

Water Quality Assessment Program

Category 3B and Overwhelming Evidence

December 6, 2017

Determining Waterbody Status Using Small Data Sets

- EPA cautions states on making impairment and attainment decisions based on little data
- Tools available to states to identify waters that may be *potentially* impaired:
 - Overwhelming Evidence to list on 303(d) in conjunction with limited numeric data
 - Use of Category 3B in the 305(b) report

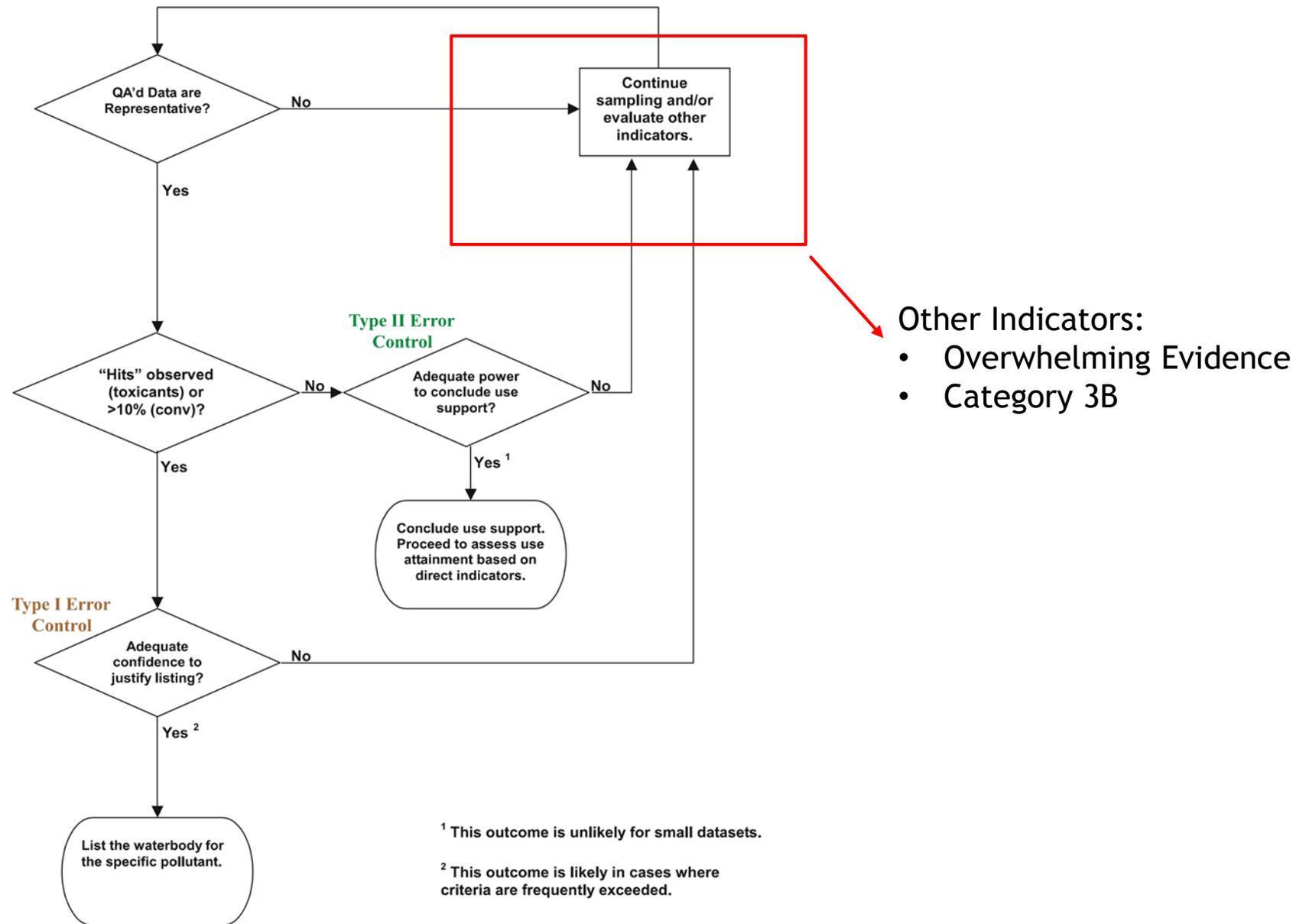


Figure 4-3. Sequential Decisionmaking. Making use support decisions, based on small sets of water column chemistry data, while balancing the risk of Type I (false positive) and Type II (false negative) decision errors.

OVERWHELMING EVIDENCE

- With limited data sets, our methodology allows us to classify waters as impaired through....
 - numeric data with excursions of criteria
 - and
 - overwhelming evidence of impairment
- 303(d) List- Category 5
- Multiple lines of evidence approach
- Case by case basis
- Methodology provides explicit cases where overwhelming evidence may be applicable

May include:

- Defined magnitude of exceedances
 - Example: 2 times the chronic magnitude
- Corroborated by nearby sampling locations or adjacent AUs
 - AU with insufficient data between 2 AUs that are Category 5
- Simultaneously impaired for biological criteria or similar parameter
- Excursion occurs in known period of critical conditions
- Other lines of evidence
 - Documented fish kill
 - Scientific/technical reports demonstrating impairment – must be linked to specific Oregon location

Assessment of Chronic Standards

Sample Size (n)	No. of Excursions	Overwhelming Evidence?	Action
1	1	NO	CATEGORY 3B
1	1	YES	CATEGORY 3B
2-18	1	NO	CATEGORY 3B
2-18	1	YES	CATEGORY 5

* Would not list as Category 5 based on one sample

CATEGORY 3B

With limited data sets and no other evidence of impairment (e.g., overwhelming evidence)....

Category 3B will be utilized to formally recognize a water body as potentially impaired

but

Also qualifying the impairment as insufficient to list as Category 5

CATEGORY 3B

Category	Description
Category 1	<u>All</u> designated uses are supported. (Oregon does not use this category.)
Category 2	Available data and information indicate that <u>some</u> designated uses are supported and the water quality standard is attained.
Category 3	Insufficient data to determine whether a designated use is supported.
	Oregon further sub-classifies waters if warranted as: 3B: Potential concern when data are insufficient to determine use support but some data indicate non-attainment of a criterion. ⁵
Category 4	Data indicate that at least one designated use is not support but a TMDL is not needed. This includes:
	4A: TMDLs that will result in attainment of water quality standards have been approved.
	4B: Other pollution control requirements are expected to address pollutants and will result in attainment of water quality standards.
	4C: Impairment is not caused by a pollutant (e.g., flow or lack of flow are not considered pollutants).
Category 5	Data indicate a designated use is not supported or a water quality standard is not attained and a TMDL is needed. This category constitutes the Section 303(d) list that EPA will approve or disapprove under the Clean Water Act.

Category 3B

- Identifies water bodies that are potentially impaired
- Where additional data collection is needed
- May be targeted for additional monitoring
- Methodology would provide explicit conditions or circumstances where Category 3B may be appropriate

Current guidelines for applying Category 3B are extremely limited:

Parameter	Data Requirement	IR Category
Toxic Substances	1 sample > criterion	3B
pH	When $n \leq 5$; ≥ 2 samples exceed criterion	3B
Dissolved Oxygen (grab)	When $n \leq 10$; < 10% samples exceed criterion	3
Dissolved Oxygen (continuous)	Insufficient data to calculate 30 and 7-day averages	3
Temperature	Insufficient data to calculate 7-day average max temperature	3

Where Category 3B may be appropriate

- Insufficient data
 - Dataset doesn't meet minimum requirement for Category 5/2
 - But evidence of sample excursions exist
- Conflicting indicators of attainment
- Data not quantifiable
 - Estimated data below method reporting limits
- Assessment of criteria with defaults
 - Measured data do not meet minimum data requirements
 - Data assessed using default inputs exceed criteria

Data does not meet minimum data requirement

Where.....

- At least 1 numeric water quality sample
- And excursion of criterion occurred
- But no additional overwhelming evidence of impairment

Conflicting Attainment Conclusions

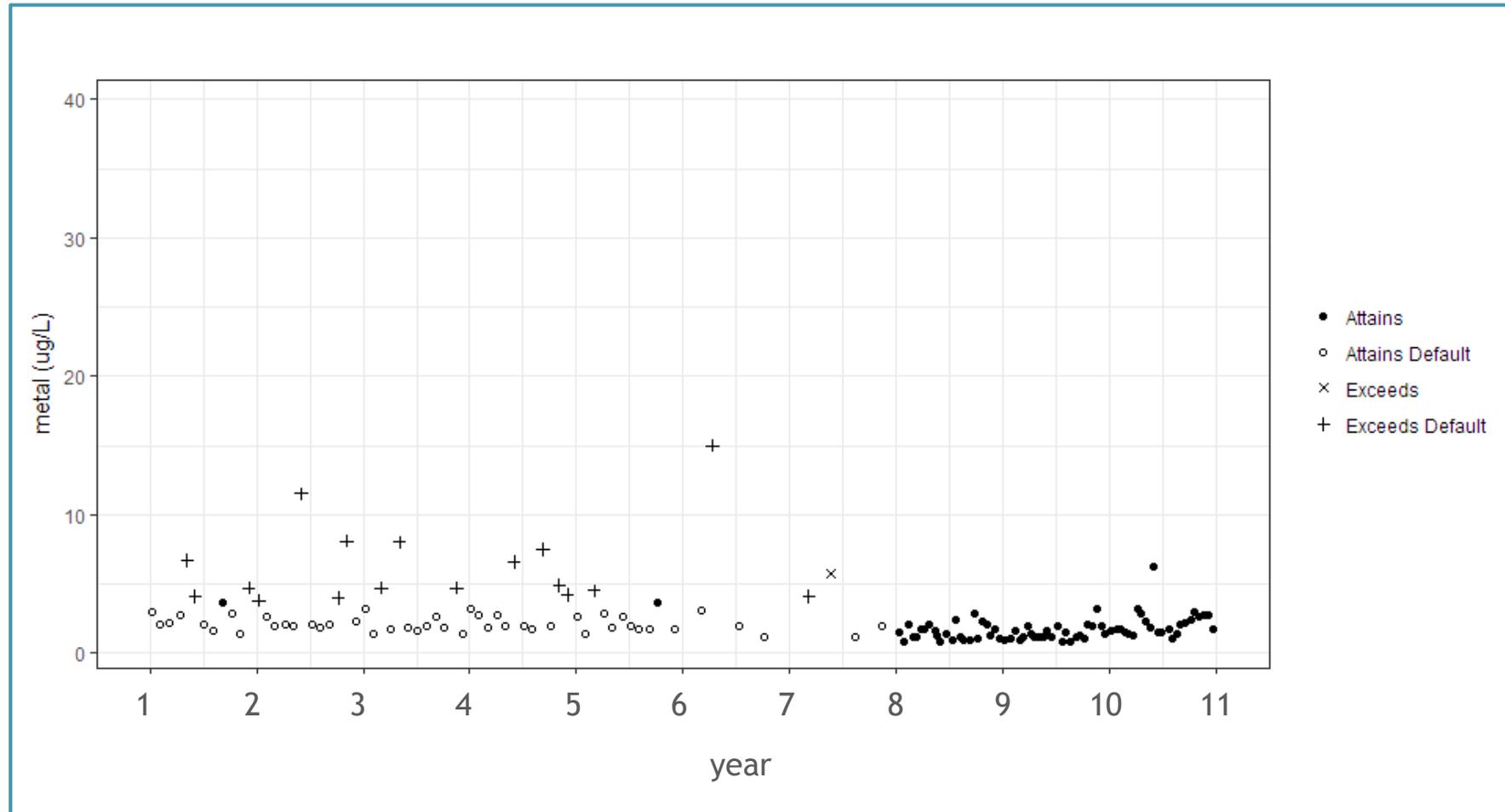
- Conflict between total recoverable metals data assessed against dissolved criterion

or

- Conflict between criteria generated from either measured or default criteria parameters (e.g. hardness-based metals, BLM)

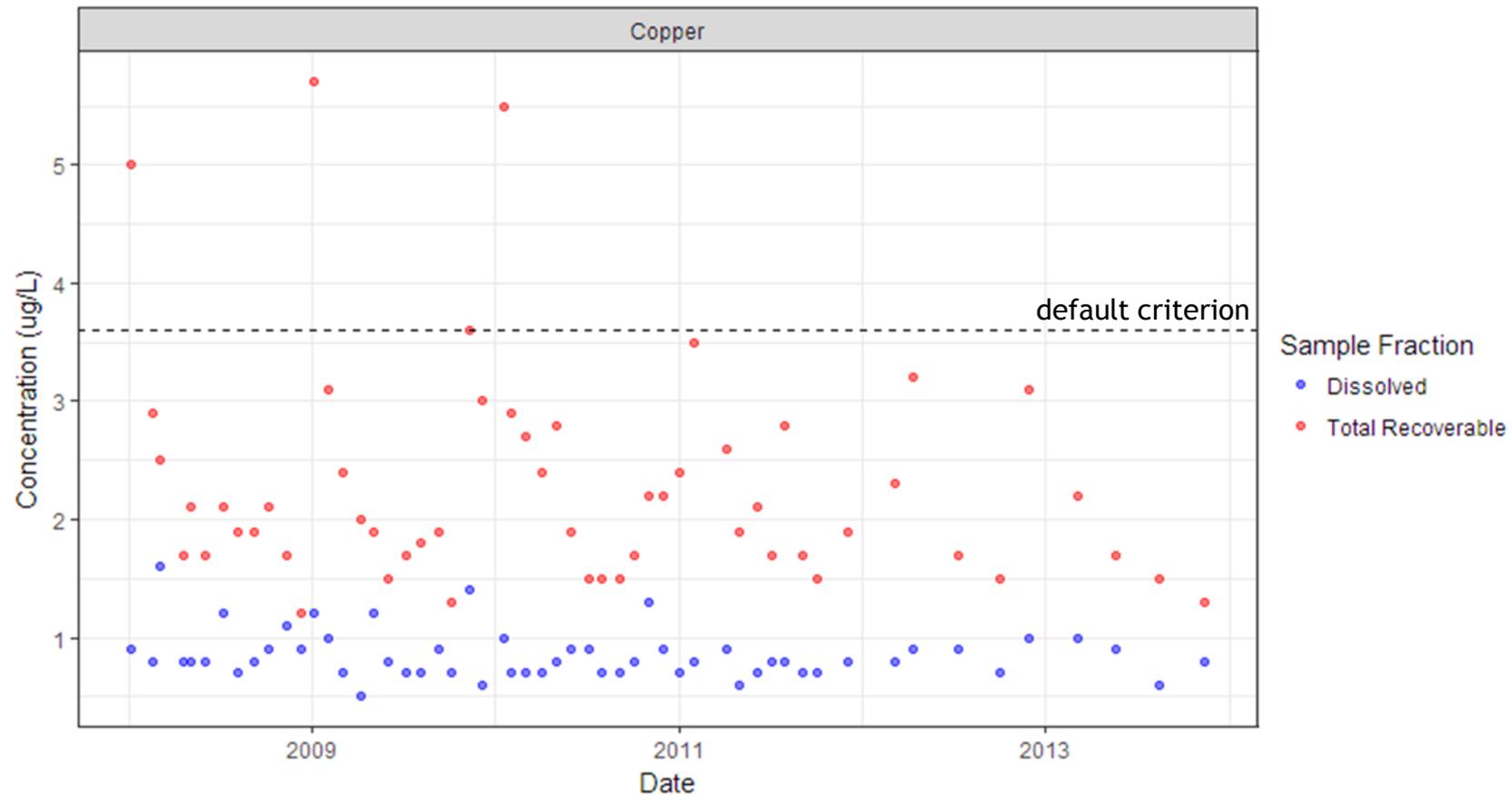
Conflicting Attainment Conclusions

Ex: Metals data with a mix of measured and default hardness-based criteria values



Conflicting Attainment Conclusions

Ex: Metals data with a mix of dissolved and total recoverable data for a dissolved criterion

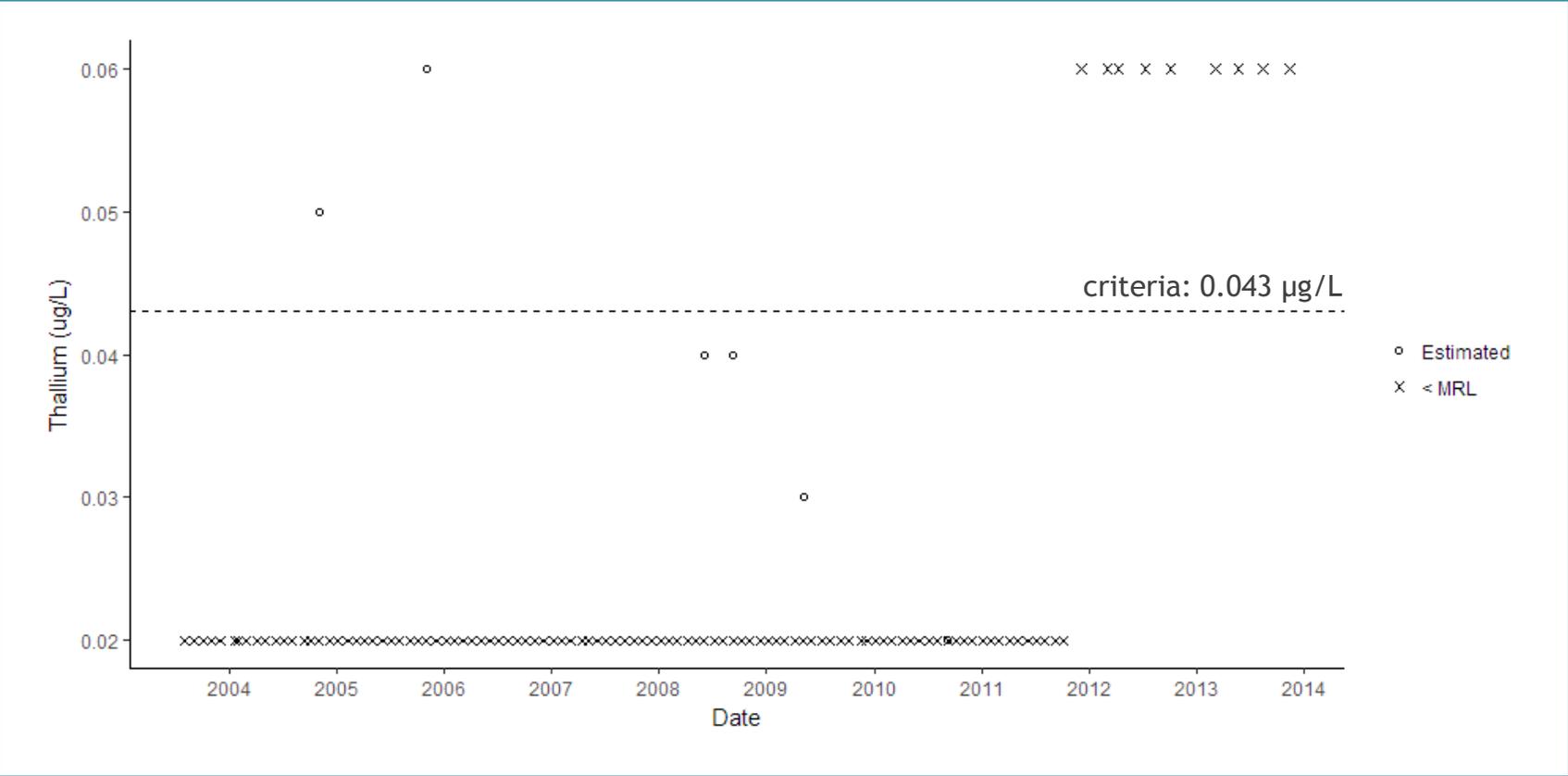


Non-Quantifiable Samples

- Excursions for sample results from estimated concentrations used below quantification limits
- No verifiable concentration value for samples
- Minimum reporting limit (limit of quantitation) may be above or below magnitude of WQ Criteria

Non-Quantifiable Samples

Ex: 2012 listing for Thallium



- Placed in Category 5 in 2012
- 217 total samples
 - 2 methods used with different reporting limits
 - 5 estimated sample concentrations
 - 2 are excursions above criteria
 - Remaining data below the criteria

DEQ Recommendations

- Revise “Section D – Determining Impairment Status” of Assessment Methodology
- Include specific lines of Overwhelming Evidence of impairment that would be considered
- Expand guidelines for use of Category 3B