

Overview of Water Quality Standards



Shannon Lotthammer
Manager, Water Assessment and
Environmental Information Section



What Are WQ Standards?

- Fundamental tool of the Clean Water Act
- CWA objective:
 - “Restore and maintain the chemical, physical and biological integrity of the nation’s waters”
- Address three key questions:
 1. What and who are we protecting?
 2. What conditions are protective?
 3. How do we maintain high water quality?



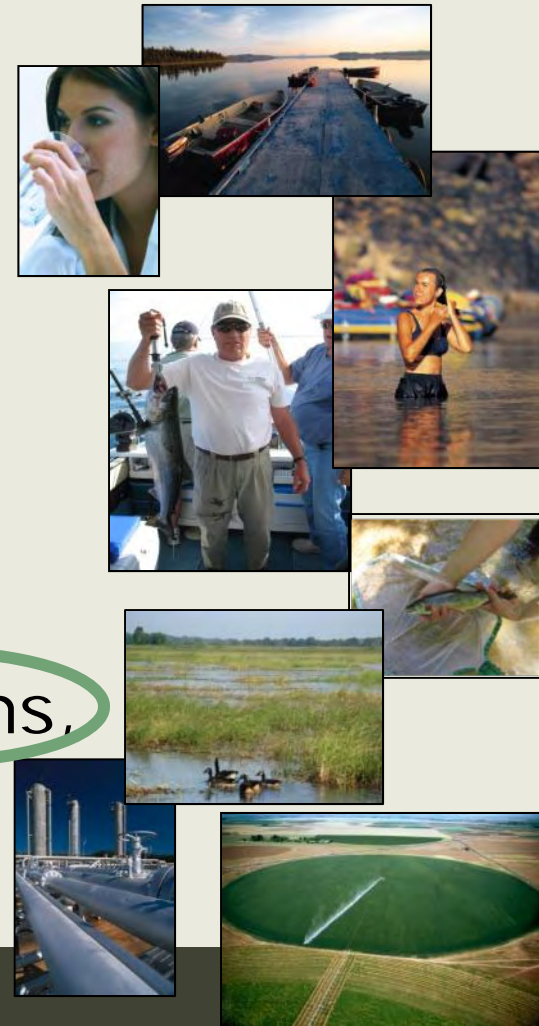
Who/What is Protected?

- Waters are assigned beneficial uses
- Clean Water Act (Section 303(c)(2)(A)):
 - "...use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agriculture, industrial, and other purposes, and also...use and value for navigation."
- Minnesota Statutes (Section 115.44, Subd. 3):
 - "...best usage in the interest of the public..."
- "Fishable and swimmable" interim goal



Beneficial Uses

- Seven classes in MN Rules:
 1. Drinking water
 2. Aquatic life and recreation
 3. Industrial use and cooling
 4. Agricultural and wildlife use
 5. Aesthetics and navigation
 6. Other uses
 7. Limited resource value
- Different expectations for streams, lakes, wetlands
- Classes developed in 1960-70s





What Conditions are Protective?

- Criteria identify the conditions needed to achieve and maintain the beneficial use
- Can be descriptive or numeric
- Supported by science
- Updated as science advances
 - Helps us understand and describe what we are protecting (the Beneficial Use), and
 - The water quality needed to achieve that Use



Aquatic Life & Recreation examples:

Criterion	"...no material increase in undesirable slime growths or aquatic plants, including algae..."	6.9 ng/L total mercury in water (outside of Lake Superior Basin)	5.0 mg/L oxygen as a daily minimum, 50% of the days when receiving water flow equals the 7 day, 10-year low flow ($7Q_{10}$)
Protects for:	Aesthetics, swimming	People eating fish	Fish growth and survival





How Is Good Water Quality Protected?

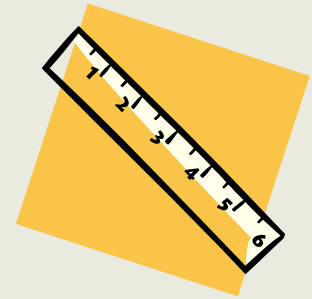
- Antidegradation is a key protection tool
- Different levels of protection:
 1. Maintain existing uses
 2. Protect high quality waters – only allow degradation if:
 - Avoid and minimize impacts
 - Demonstrate need for important social or economic development
 - Protect existing uses
 3. Maintain ORVWs



How Are Standards Used?

- Measures/benchmarks
 - Monitoring and Assessment
 - Communication

- Controls/Restoration
 - Permits
 - Antidegradation review
 - TMDLs



WQ Standards: Summary

- **It all goes back to uses**
- Required by Clean Water Act and MN Stat.
- Public review at least every 3 years
- 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



Tiered Aquatic Life Uses (TALU)

- Refined approach to aquatic life beneficial use
- Made possible by better biological data and understanding
- Beginning with rivers/streams, potential for other waterbody types in the future (lakes, wetlands)
- Planned adoption into rule in 2014
- Implemented in new/reissued permits and assessments





Questions??

Thank You!

