

Charge for the Day

Inform the development of the study protocol:

1. Share understanding of what is known about the effects of sulfate and sulfide on wild rice.
2. Identify the most critical “unknowns” and associated hypotheses needed to inform further evaluation and, if warranted, revision of the wild rice sulfate standard.
3. Recommend study design(s) and methods to test the most critical hypotheses.

wq-s6-40c



Wild Rice Sulfate Standard Overview

Protocol Development Technical Discussion

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Presentation Overview

- ❑ Background
 - Water Quality Standards
 - Wild Rice Sulfate Standard
- ❑ Concerns about the Wild Rice Sulfate Standard
- ❑ Wild Rice Standards Study Protocol



Credit: U.S. Fish and Wildlife Service



Water Quality Standards

- Fundamental tools to protect waters
- Three components:

1. Beneficial use classifications for waterbodies

2. Numeric and narrative criteria that protect those beneficial uses

3. Nondegradation requirements to provide extra protection to high quality waters

- Clean Water Act directs states to establish standards; review every three years



Numeric and Narrative Criteria

❑ Narrative criteria

- Prohibit unacceptable conditions in/on water to protect beneficial use
- Example: "No waste shall be discharged...so as to cause any nuisance conditions, such as..."

❑ Numeric criteria

- Sets a specific concentration for a pollutant that will maintain beneficial uses
- Can be acute or chronic (toxics), or neither (phosphorus)
- Magnitude, duration, frequency



Wild Rice Sulfate Standard

- ❑ Past studies have found wild rice stands diminish as sulfate concentrations increase
- ❑ Sulfate standard adopted in 1973 to protect wild rice
- ❑ Three key elements:
 - Where, What, When



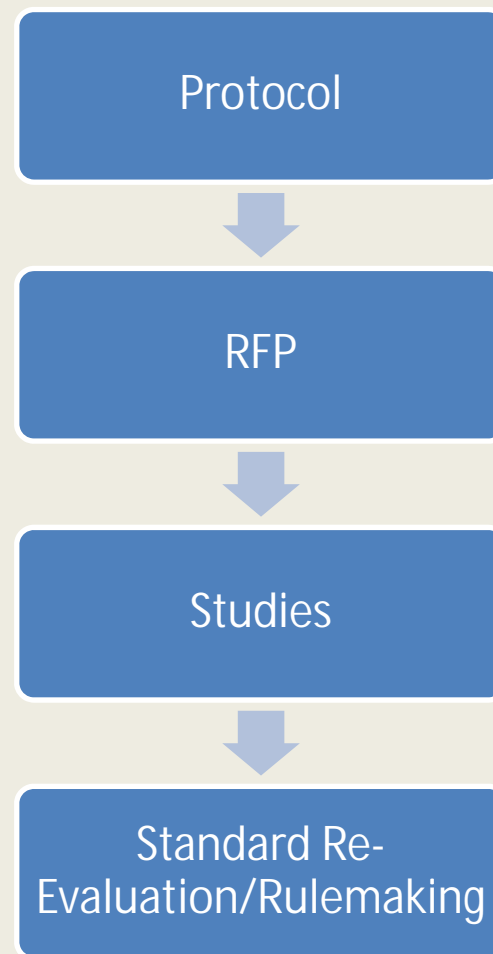
Questions about Sulfate Standard

- ❑ Clarify “where”
 - Define “water used for production of wild rice”
 - Part of standards update already underway
- ❑ Review “what” and “when” (10 mg/L numeric standard; period of sensitivity)
 - Additional information needed



Study Protocol

- Get advice and agreement on study approach
- Process for protocol development:
 - Consult with EPA and Tribes
 - Input from stakeholders
 - Discuss with scientists / experts
 - Draft for review and comment
- Target for final protocol: June 30, 2011



Study Components

- ❑ Anticipated key research questions:
 - Enhanced understanding of sulfate toxicity, to guide dose-response tests
 - Effects over full life cycle of plant
 - How other key factors vary with or may be affected by sulfate/sulfide
 - How to measure wild rice “health”
- ❑ “Field” and “experimental” components



Questions/Comments?

