

Water Quality Conditions Assessment and Reporting of the Nutrient Problem Affecting Ohio Water Resources

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Clean Water Act



The goal is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.



Reporting/Listing in a Nutshell

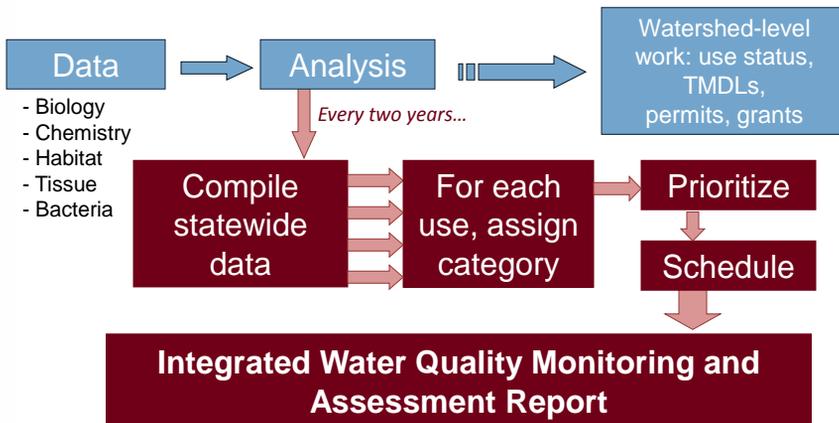


- *assess condition*
- *prioritize problems*
- *schedule work*

Integrated Report
2012



Integrated Report Process



Watersheds: Results by Category

Category	Human Health	Recreation	Aquatic Life	Public Drinking Water Supply
Fully supporting	180	102	312	36
Can't tell	850	671	247	76
Not supporting – action not required	0	344	440	1
Not supporting – action required	508	421	539	4



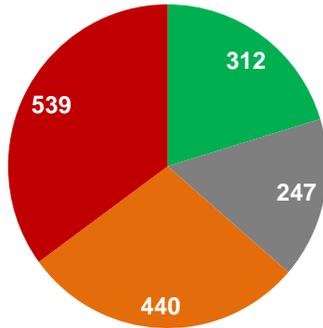
Large Rivers: Results by Category

Category	Human Health	Recreation	Aquatic Life	Public Drinking Water Supply
Fully supporting	1	1	14	2
Can't tell	2	18	0	4
Not supporting – action not required	0	4	6	0
Not supporting – action required	35	15	18	3

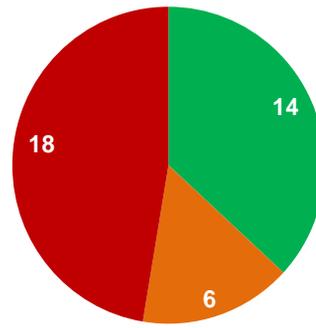


Aquatic Life Use Data Results

Watersheds



Large Rivers



Determining Aquatic Life Use Attainment Status And Causes and Sources of Impairment

- Attainment status is driven by response indicators (i.e., Ohio's biocriteria).
- Cause and source determination involves the interpretation of multiple lines of evidence.
 - ✓ Water chemistry data
 - ✓ Sediment data
 - ✓ Physical habitat data
 - ✓ Effluent data
 - ✓ Biomonitoring test data
 - ✓ Land use data
 - ✓ Biological response signatures within the biological data
- The assignment of principal causes and sources of impairment represents the association of the impairment (defined by response indicators) with the most probable stressor and exposure indicators.



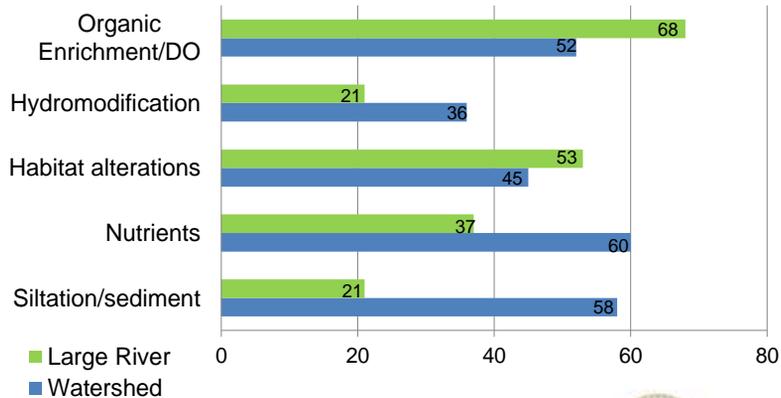
What's Causing the Problems?

Most aquatic life impairment is caused by **land disturbances** related to agriculture activities and urban development.



Five Common Aquatic Life Causes

Percent of impaired assessment units that list each major cause



Hydromodification



Examples:

- stream impoundments (e.g., low-head dams)
- agricultural drainage systems (e.g., field tiles)
- urbanization (e.g., “hardening”)

Streams impacted by hydromodification:

Large Rivers – 21%
Watersheds – 36%



Habitat Alterations



Examples:

- removal of riparian vegetation
- channelization
- stream bank modifications
- culverting

Streams impacted by habitat alterations:

Large Rivers – 53%
Small Streams – 45%



Silt and Sediment

Examples:

- construction
- unrestricted livestock access
- overland erosion



Streams impacted by silt and sediment:

Large Rivers – 21%
Watersheds – 58%



Organic Enrichment and Dissolved Oxygen



Examples:

- wastewater treatment plants
- home sewage treatment systems
- livestock manure discharges

Streams impacted by organic enrichment:

Large Rivers – 68%
Small Streams – 52%



Nutrients



Examples:

- agriculture (e.g., crop fertilization)
- urban runoff (e.g., lawn fertilizers)

Streams impacted by nutrients:

- Large Rivers – 37%
- Small Streams – 60%



Initial Questions?

