

Using Phosphorus & Biology together: Developing Phosphorus Site-Specific Criteria

An overview of DRAFT rule concepts



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Background

- DNR is currently working on a group of rules related to how we classify and assess our waterbodies
- Two parts of the rules:
Biological Criteria & **Site-Specific Criteria for Phosphorus**
- SSC is a tool for implementing the P criteria

Overview

- What is an SSC?
- SSC are based on biological criteria & P Response Indicators
- Different types of SSC: Examples
- SSC Process

What is a Site-Specific Criterion? (SSC)

- An alternative criterion that can be developed for waterbodies where the statewide TP criterion is over- or under- protective.
Goal: To set a criterion at an appropriate level of protection.
 - There's a wide range of waterbody responses to TP levels, based on physical/chemical factors

★ TAKEAWAYS:

SSC are based on protecting the receiving water.

- Protect Fish & Aquatic Life uses & Recreation uses
- Demonstrated using **biological metrics**

SSC are NOT based on economics,
and they're not for everyone

Using Biology to Assess Waters

The biology can tell us two different things:

- How's the overall biological health?
→ **Biological criteria (biocriteria)**
- Is the biology showing a response to phosphorus?
→ **Phosphorus response indicators**



Biocriteria & Phosphorus Indicators

Biological Criteria (community level):

Streams/Rivers:

- Bugs
- Fish

Lakes:

- Plants
- Phytoplankton?

P Response Indicators (P-specific):

Streams/Rivers:

- Bugs (nutrient-specific metrics)
- Primary Productivity
 - algal biomass
 - Diatom Nutrient Index
 - chlorophyll a
- Dissolved Oxygen

Lakes:

- Primary Prod. (Chl a)
- Plants (TP-sensitive plants)
- Dissolved Oxygen

Using Biology to determine SSC eligibility:

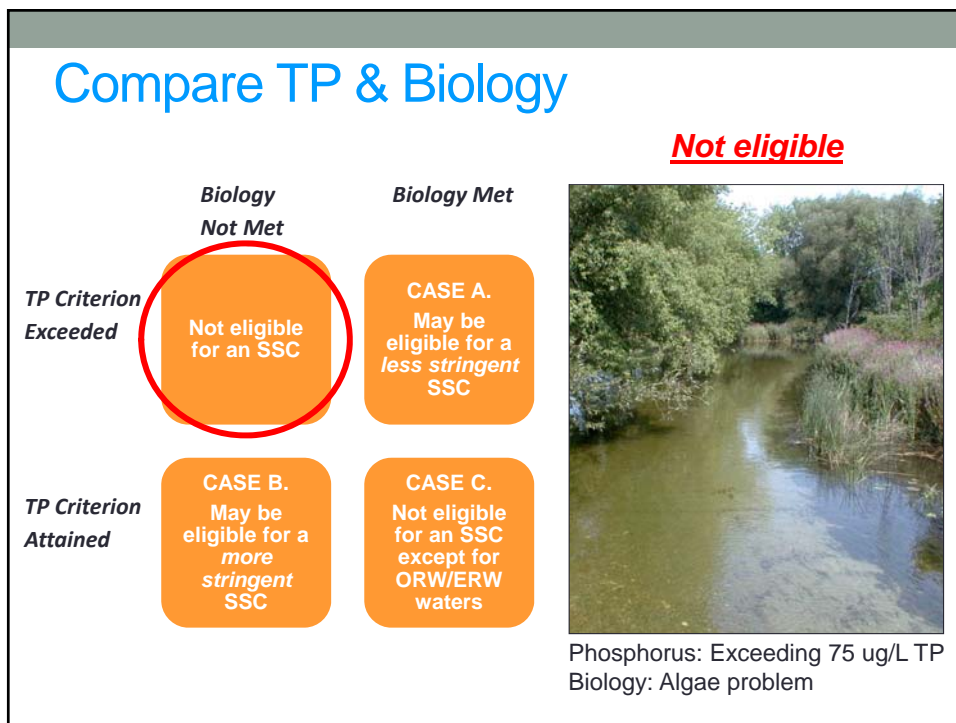
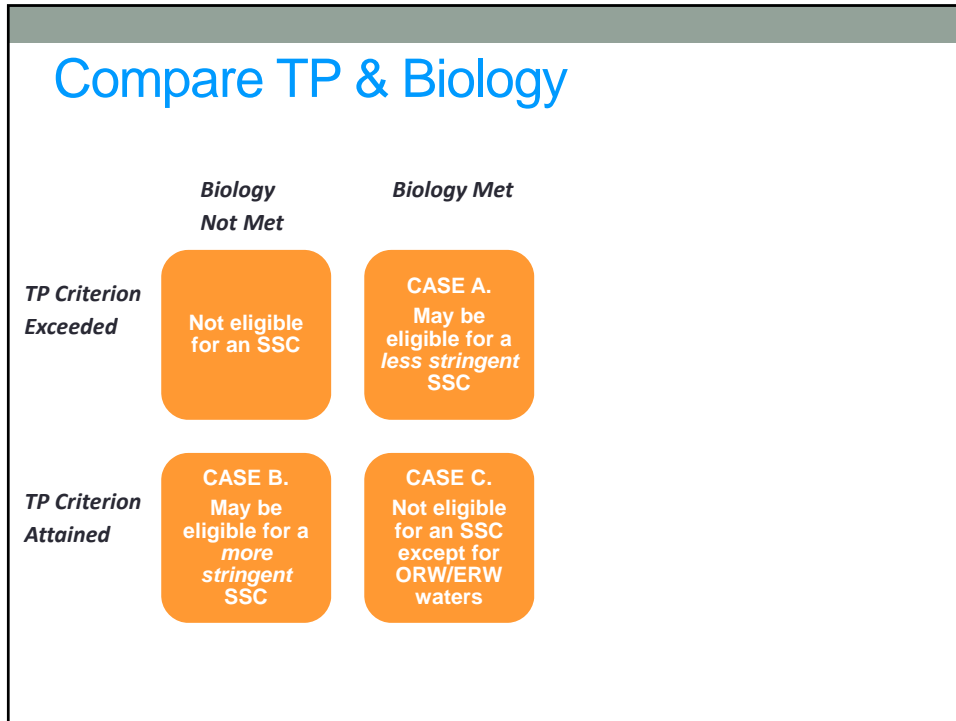
There are two main types of SSC:

- Less-stringent SSC (raise the TP criterion)
- More-stringent SSC (lower the TP criterion)


Which one you do depends on 2 questions:

1. Is waterbody meeting its statewide TP criterion?
2. Is the waterbody meeting its biological criteria & TP indicator thresholds?





Compare TP & Biology

	<i>Biology Not Met</i>	<i>Biology Met</i>	
<i>TP Criterion Exceeded</i>	Not eligible for an SSC	CASE A. May be eligible for a <i>less stringent</i> SSC	<p style="text-align: center;"><u>Not eligible</u></p>  <ul style="list-style-type: none"> Needs to go on the Impaired Waters List Needs clean-up/restoration; see if biology rebounds May need a Use Attainability Analysis (UAA)
<i>TP Criterion Attained</i>	CASE B. May be eligible for a <i>more stringent</i> SSC	CASE C. Not eligible for an SSC except for ORW/ERW waters	

Phosphorus: Exceeding 75 ug/L TP
Biology: Algae problem

CASE A: Setting a Less-stringent (higher) SSC target

	<i>Biology Not Met</i>	<i>Biology Met</i>
<i>TP Criterion Exceeded</i>	Not eligible for an SSC	CASE A. May be eligible for a <i>less stringent</i> SSC
<i>TP Criterion Attained</i>	CASE B. May be eligible for a <i>more stringent</i> SSC	CASE C. Not eligible for an SSC except for ORW/ERW waters

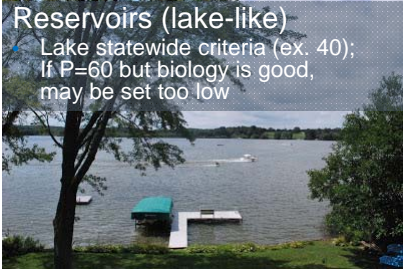
CASE A: Setting a Less-stringent (higher) SSC target

Most Likely for Less-Stringent SSC

	<i>Biology Not Met</i>	<i>Biology Met</i>
TP Criterion Exceeded	Not eligible for an SSC	CASE A. May be eligible for a <i>less stringent</i> SSC
TP Criterion Attained	CASE B. May be eligible for a <i>more stringent</i> SSC	CASE C. Not eligible for an SSC except for ORW/ERW waters

Reservoirs (lake-like)

- Lake statewide criteria (ex. 40); If P=60 but biology is good, may be set too low



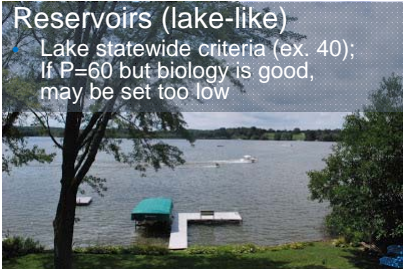
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Reservoirs (lake-like)

- Lake statewide criteria (ex. 40); If P=60 but biology is good, may be set too low



High Natural Background TP
(geology, etc.)
-Exceeds 40 but biology good



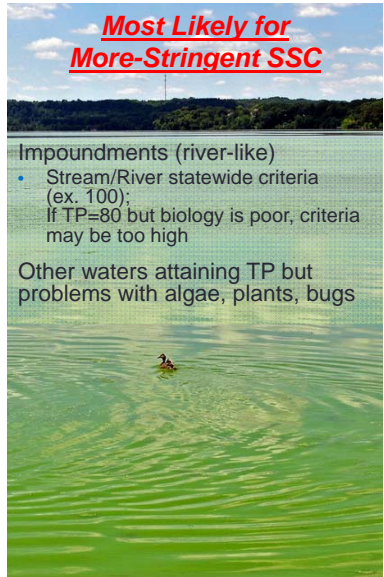
CASE A: Setting a Less-stringent (higher) SSC target

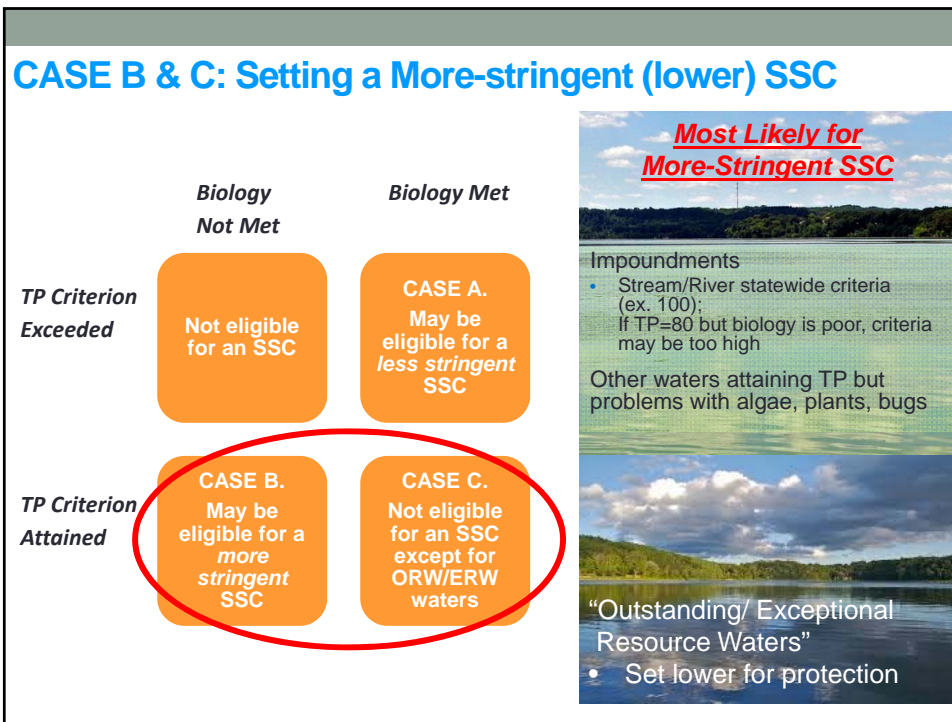
If TP exceeds criteria but biology is good, and downstream uses are also protected, **→** set the SSC at current ambient TP.

- Current ambient is protective of biology
 - Discharges capped at current discharge levels
- Document factors leading to lower sensitivity
 - high natural background TP, lake color, etc.
- Safeguard: continued monitoring for declines; revoke SSC if needed

CASE B & C: Setting a More-stringent (lower) SSC target

	Biology Not Met	Biology Met
TP Criterion Exceeded	Not eligible for an SSC	CASE A. May be eligible for a <i>less stringent</i> SSC
TP Criterion Attained	CASE B. May be eligible for a <i>more stringent</i> SSC	CASE C. Not eligible for an SSC except for ORW/ERW waters





SSC Process

- A. Preliminary Action Plan
 - Review existing data
 - Submit preliminary plan & meet with DNR
- B. Monitoring/Modeling
 - 2 yrs monitoring data needed
- C. Data Analysis & Selection of SSC Target
 - Includes verifying downstream protection
- D. Submittal, Review, & Approval
 - DNR review & Public comment
 - EPA approval
 - Codification

Timeline for requestor & DNR

- Will take multiple years if need monitoring, modeling, and/or codification
- Cyclical schedule for submissions, reviews, and approvals
- Conscious of permitting timeline needs
 - More frequent cycle for the first 5 years? Every 2-3 years after that?



Discussion? Questions?



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