

Such waterbodies were assessed as threatened and assigned to Impairment Category 4B because the allowable pollutant loading needed to meet water quality standards has already been established in the NPDES permit (an enforceable document); consequently a TMDL is not needed. Since the target for meeting water quality standards is known, the next step is to develop and implement a plan to bring the discharger into compliance with its NPDES permit as soon as possible.

### 3.1.22 Pollutants with Unknown Sources

Pollutants with unknown sources causing impairment or threatened conditions were assessed as threatened or impaired and assigned to Impairment Category 5. If future investigations indicate that the source is primarily natural, the water will be removed from the impaired waters list for reasons discussed in section 3.1.8.

### 3.1.23 Weight of Evidence Approach for Aquatic Life Use Support Decisions

As indicated in Section 3.2, physical, chemical, toxicological, biological and/or habitat indicators can be used to assess the aquatic life use. If data for more than one indicator is available for assessments this can sometimes lead to conflicting assessment results. That is, one indicator might suggest that the designated use is not supporting (NS) while others may indicate a fully supporting (FS) use attainment status.

To resolve cases with conflicting data, DES uses a weight of evidence approach to make final assessment decisions. In general, this approach involves “weighing” the factors shown in the following table for each of the indicators. The assessment is then based on the indicator(s) with the highest weight (i.e., score). More specific criteria for resolving differences between biological and habitat assessments are provided in Section 3.2.4.

**Table 0-14: Factors Considered in the Weight of Evidence Approach**

Factor	Comments
Data Quality (Sampling and Analysis Protocols)	Data of high quality is given more weight than data of low quality.
Sample Time	Usually more weight is given to data which is the most recent, but one must also consider if samples were taken at times when exceedances are most likely to occur (i.e., the critical period). For example, when sampling for dissolved oxygen in rivers, water quality exceedances are most likely to occur during the summer months in the early morning when river flows are low and temperatures are high. If data for Indicator A indicated FS and was more recent but was not collected during the critical period, and data for Indicator B was older but indicated NS, more weight would be given to Indicator B as Indicator A data was not collected during the critical period.
Sample Location	Although AUs are theoretically homogenous, in reality, water quality differences can and do occur within an AU. In general, more weight is given to data that is collected the furthest downstream in an AU as

Factor	Comments
	it is more representative of all conditions affecting the AU. However if a particular location within an AU is suspected or known to have a greater likelihood of criteria exceedence, samples from that site would likely be given weight over a downstream site where water quality may have recovered.
Quantity of Samples	In general, more weight is given to the indicator which has the most data as it is more likely to be representative of the population being sampled, provided that a sufficient number of samples were collected during the critical period when violations are most apt to occur. In other words, quantity of data is not permitted to override critical condition data.
Type of Data (i.e., physical, chemical, toxicological, habitat and/or biological)	It is generally believed that for making aquatic life use assessments, biological data should be weighted more heavily than physical, chemical, habitat or toxicological data. This is because high quality biological data provide a direct measure of aquatic life and can detect the cumulative impact of multiple stressors on the aquatic community including new or previously undetected stressors over time. Physical/chemical data, on the other hand, provides a snapshot of river conditions when the samples were taken and do not account for the long term effects of stressors or the presence of other pollutants which may be impairing the biota.

### 3.1.24 Process for Determining Waters that Belong on the 303(d) List (Category 5)

Pollutants assigned to Impairment Category 5 (and their associated AUs), constitute the 303(d) List (see Section 3.1.3).

De-listing is the term commonly used to describe the process of removing a pollutant from the 303(d) list (Impairment Category 5). According to federal regulation (40 CFR 130.7), states must demonstrate "good cause" for not including waters on the list. Good cause can include, but is not limited to:

- more recent or accurate information,
- more sophisticated water quality modeling,
- flaws in the original analysis that led to the water being listed,
- changes in conditions (e.g., new control equipment, or elimination of discharges).

Consistent with the above, the following process was used to determine which impaired or threatened waters belonged on the 303(d) list (Impairment Category 5) and which should be listed in the other Impairment Categories (4A, 4B, or 4C). This process was carried out for each individual pollutant that threatens or causes impairment in an AU, as it is possible that one cause of impairment may require a TMDL but another does not.

***Step 1: Is the cause of the threatened or impaired water a pollutant?***