

Classifying & Assessing Waterbodies: 3 Water Quality Standards Rules

An aerial photograph of Hillsboro, Wisconsin, showing a winding river through a landscape of green fields and autumn-colored trees. A town with houses and buildings is visible in the foreground and middle ground.

Goals:

- Accurate
- Consistent
- Efficient

Hillsboro, WI (Vernon Co.)

Water Quality Standards

- Clean Water Act Goal:
Restore and maintain the chemical, physical and biological integrity of the Nation's waters
- Required states to adopt water quality standards to protect fish, shellfish and recreation in and on the water
 - Designated Uses: Goals for the uses each waterbody should support
 - Water Quality Criteria: Benchmarks to protect the designated use (numeric or narrative)
 - Antidegradation: Policy and implementation procedures to protect high quality waters



Classifying & Assessing Waterbodies: 3 Water Quality Standards Rules



What are our expectations for this waterbody?

Is the biology meeting these expectations?

Is the phosphorus criterion right for the waterbody?

Why were these initiated?

- Two major components relate to phosphorus implementation
 - Bioconfirmation of phosphorus impairments
 - Not list as impaired if P is high but biology is good
 - Requires codifying a “combined criteria” approach
 - Site-specific criteria for phosphorus



- Dovetails with other needed changes
 - Updates outdated designated use framework
 - Codifies practices currently in use
 - Codifies a standard process to streamline future updates

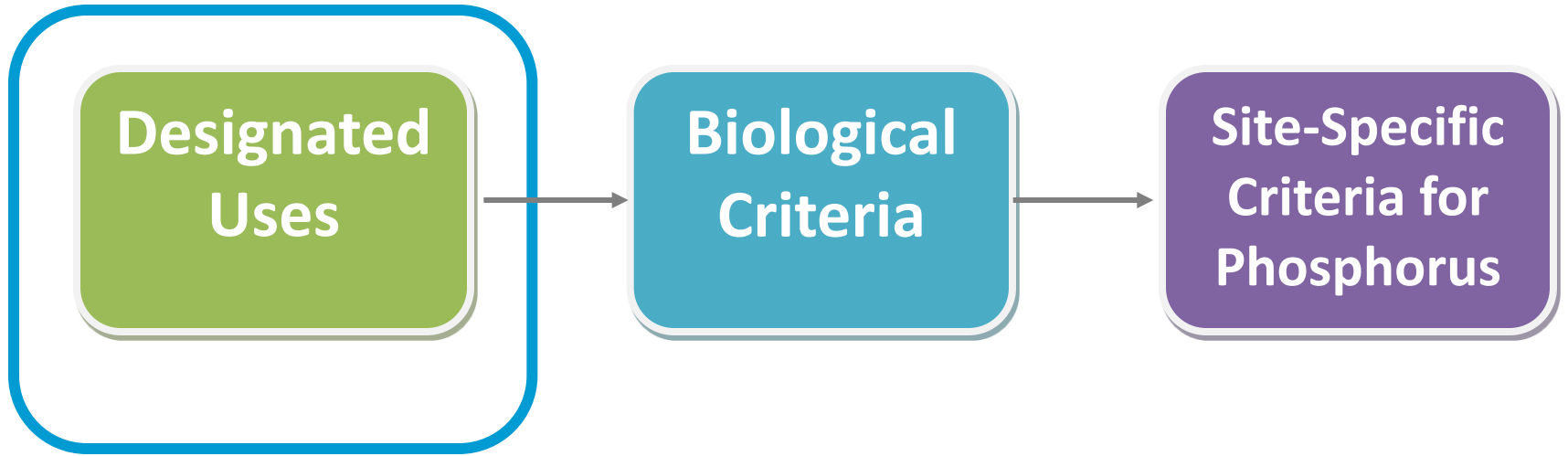
General Timeline



Advisory Committee Representatives

- ~20 members; umbrella group reps
- Began meeting early in the process
- Explain goals & content of rules
- Discuss how to improve rules





Wisconsin's Designated Uses



Designated Uses...The Foundation



Focus:



Goal: Accuracy & Efficiency

- Set correct expectations for permits & resource management
- Provide a streamlined approach

Current Fish & Aquatic Life (FAL) Uses:

- Coldwater
 - Warmwater Sport Fish
 - Warmwater Forage Fish
 - Limited Forage Fish
 - Limited Aquatic Life
- LFF & LAL with dischargers are not changing with this rule package

New Aquatic Life Uses:

Waterbody Type

+

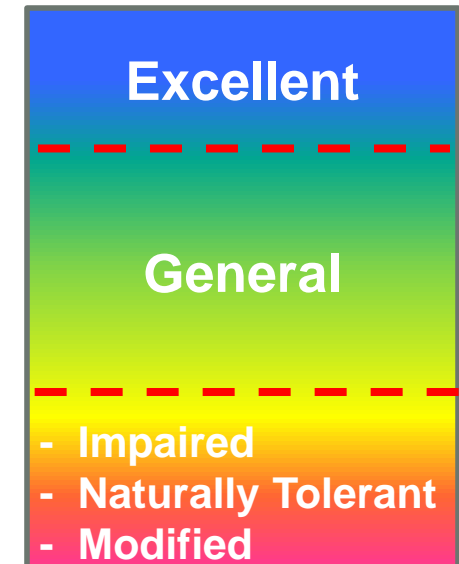
Biocondition Tier

Streams/Rivers

- Ephemeral Stream
- Macroinvertebrate
- Cold Stream
- Warm Stream
- River

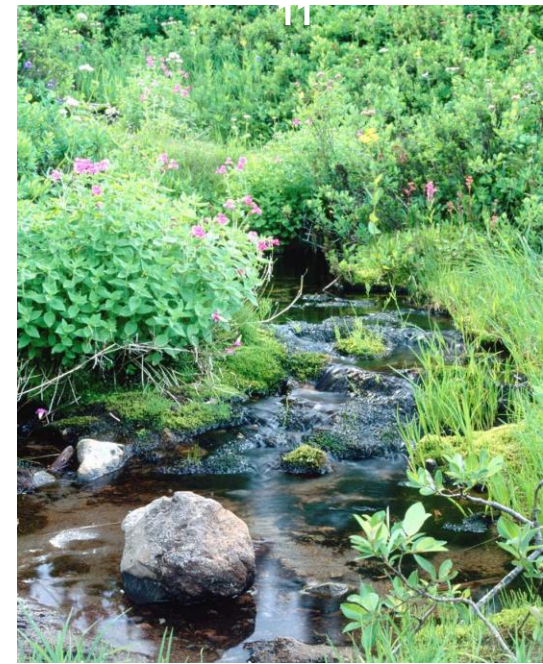
Lakes/Reservoirs

- Cold Lake
- Warm Lake
- Great Lake



Why are updates needed?

- Need to update waters never officially classified or misclassified
- Need categories for unrepresented groups: small streams without fish, cold lakes
- Provide a range of expectations:
 - Protect waters already in excellent condition
 - Less stringent criteria in small streams without fish & certain cases where impacts are uncontrollable
 - Differentiate between natural differences & human-caused impacts



Streamlining Revisions: Publish in a Non-Codified List

- For non-controversial updates, no rulemaking required
 - Promulgate the standard process instead of the results
 - Still goes through public comment & EPA approval
- Allow for rulemaking for those that may entail a cost or are controversial

Why?

1. Logistics

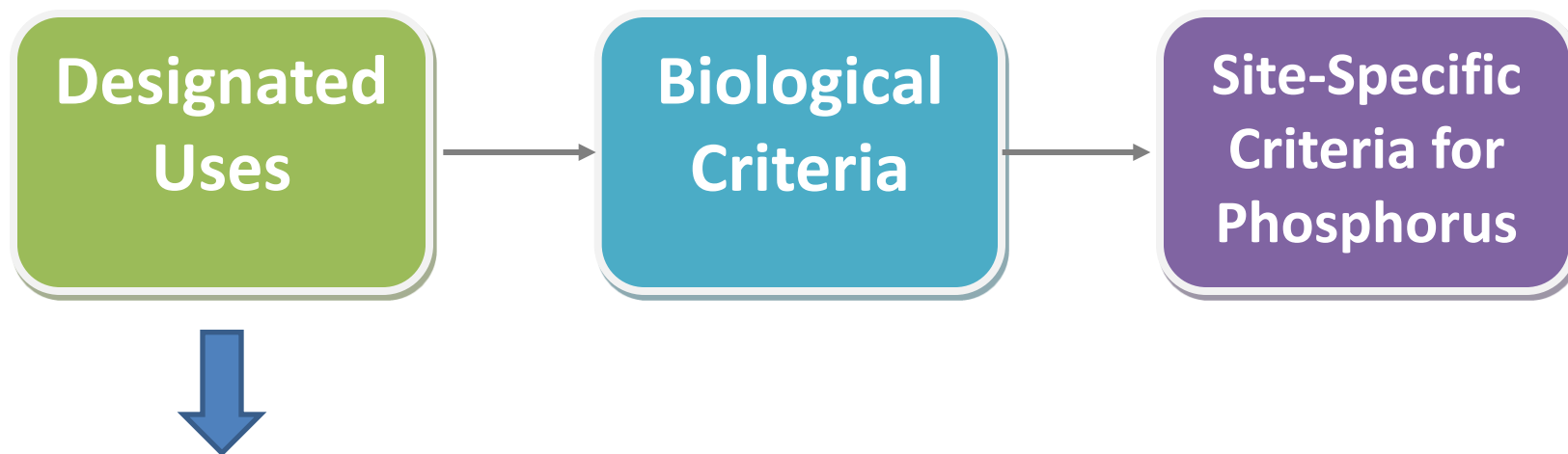
- Impossible to promulgate Uses for each individual waterbody in the state
- Solution: Use DNR databases & maps as official record of approved changes
- Similar to Impaired Waters List & Trout Classifications



2. Efficiency & timeliness

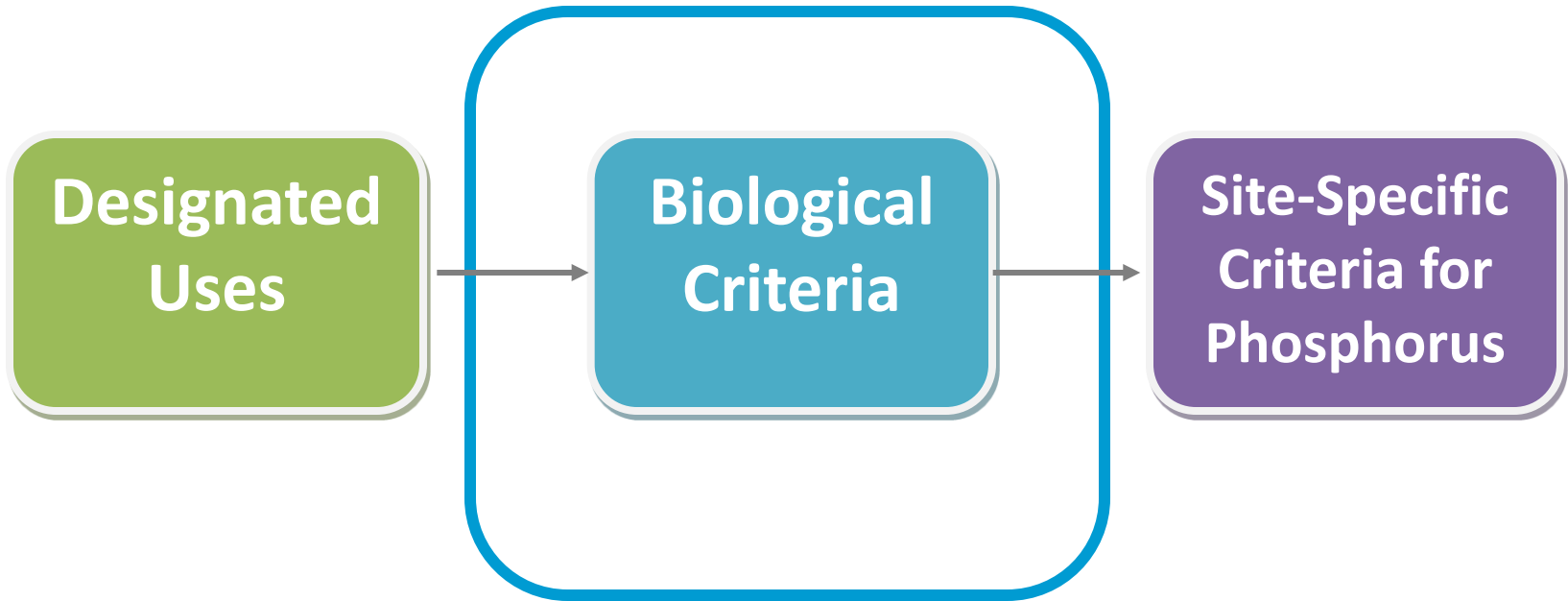
- Because Use changes currently require rulemaking, they have never been updated
- By not requiring rulemaking, DNR can accurately classify waterbodies as they are assessed, & results in more appropriate criteria for permittees

Cost considerations

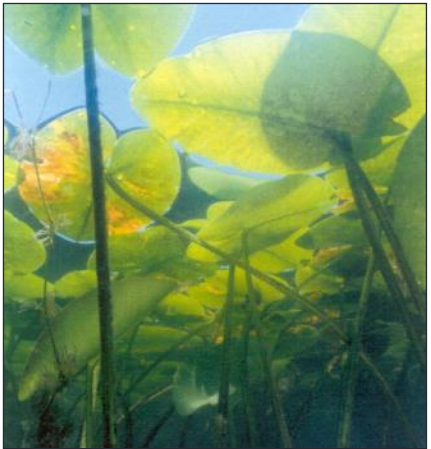
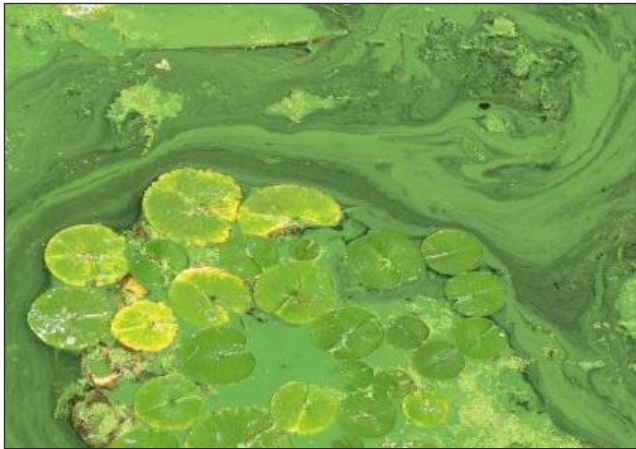


- If use is revised from Warm to Cold, may affect limits (~1-3% permits)
- Warm & Cold classification categories & criteria are not changing; use revisions may be needed regardless of this rule
- ★ Any revisions to individual waterbodies' uses that may affect permittees can go through a separate rulemaking process

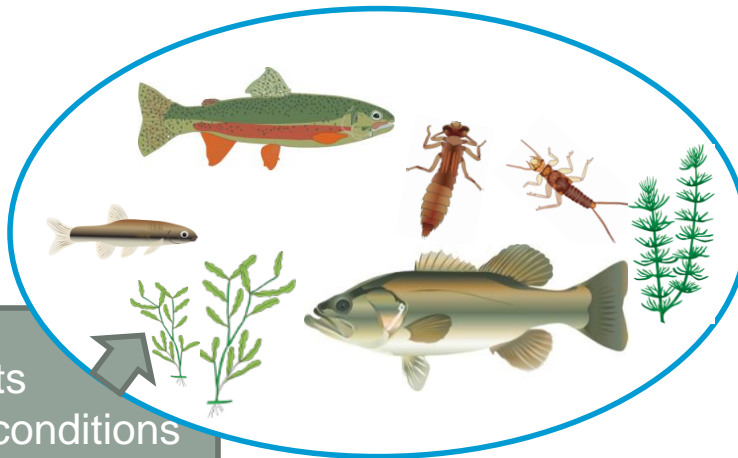
Goal: Minimize cost; ensure public participation



How do we assess if a stream is attaining its designated use?
Biology is our most direct measure of a waterbody's health.



Two types of Biological Metrics



- Pollutants
- Natural conditions
- Habitat impacts

Higher level communities
used to assess overall
health

→ “Biocriteria”

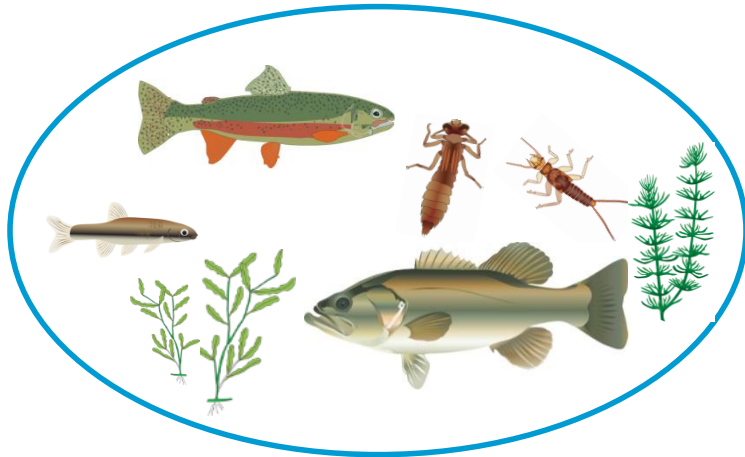


Algae & plants used to
assess phosphorus

→ “Phosphorus
Response Criteria”

Human & natural
nutrient inputs

Biological Criteria (Biocriteria)



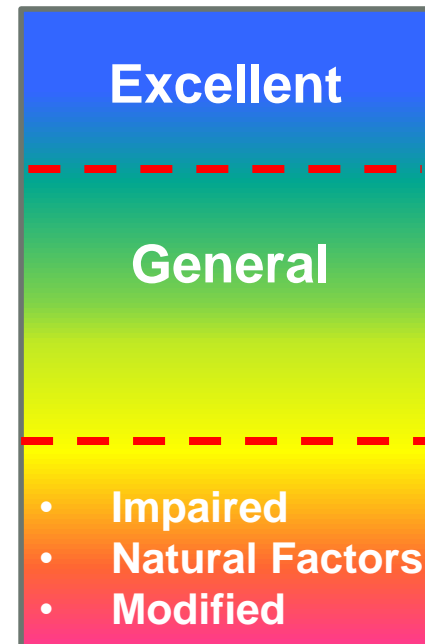
Streams & Rivers:

- Fish
- Bugs

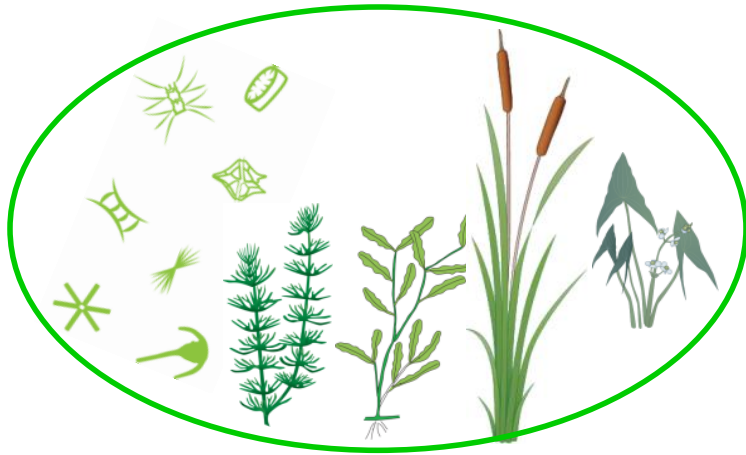
Lakes:

- Plants

- Have been in use for many years
- Developed using Wisconsin data
- Very common among states
- Moving from guidance to code



Phosphorus Response Criteria



Streams:

- Attached algae

Rivers:

- Suspended algae
- Bugs

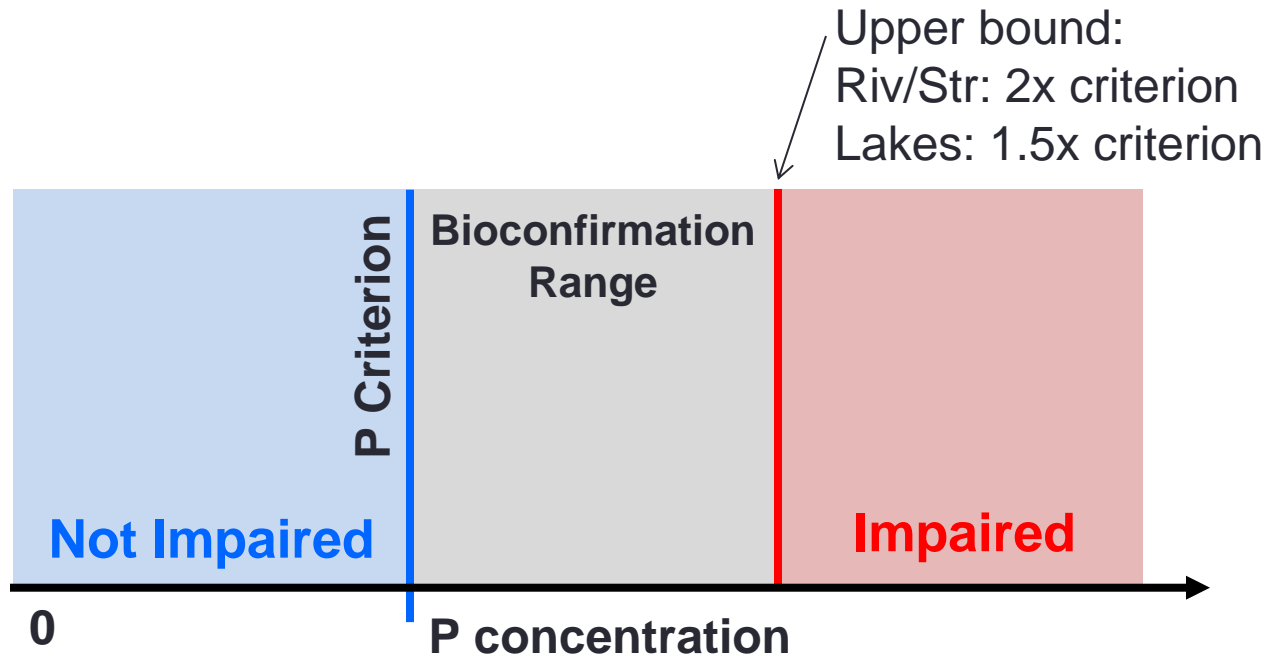
Lakes:

- Suspended algae
- Plants

- “First responders” to phosphorus
- Used in assessments for several years
- **Goal:** Base Impaired Waters listing on both the phosphorus concentration and whether there is a biological response

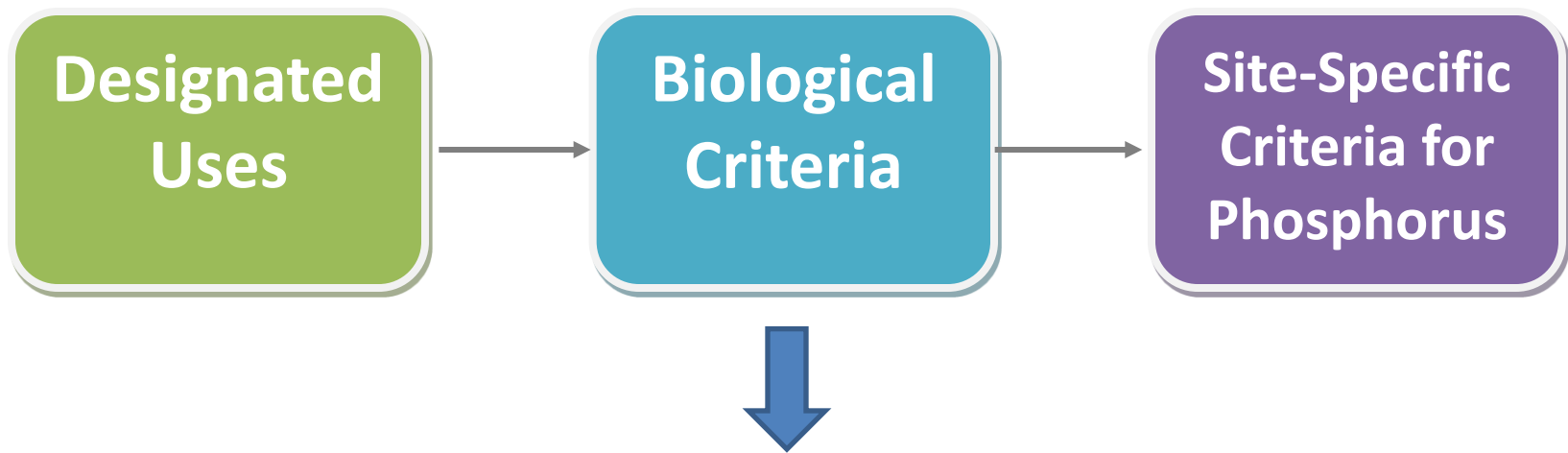


Phosphorus Response Criteria



- P Response Criteria used for:
 - Assessing for impairment due to P
 - Eligibility for less-stringent P Site-Specific Criteria

Cost considerations

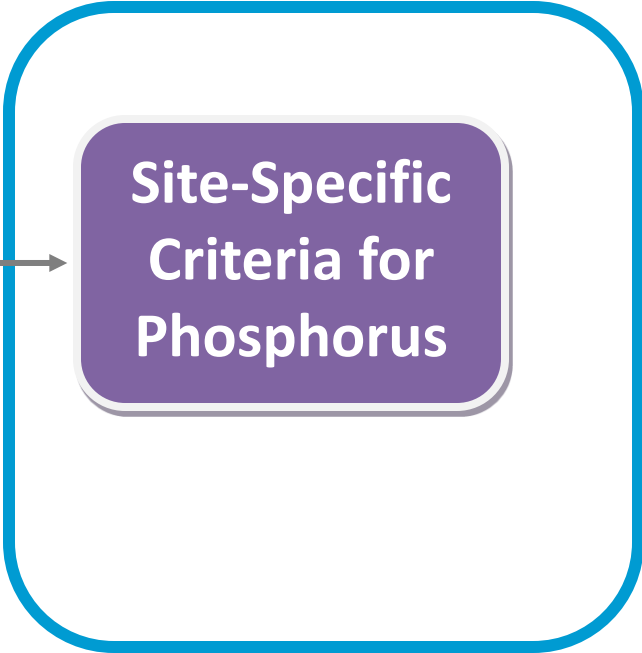


- Some waters would be added/removed from impaired waters list
- Listings for biocriteria are not expected to directly impact dischargers
 - Would require stressor ID study and site-specific criteria or TMDL before permit limits would be adjusted
- Listings for P don't directly affect permit limits because limits are dependent on separate calculation procedures in ch. NR 217
- Minimal economic impact

**Designated
Uses**



**Biological
Criteria**



**Site-Specific
Criteria for
Phosphorus**

Site-specific criteria for phosphorus

- Use SSC if the statewide phosphorus criteria are over- or under-protective
 - Only likely to apply to a small number of cases
- Authority for SSC is already in code, but lacks detail or process
 - This rule sets consistent requirements & a streamlined process
- 6 categories of eligible cases
 - 3 more-stringent; 3 less-stringent
- SSC based on protecting the waterbody and downstream waters
 - Protect Aquatic Life & Recreation Uses
 - Demonstrate using biological metrics



- SSC is a water quality standard, not a permit compliance option
- Similar to a TMDL, an SSC helps inform the permitting process, but is not a permitting tool

SSC is:

- Selected to be the appropriate P criterion for a waterbody
- Based on science
- Protective of designated uses
- Set to ensure downstream waters are not affected

SSC is not:

- Based on economics
- A change to the permitting system
- A compliance option



Compliance options:

- Adaptive Management
- Water Quality Trading
- Alternative Effluent Limits
- Upgrades

Other permitting tools:

- Compliance Schedules
- Variances

Six standard SSC categories

- Alternative methods also allowed

Less-Stringent

1. Exceeds P but biological metrics attained
2. Reservoirs with TMDL/modeling
3. High natural background P concentration

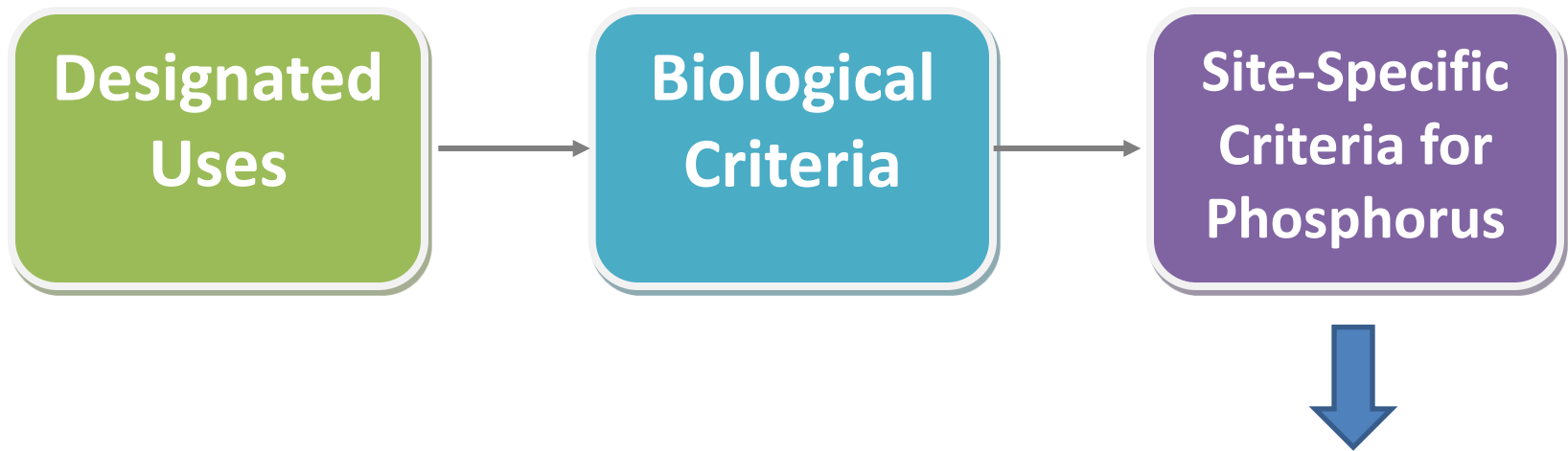
More-Stringent

1. Attains P but biological metrics are not attained
2. Impoundments with TMDL/modeling
3. Outstanding or Exceptional Resource Waters (OERW)

Cases typically not eligible

- Phosphorus is high & biology is not attained = Impaired
- Phosphorus & biology are both good = Not Impaired

Cost considerations



- Very few waters likely eligible for less-stringent SSC
- Slightly more waters eligible for more-stringent SSC
- Even when eligible, unlikely to affect treatment needed
- Minimal economic impact



Recap: Benefits

- Correctly classify waters & apply correct criteria
 - Recognize where higher or lower criteria are appropriate
 - Timely, efficient updates
- Codify biological metrics for transparency & consistency
 - Delist waters exceeding P but with good biology & waters for which we set lower expectations
 - Retain listing for waters where algae is a problem
- Site-specific criteria for phosphorus
 - Account for variability in how waters respond to P
 - Set standard process & expectations

Questions & Discussion

