physical, chemical and biological data, including data on pathogens (such as bacteria and phytotoxins) as well as fish and shellfish tissue concentration data, where such data are existing and readily available. States collect several types of monitoring data to help determine if segments are attaining or maintaining applicable water quality standards. If a state does not consider particular existing and readily available data and information in deciding which segments are impaired and must be placed on the section 303(d) list, they must provide an explanation to EPA of why they did not use such data and information.

While numeric human health criteria for ambient water column concentrations of pollutants are a basis for determining impairment, the attainment of such criteria does not always mean that designated uses are being protected. Segment-specific factors sometimes cause pollutants, including pathogens, to accumulate in fish and shellfish tissue at higher levels than predicted by the methodology used to derive the numeric human health criteria. Examples of such factors include water temperature, nutrient levels, food web structure, the concentration of dissolved organic carbon in the ambient water, and accumulations in the sediment. Hence, a segment can be meeting numeric ambient water quality criteria, but not attaining the designated uses because fish or shellfish tissue concentrations exceed levels that are protective of human health. In instances where tissue concentrations indicate an impairment of the

designated use, even though ambient water column concentrations of pollutants do not indicate an exceedance, EPA recommends states translate the applicable narrative criteria on a site-specific basis or adopt site specific numeric criteria to account for higher than expected exposures from contaminated fish or shellfish tissue and protect designated uses.

Applicable shellfish growing area classifications should be used as part of determinations of attainment of water quality standards and listing of impaired segments. Shellfish growing area classifications are developed by the National Shellfish Sanitation Program (NSSP) using water column and tissue data (where available), and information from sanitary surveys of the contributing watershed, to protect public health. The states review these NSSP classifications every three years. There are certain NSSP classifications and data that do not necessarily indicate WQS violation. These include: “Prohibited” classifications set as a precautionary measure due to the proximity of wastewater treatment discharges, or absence of a required sanitary survey; shellfish tissue pathogen data (which can fluctuate based on short-term conditions not representative of general water quality); or short-term actions to place growing areas in the closed status.

When deciding whether to identify a segment as impaired, states need to determine whether there are impairments of designated uses and narrative criteria, as well as the numeric criteria. Although the CWA does not explicitly direct the use of fish and shellfish consumption advisories or NSSP classifications to determine attainment of water quality standards, states are required to consider all existing and readily available data and information to identify impaired segments on their section 303(d) lists. For purposes of determining whether a segment is impaired and should be included on a section 303(d) list, EPA considers a fish or shellfish consumption advisory, a NSSP classification, and the supporting data, to be existing and readily available data and information that demonstrates non-attainment of a section 101(a) “fishable” use when:

- the advisory is based on fish and shellfish tissue data,
- a lower than “Approved” NSSP classification is based on water column and shellfish tissue data (and this is not a precautionary “Prohibited” classification or the state water quality standard does not identify lower than “Approved” as attainment of the standard),
- the data are collected from the specific segment in question, and
- the risk assessment parameters (e.g., toxicity, risk level, exposure duration and consumption rate) of the advisory or classification are cumulatively equal to or less protective than those in the state’s water quality standards.

This applies to all pollutants that constitute potential risks to human health, regardless of the source of the pollutant. However, for fish/shellfish advisories for “dioxin and dioxin-like compounds”, due to unique risk characterization issues, listing decisions should be made on a case-by-case basis.

EPA acknowledges that in some cases, fish and shellfish consumption advisories may not demonstrate that a section 101(a) “fishable” use is not being attained in an individual segment. For example, a state may have issued a statewide or regional warning regarding fish tissue contaminated with a bioaccumulative pollutant, based on data from a subset of segments. A state may use a higher fish consumption value in determining the need for an advisory compared to the value used in establishing water quality criteria for the protection of human health. As noted above, a state may also classify shellfish growing areas “Prohibited” as a precautionary measure due to the proximity of wastewater treatment discharges or where a required sanitary survey has not been conducted. In such instances, these

segments need not be listed as impaired under section 303(d) unless there are segment specific data (and the data were not considered during the development or review of a non-precautionary NSSP classification), showing non-attainment of section 101(a) uses.

Some fish and shellfish consumption advisories and NSSP classifications are based on Food and Drug Administration (FDA) action levels as opposed to EPA's risk-based methodology for the protection of human health. FDA action levels are established to protect consumers of interstate shipped, commercially marketed fish and shellfish rather than fish and shellfish caught and consumed within the state. FDA action levels also include non-risk based factors (e.g., economic impacts) in their derivation, while water quality criteria must protect the designated uses without regard to economic impacts.

Where tissue contamination that triggers an advisory based on FDA action levels indicates an exceedance of state human health criteria, the advisory is an indication that section 101(a) "fishable" uses are not attained, and therefore, these segments should be placed into Category 5 or included on the 303(d) list.

7. *How should Category 5 handle segments for which WQS are being revised or where temporary variances are in place?*

The attainment decision must be based on the applicable WQS. In the case of a standard that is being revised, that standard is not applicable until it has been approved by EPA. 40 CFR 131.21. Therefore states must include in Category 5 segments that do not meet an applicable WQS at the time of listing, even if the new standard is in the process of being revised to be less stringent, until such time as EPA approves the revised standard. However, these segments would not have to be considered a high priority for TMDL scheduling. If EPA approves a revised standard in the future, the segment may be removed from the section 303(d) list at that time provided the segment does not meet the listing requirements with respect to the new standard. With respect to variances, which are temporary and usually apply to a particular discharger, but may also apply to a segment, the applicable WQS typically is the underlying standard, and therefore the segment should be placed in Category 5 if it does not support one or more of the designated uses in the underlying standard.

8. *Must Category 5 include a segment where the criterion has been exceeded, but the exceedance is the result of background or natural conditions?*

In some cases, a segment may exhibit water quality characteristics or chemical concentrations approaching or exceeding those levels established in the state's water quality standards due solely to non-anthropogenic causes. If the state's water quality standards include a specific exclusion for exceedances caused by "natural conditions", these segments would not be considered impaired (i.e., they could be excluded from Categories 4 and 5). These segments should instead be placed into Categories 1 through 3 as appropriate. For such segments, these background or natural conditions can be defined by assessing the results of water quality monitoring efforts, by the use of predictive models, or a characterization based on data from a watershed with similar hydrologic, land use, and pollutant loading characteristics.

9. *What additional information is needed for segments in Category 5?*

*Identification of Pollutants*

Section 130.7(b)(4) requires states to identify, for each segment included on the section 303(d) list (Category 5), the "pollutants causing or expected to cause violations of the applicable water quality standards." For the 2006 listing cycle, segments identified as impaired or threatened based on biological criteria should be included in Category 5 unless the state demonstrates that a pollutant is not causing the impairment, or inclusion in Categories 4a or 4b is warranted. States must identify all pollutants that are known to be causing the impairment of a segment.

*Prioritization and TMDL Schedule*

Section 303(d)(1) requires states to "establish a priority ranking" for the segments it identifies on the list, taking into account the severity of the pollution and the uses to be made of such segments, and to establish TMDLs "in accordance with the priority ranking." Consistent with section 130.7(b)(4) each state shall also submit biennially a priority ranking including waters targeted for TMDL development in the next two years. Each listed pollutant-segment combination (i.e., those in Category 5) must receive a clear priority ranking, which EPA recommends be either in the form of a scheduled TMDL completion date or a ranking such as high, medium, or low. States have considerable flexibility in deciding how best to apply these factors in prioritizing their list of waters needing TMDLs. For example, a waterbody with a severe water quality problem may be given a high priority for TMDL development in light of the severity of the concern. Conversely, a severe water quality problem may require complex analysis before developing a TMDL, and the state may therefore choose to give it a lower priority to allow time to collect necessary information and complete the analysis. Thus, the most severe water quality problems or the most toxic pollutants need not always be given the highest priority for TMDL development, if circumstances warrant a lower priority. EPA will review the priority ranking but will not take action to approve or disapprove it.

Federal regulations provide that "schedules for submissions of TMDLs shall be determined by the Regional Administrator and the State" (40 CFR 130.7(d)(1)). Factors such as the state's use of a rotating basin approach or commitments specified in court orders or consent decrees may be considered when states develop priorities and schedules. EPA recommends that states develop a schedule for establishing TMDLs as expeditiously as practicable and that the schedule (1) identifies which TMDLs will be established in each year of the upcoming integrated reporting cycle and (2) estimates the approximate number of TMDLs to be established for each year thereafter. EPA encourages the states to ensure that the schedule provides that all TMDLs for every pollutant-segment combination listed on previous section 303(d) lists be established in a time frame that is no longer than 8 to 13 years from the time the pollutant-segment combination is first identified in Category 5. EPA will not take any action on the schedule. The schedule is intended to help the public and EPA to understand the state's priorities and assist in work planning.

In developing their schedules, states will need to decide which TMDLs are higher priority than others. States need not specifically identify each TMDL as high, medium or low priority. Instead, the schedule itself can reflect the state's priority ranking. The CWA does not prescribe a particular method of expressing a priority ranking, and EPA believes a TMDL schedule is a reasonable, efficient way to demonstrate priority ranking. In some circumstances, the order in which TMDLs are established might be

subject to some modifications as the schedule is implemented, based on logistical efficiencies or data availability.