

401 Water Quality Certification and Isolated Wetlands Permitting in Ohio



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Division of Surface Water

Session Overview

- Part I: Why this is Important
- Part II: Brief Overview of Laws and Rules
- Part III: Stream and Wetland Assessment Methods
- Part IV: 401/Isolated Wetland Permitting Processes
- Part V: What's New/What's Next

Part I: Why is this Important



Federal Clean Water Act Goals

National water quality objective, as contained in the Federal Clean Water Act, is:

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



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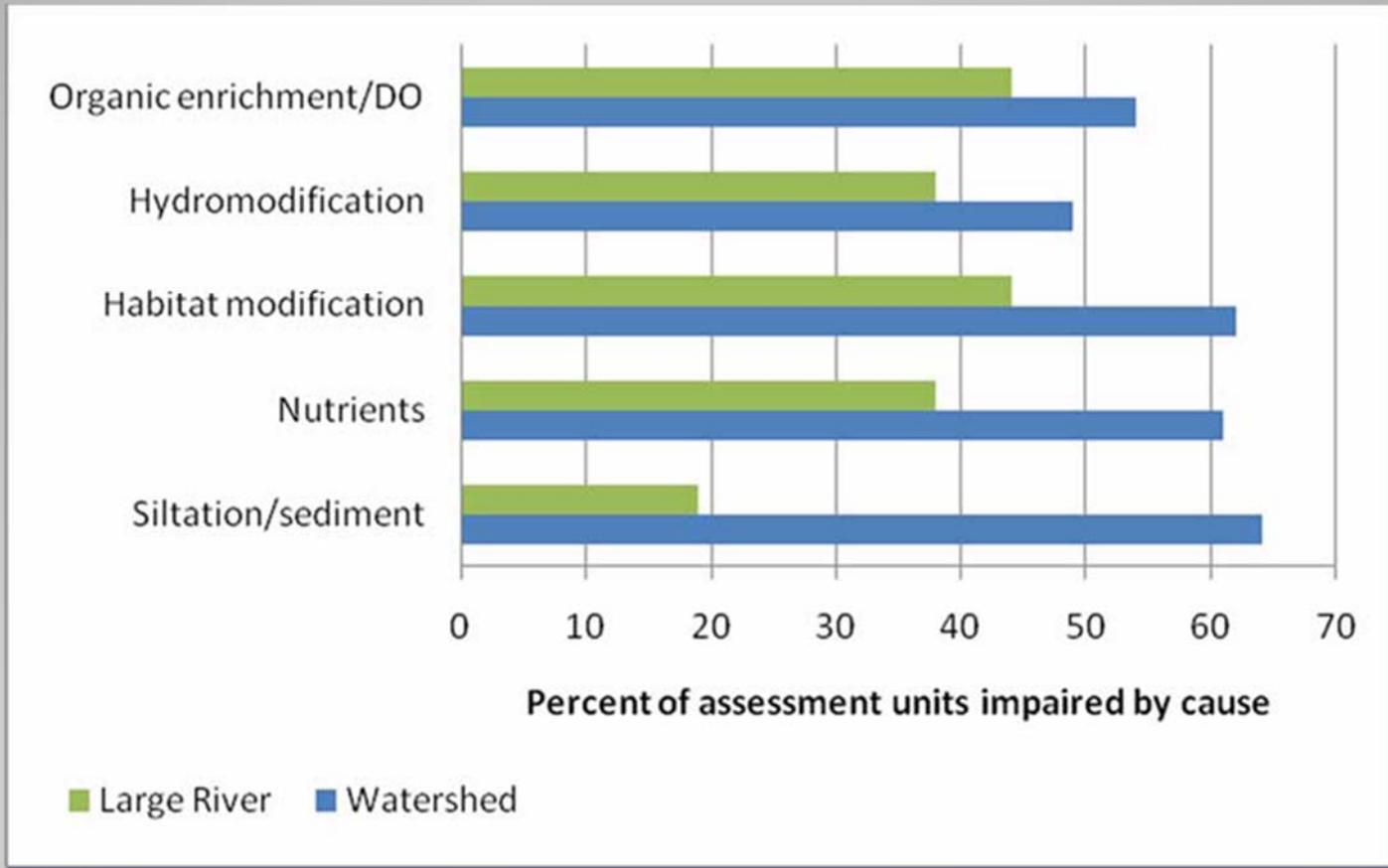
Federal Clean Water Act

- Section 319 NPS implementation
- Section 208 water quality management plans
- Section 303 (d) TMDLs
- Section 402 NPDES permits
- Sections 404 and 401 discharge of dredge and fill material

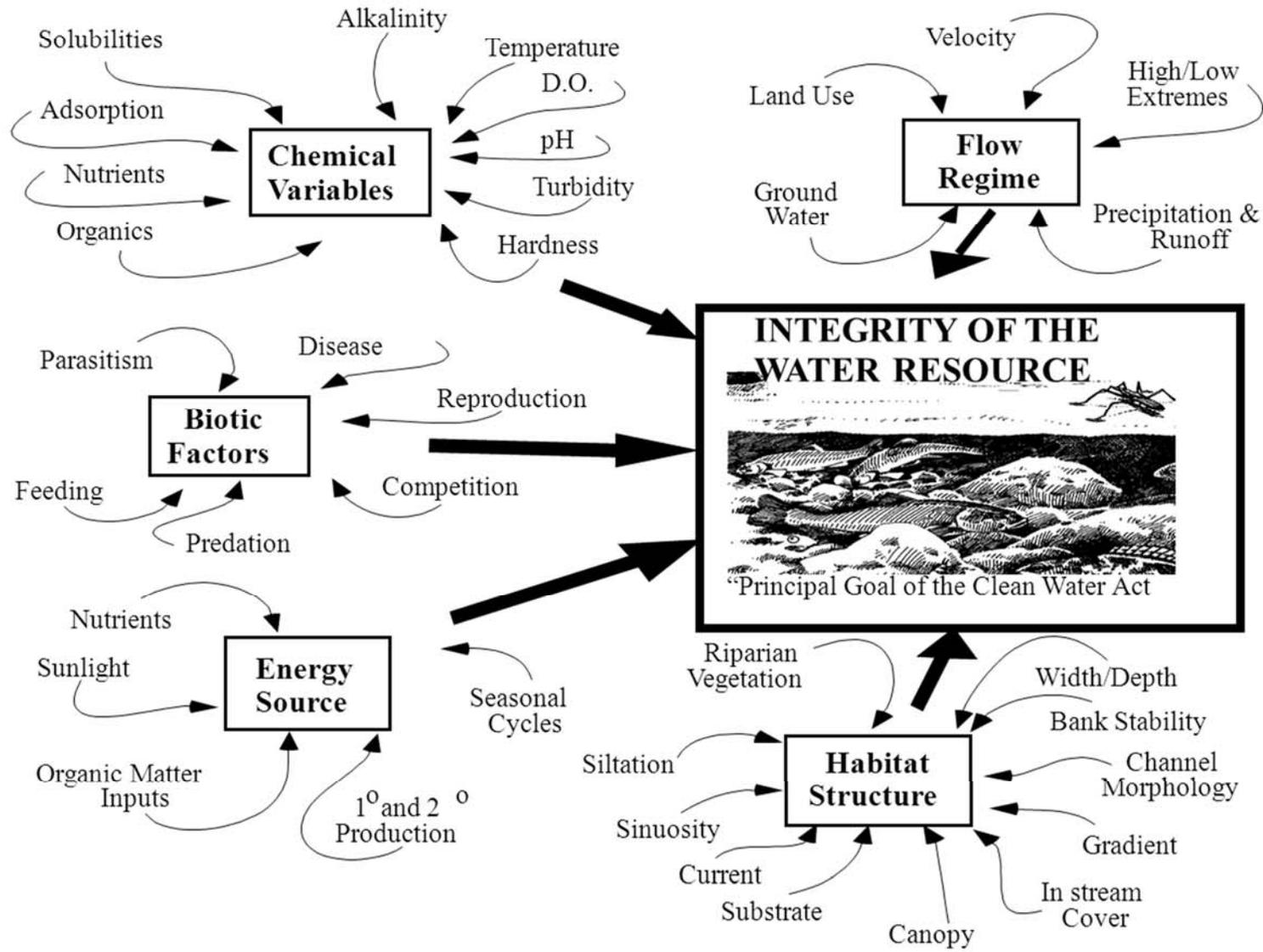
Reference Reaches

- Water Quality criteria is based on reference reaches defined as the “best attainable condition” for a region of the state.
- “Reference condition” does not reflect pristine pre-European settlement conditions.
- Ohio EPA has identified reference reaches in various locations of the state.

Five Most Common Causes of Stream Impairment



Factors that Determine Stream Quality



Common Wetland Functions

- Wildlife Habitat
- Flood water retention
- Pollutant filtering and treatment
- Groundwater recharge
- Recreation – hunting
- Education

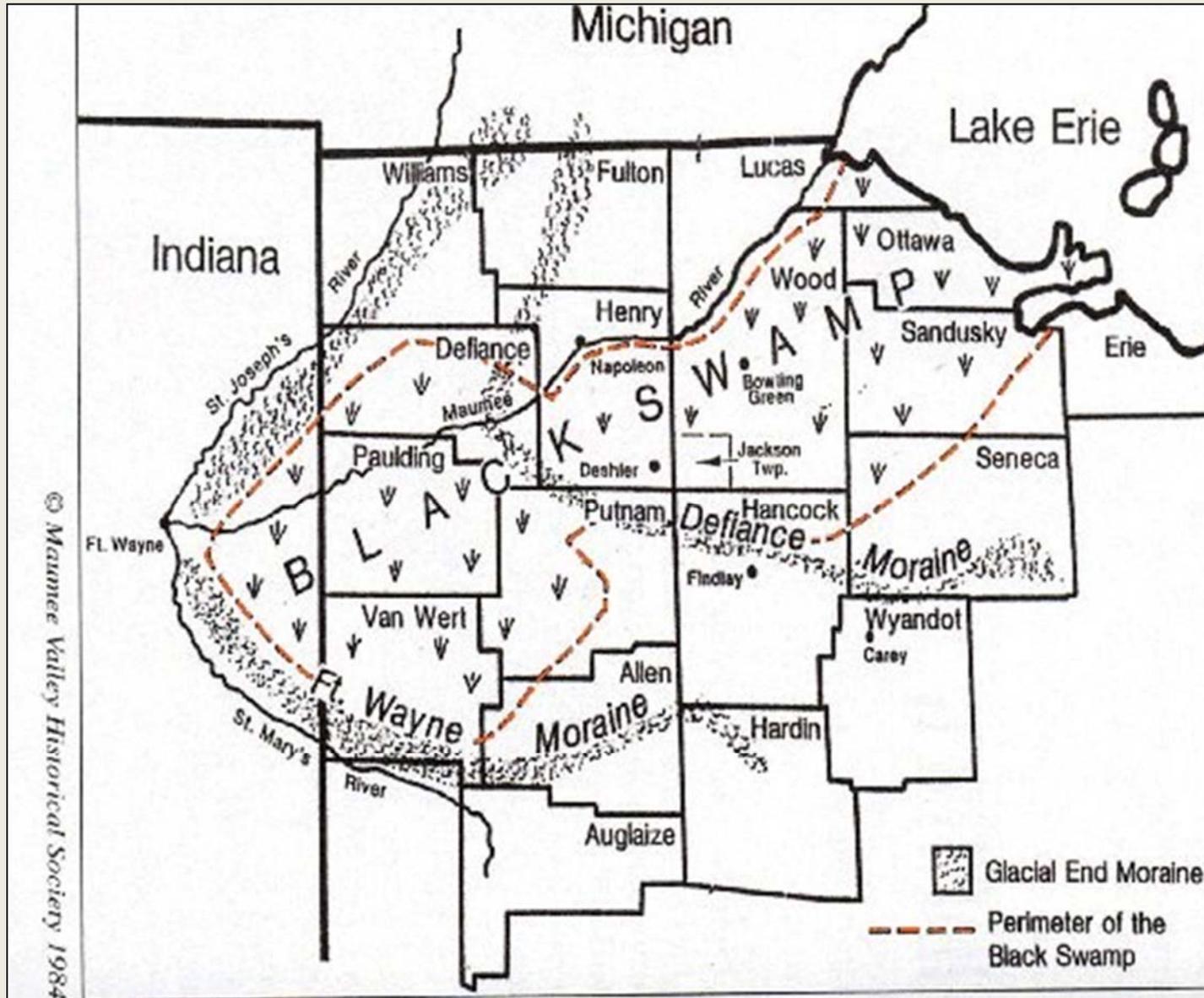


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Wetlands Loss in Ohio

- 90% loss of wetlands in Ohio since 1700s
- 5,000,000 acres to approximately 482,000 acres remaining today
- Most wetland loss occurred in the Black Swamp in NW Ohio for agricultural purposes

Great Black Swamp



Part II. Federal and State Statutes and Regulations

Federal and State Law

- Federal Law – Clean Water Act Sections 404 and 401
- Ohio Revised Code 6111 (for both wetlands regulated under the CWA and isolated wetlands regulated only under state law)

Federal Clean Water Act

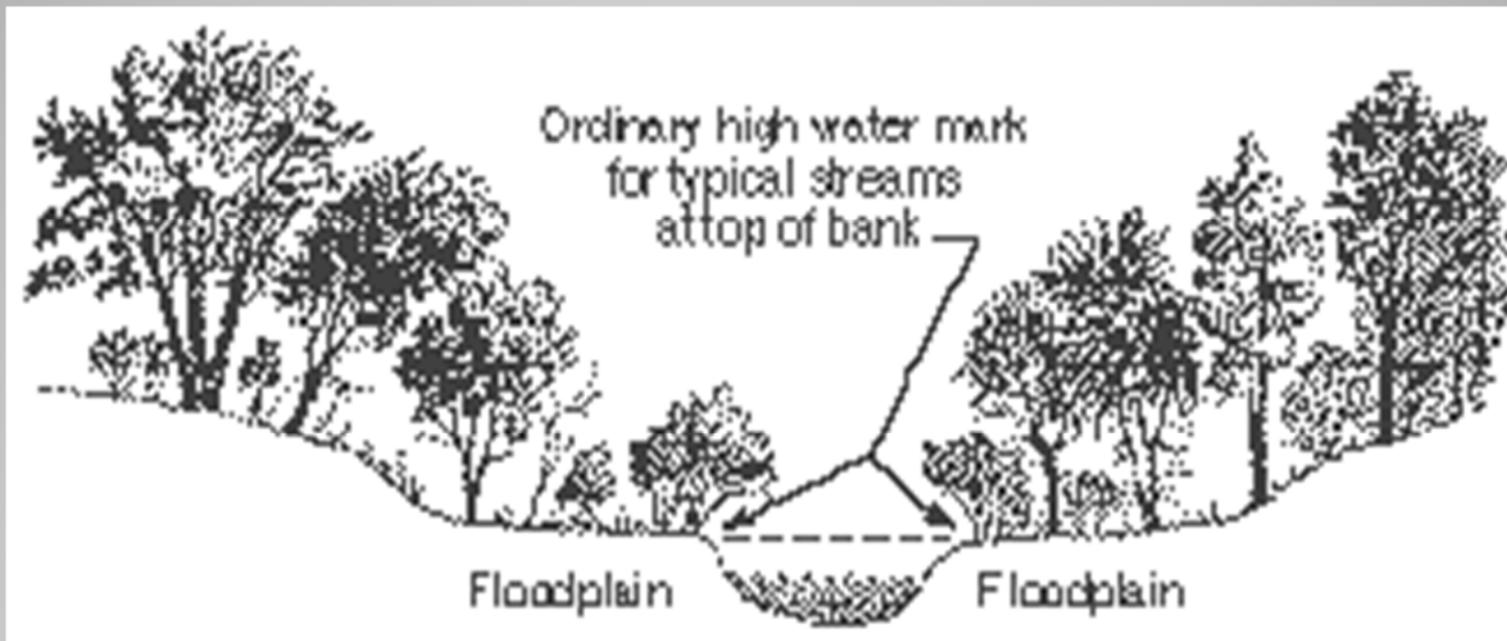
- **CWA Section 404 – US Army Corps of Engineers**
 - Issue jurisdictional determinations to determine water regulated under the CWA
 - 404(b)(1) guidelines
 - 21 point Public Interest Review- wetlands, floodplains, historic properties, navigation, recreation, food and fiber production, shore line erosion...

- **CWA Section 401 – State Water Quality Certification Agencies (in Ohio – Ohio EPA)**
 - Certify that proposed action does not interfere with state designated water quality standards

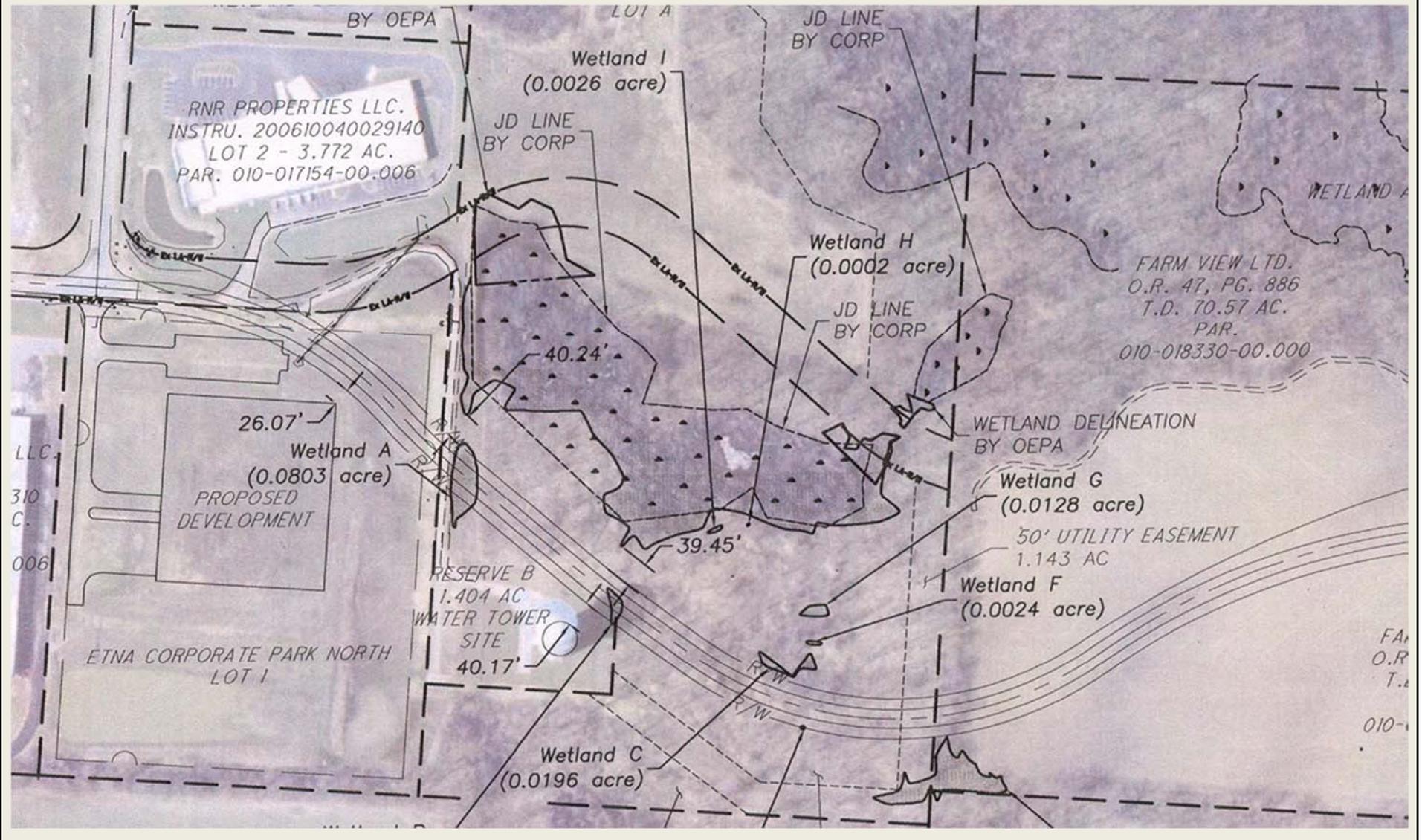
Regulated Activities

- 404/401 permits required for activities involving the discharge of dredged or fill material into waters of the US below the Ordinary High Water mark (OHWM)

Ordinary High Water Mark – Streams



Ordinary High Water Mark – Wetlands see wetland boundary



Isolated Wetlands Not Regulated Under the Federal Clean Water Act

- Solid Waste Authority of Northern Cook County
 - 2001 (SWANCC)
 - Wetlands that are “isolated” for navigable waters are not regulated under the Federal CWA, and cannot be considered jurisdictional based solely on the presence of migratory birds

Rapanos

- 2006 US Supreme Court ruling in response to legal challenge to federal jurisdiction to regulate certain streams
- US Army Corps of Engineers develops a new procedure to determine jurisdictional status of streams and wetlands
- New guidance proposed

Types of Federal Permits

- **Individual Permits**
- **General Permits** (project with minimal impacts)
 - Nationwide permits
 - Regional General permits
 - Programmatic General Permit
- **Letters of Permission**

Types of State Permits

- **Jurisdictional Waters**

- Individual 401 WQC
- NWPs
- Waivers under general condition D.4.
- General permits

- **Isolated Wetlands**

- Level 1
- Level 2
- Level 3

Ohio EPA Nationwide Permits

- **Wetlands**

- Must be under ½ acres of Cat 1 or 2 wetlands
- No impacts to Cat 3 wetlands authorized

- **Streams**

- Must be < 500 linear feet of total impact
- < 200 linear feet of impacts to intermittent or perennial streams
- <300 linear feet of impacts to ephemeral streams

Note – NWP up for renewal; OEPA drafting conditions

Permitting Scenarios - CWA

- Non-notifying NWP typically < 0.1 acres and no Cat 3 wetlands
- Activity could qualify for coverage under NWPs for both 404 and 401 WQC
- Activity could qualify for coverage under NWP for 404 but require individual 401 WQC
- Activity could require both individual 404 permit and 401 WQC

List of Key State Statutes

- 6111.02 – .029 Isolated Wetlands
- 6111.12 - Antidegradation
- 6111.30 – Application for water quality certification
- 6111.31 – Adoption and Review of Standards for evaluating mitigation proposals

List of Key Rules

- OAC 3745-1: Water Quality Standards
- OAC 3745-1- 50-54: Wetland Antidegradation
- OAC 3745-32: 401 Water Quality Certification
- OAC 3745-1-05: Antidegradation

List of Key Rules

Proposed rules

- <http://www.epa.ohio.gov/dsw/rules/draftrules.aspx>

Part III. Stream and Wetland Assessment Tools

Wetland Definition

"Wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration that are sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. "Wetlands" includes swamps, marshes, bogs, and similar areas that are delineated in accordance with the 1987 United States army corps of engineers wetland delineation manual and any other procedures and requirements adopted by the United States army corps of engineers for delineating wetlands.

Wetland Delineation

In order for an area to be a legally defined wetland (jurisdictional and isolated) it must meet all three of the following criteria:

- 1) > 50% hydrophytic vegetation
- 2) Have hydric soils
- 3) Presence, or indicators, of hydrology

Wetland in Summer



Same Wetland in Late Winter



Wetland Assessment Tools

- Ohio Rapid Assessment Method (ORAM)
 - Measures “intactness” of a wetland
- Vegetative Index of Biotic Integrity (VIBI)
 - Based on plant species diversity
- Amphibian Index of Biotic Integrity (AIBI)
 - Based on amphibian species

ORAM Form

ORAM v. 5.0 Field Form Quantitative Rating

Site: _____ Rater(s): _____ Date: _____

max 6 pts. subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

max 14 pts. subtotal

Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

max 30 pts. subtotal

Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- High pH groundwater (5)
- Other groundwater (3)
- Precipitation (1)
- Seasonal/intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- >0.7 (27.6in) (3)
- 0.4 to 0.7m (15.7 to 27.6in) (2)
- <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- None or none apparent (12)
- Recovered (7)
- Recovering (3)
- Recent or no recovery (1)

Check all disturbances observed

- ditch
- tile
- dike
- weir
- stormwater input

3b. Connectivity. Score all that apply.

- 100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

- point source (nonstormwater)
- filling/grading
- road bed/RR track
- dredging
- other

max 20 pts. subtotal

Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- None or none apparent (4)
- Recovered (3)
- Recovering (2)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- Moderately good (4)
- Fair (3)
- Poor to fair (2)
- Poor (1)

4c. Habitat alteration. Score one or double check and average.

- None or none apparent (9)
- Recovered (6)
- Recovering (3)
- Recent or no recovery (1)

Check all disturbances observed

- mowing
- grazing
- clearcutting
- selective cutting
- woody debris removal
- toxic pollutants
- shrub/sapling removal
- herbaceous/aquatic bed removal
- sedimentation
- dredging
- farming
- nutrient enrichment

max 10 pts. subtotal

last revised 1 February 2001 jfm

ORAM v. 5.0 Field Form Quantitative Rating

Site: _____ Rater(s): _____ Date: _____

max 10 pts. subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

max 20 pts. subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other

6b. horizontal (plan view) interspersions.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

Vegetation Community Cover Scale

Score	Description
0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

Quality	Description
low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

Score	Description
0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

Score	Description
0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.epa.state.oh.us/dsp/401/401.html>

Vegetative Index of Biotic Integrity (VIBI)

- Intensive survey of all plant species and communities within a wetland
- Must be conducted in growing season June 15- September 15 in order to identify plants

Amphibian Index of Biotic Integrity (AIBI)



Tom Harearik, an environmental planner with DEFA, carries funnel traps to that will be used to collect organisms living in the Aurora Wetlands. Aquatic organisms, such as fish, insects, and amphibians, swim into the ends of the trap and cannot escape. A portion of the trap floats above the water surface to reduce mortality of collected organisms.

Wetland Categorization

ORAM score in parenthesis

- Category 1: (0-29) lowest quality
- Gray Zone: (30-34.9)
- Modified Category 2: (35-44.9) disturbed Cat 2
- Category 2: (45-59.9) score medium quality, most common
- Gray Zone: (60-64.9)
- Category 3: (65-100) high quality, not as frequent
- High correlation between ORAM, VIBI and AIBI scores
- Gray zone: assume next highest category unless determined otherwise thru VIBI or AIBI

Category 1 Wetland



Category 2 Wetland



Category 3 Wetland



Stream Classification

- Existing Stream Use Designations listed in the Water Quality Standards
- Exceptional Warmwater Habitat - < 10% of all streams in Ohio
- Warmwater Habitat – most common
- Modified WWH (AMD, ditch maintenance)
- Limited Resource Water – degraded
- Cold Water Habitat – fish adapted to cooler temperatures
- Season Salmonid

Stream Assessment Tools

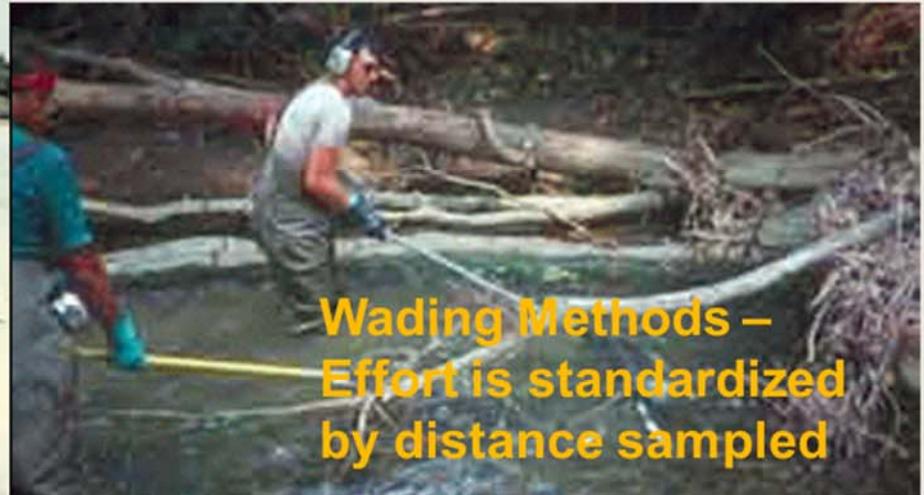
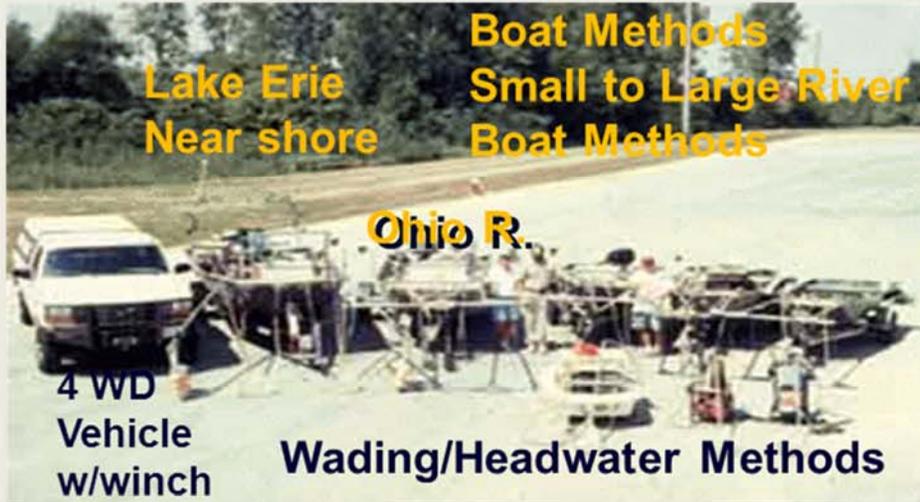
- Undesignated streams require a use attainability analysis (UAA)
- Qualitative Habitat Evaluation Index (QHEI)
 - Describes potential to support fish based on habitat
- Index of Biotic Integrity (IBI)
 - Evaluates fish populations
- Invertebrate Community Index (ICI)
 - Evaluates benthic macroinvertebrates

Fish Sampling



Fish Sampling

Ohio EPA Fish Assemblage Methods: Field Procedures

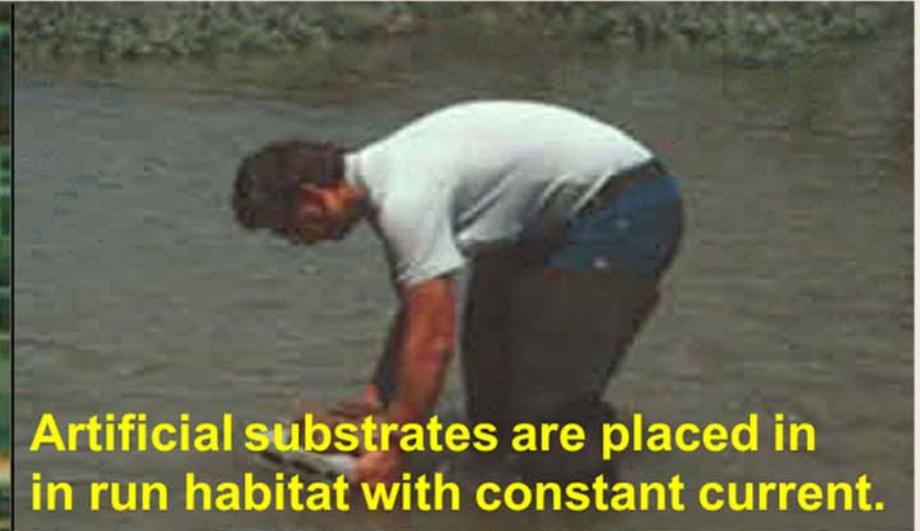


Macroinvertebrate Sampling

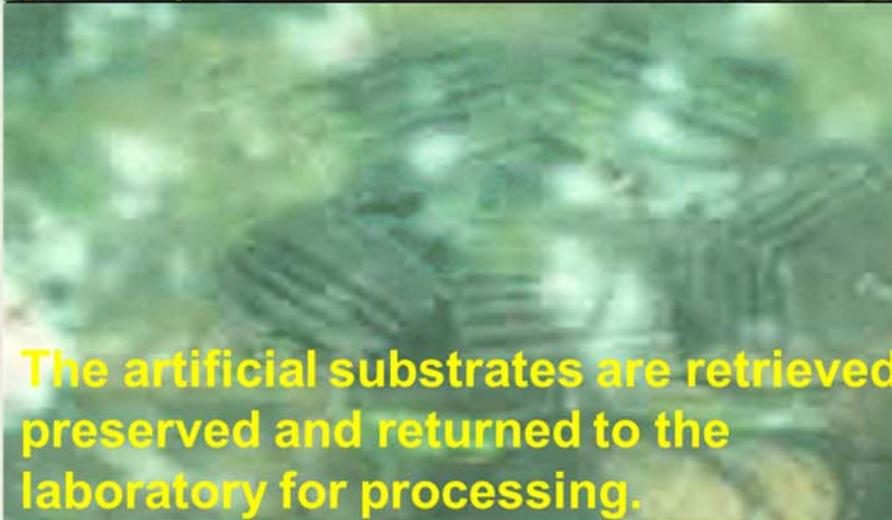
Ohio EPA Macroinvertebrate Methods: Field Procedures



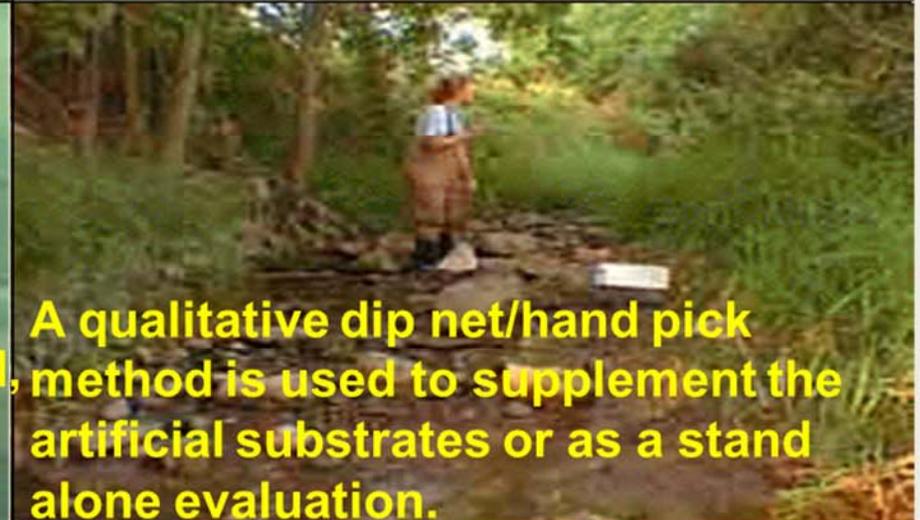
Artificial substrates are set for a six-week exposure (July-Sept. index period)



Artificial substrates are placed in in run habitat with constant current.



The artificial substrates are retrieved, preserved and returned to the laboratory for processing.



A qualitative dip net/hand pick method is used to supplement the artificial substrates or as a stand alone evaluation.

EWH, WWH, MWH



Primary Headwater Habitat (PHWH) Streams <1 Sq mile

- Class I – Ephemeral flow
 - Little or no biota, process nutrients, store flood water, source of organic material
- Class II – Seasonal flow regime
 - Support amphibians and aquatic insects
- Class III – Permanent cold water flow regime
 - Support cool water adapted amphibians and aquatic insects

Class 1



Class 2



Class 3



Northern dusky/Long-tailed



Cautionary Note – Biology Trumps Habitat Spring Feed Class 3 Stream Shown Below



Part IV. The Individual 401 Water Quality Certification and Isolated Wetlands Permit Review Processes

Scope of 401/Isolated Wetlands Reviews

- Housing, power plants, roads, industrial sites, shopping malls, warehouses, landfills, fleeting facilities, power lines and gas lines, sewers, coal mining, subdivisions, etc...
- Anything built in stream or wetlands resulting in the discharge of dredged or fill material below the OHWM

401 Water Quality Certification Major Steps

1. Pre-application coordination – strongly encouraged
2. Completeness Review
3. Technical Review
4. Public Notice and Comment (30 days)
(Public Hearing if requested or deemed necessary by Ohio EPA - 45 days)
5. Act on application for WQC (within 180 days from the date the application is determined to be complete)
6. Post certification follow-up (Compliance and mitigation)

Pre-application coordination

- Identify boundaries and quality of aquatic resources on a potential site;
 - Discuss red flags before applicant has invested time/money into a design;
 - Discuss avoidance and minimization options;
 - Discuss mitigation requirements;
 - Discuss 401 review process.
- <http://www.epa.ohio.gov/dsw/401/WQC.aspx#pre-app>

401 Water Quality Certification

Major Considerations

- Ohio EPA is *neither* for or against a project (our decision is based on water quality impacts)
- Project popularity is not a factor in our decision
- Ohio EPA is not a land use planning agency and doesn't get involved in local zoning issues
- Use of labor/non-labor workers is not considered

Completeness Review

- Ohio EPA reviews the application within 15 business days to determine if it is complete;
- Applicant has 15 days to respond;
- Ohio EPA will review subsequent submissions as expeditiously as possible.
- Completeness review is separate from the technical review

Completeness Review

See items listed in ORC 6111.30

1. Complete application form;
2. ORAMs (using 10 page form)
3. Use attainability analysis
4. Specific and detailed mitigation and protection in perpetuity;
5. Fees \$200 appl. fee and ½ review fee)
(Review fees are based off the preferred alt.);

Completeness Review continued

6. Site photos (legible during growing season)
7. Documentation of coordination with USFWS and ODNR
8. Preferred, Minimal-degradation, and Non-degradation alternatives
9. Surface water delineation report
10. Corps PN

Technical Review

- What is the quality of streams and wetlands?
- What is the nature/extent of the proposed impacts?
- Are there direct/indirect impacts?
- Have impacts been avoided or minimized?
- What is the justification for proposed impacts?
- What is the proposed mitigation?

Antidegradation Review

Allows the director to authorize a lowering of water quality after:

- an alternatives analysis
- intergovernmental review
- public involvement
- *And* director determines the project will not result in violation of aquatic life use designation

Wetlands Criteria

- No impacts to Category 3 wetlands may be authorized unless the applicant demonstrates the project satisfies a “public need”

Antidegradation Review Alternative Analysis

- 1) Preferred Alternative – greatest impact
- 2) Minimal Degradation Alternative – reduce impacts from preferred alternative (may offer more than one min-deg alternative)
- 3) Non-degradation Alternative – no impact
- 4) Mitigative technique – to offset unavoidable impacts

Avoidance and Minimization

- Location alternatives
 - Property used
 - Layout and configuration
- Construction techniques

Alternatives Analysis

- Alternatives will vary from project to project and project type to project type
- Example: pipeline
 - Preferred – open cut all water bodies
 - Minimal Degradation – some open cut some trenchless crossings
 - Non-degradation – all trenchless crossings

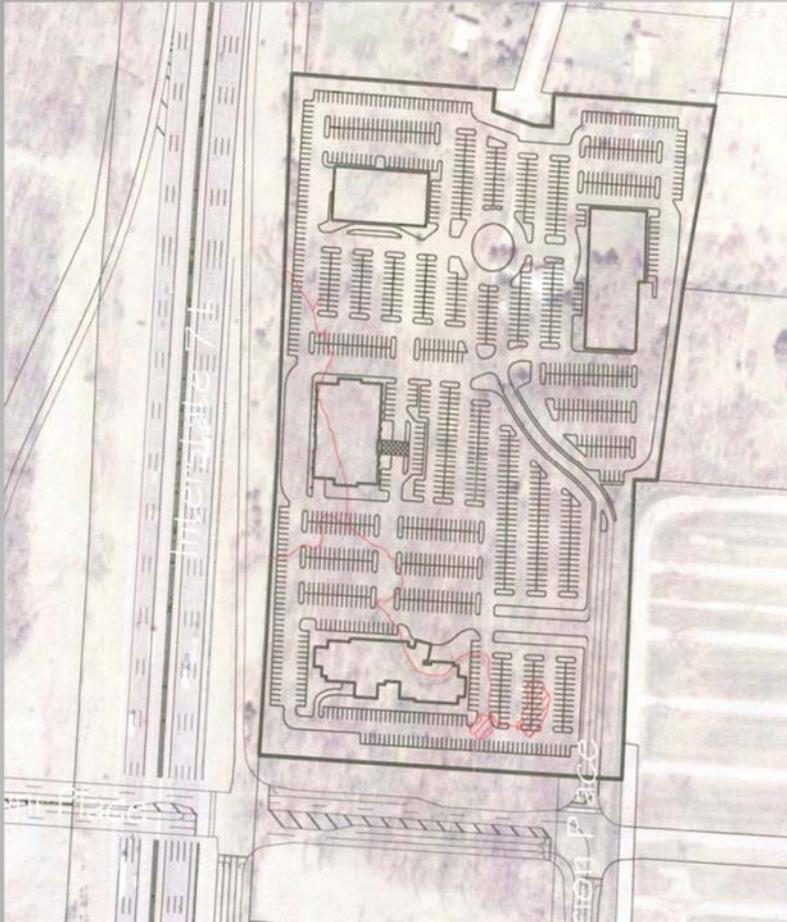
Avoidance and Minimization



Avoidance and Minimization



Alternatives Analysis



- Example Preferred Alternative

Alternatives Analysis



- Minimal Degradation Alternative

Alternatives Analysis



- Example Non-Deg Alternative

Intergovernmental Review

- A copy of the 401 application is shared with the Ohio Department of Natural Resources, the US Fish and Wildlife Service, and OEPA, Division of Drinking and Ground Water

Public Participation

- An announcement is published in the Legal Notices in the newspaper with the widest circulation in the county in which the project is located.
- Copies of the public notice sent to established mailing lists for a county or region.
- Public has thirty days to submit comments from day the public notice appears in the newspaper.
- Public may request a formal public hearing

Mitigation

- Can only be considered after determination that impacts are allowable
- Mitigation cannot be used to justify impacts
- If impacts are too severe, no amount of mitigation can be used to allow the impacts

Antidegradation Review Wetland Mitigation

- Mitigation Techniques
 - On-Site (on the property or within one mile from the site in the same watershed)
 - Off-Site not at a bank (greater than one mile from the site)
 - Banks
- Monitoring for at least 5 years (10 years for forested mitigation wetlands)
- Require mitigation wetlands be of equal or higher quality than impacted wetlands

Antidegradation Review Stream Mitigation

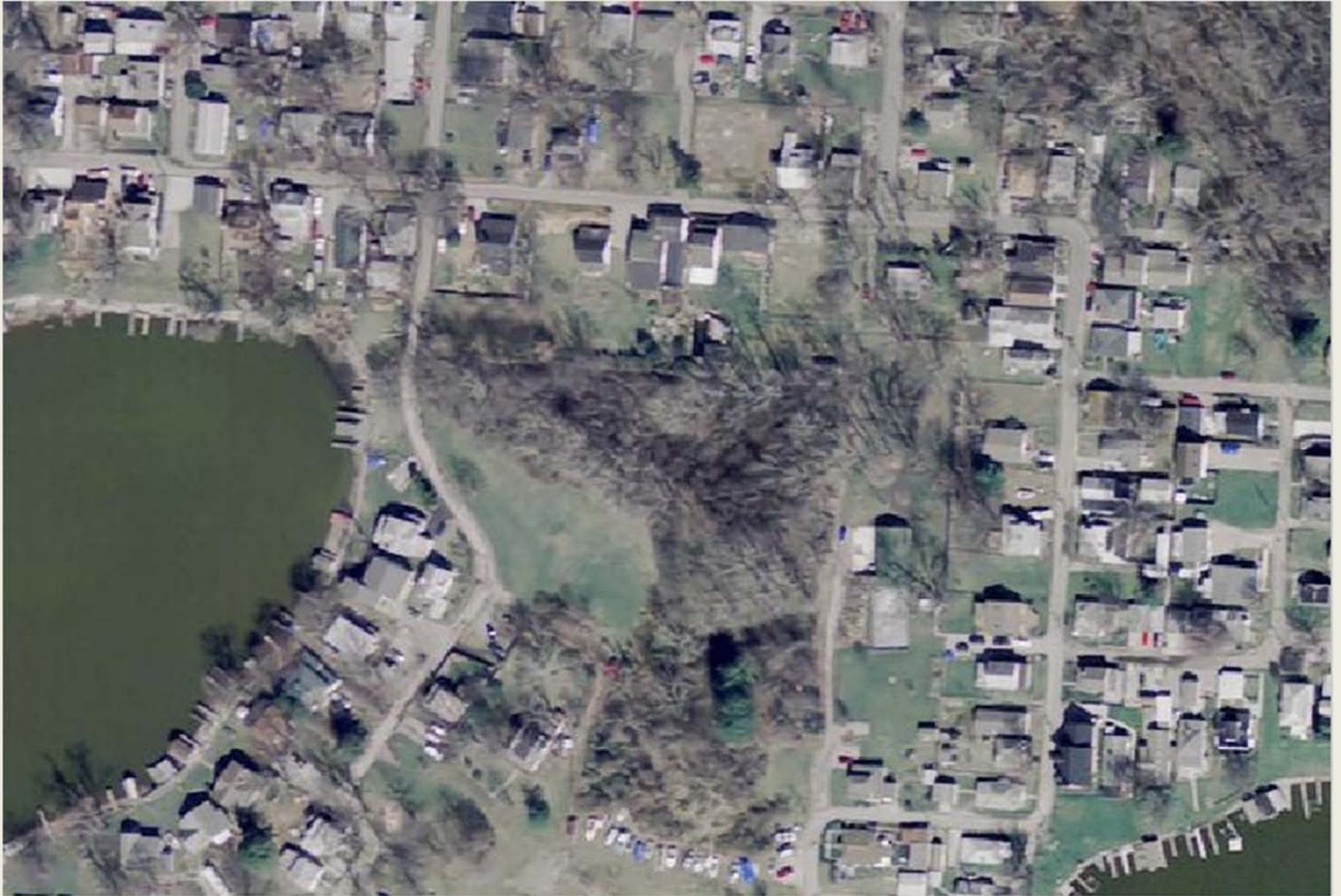
- Consider on-site restoration or relocation
- Off-site 1.5:1 Mitigation Ratio
 - Restoration
 - Preservation
- New stream mitigation rules are under consideration

401 Water Quality Certification

Possible Outcomes of 401 Review

- Project approved as is (any alternative presented in the application)
- Project approved with modifications
- Project denied
- Project withdrawn

Isolated Wetlands



Significant Legal Cases

- January 2001 – US Supreme Court ruling in the Solid Waste Agency of North Cook County (SWANCC) case removes “isolated” wetlands from jurisdiction under the CWA
- July 2001 - Governor Taft signs HB 231 into law granting Ohio EPA authority to regulate activities in “isolated” wetlands

Isolated Wetlands

3 levels of review for isolated wetlands

Level 1	Level 2	Level 3
<= 1/2 acre of CAT 1 or 2 wetlands	>1/2 acre of CAT1 wetlands or	>3 acres of CAT 2 wetlands or
	>1/2 and <= 3 acres of CAT 2 wetlands	any CAT 3 wetlands
30 day review	90 day review	180 day review



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Level 1 Review

- Requires a Pre-Activity Notification (PAN)
- Still requires JD from the Corps
- Automatically approved with in 30 days
- Must submit level 2 application if notified that project does not qualify for Level 1
- Applicant can mitigate at a bank without objection of the Director

Level 2 Review

- Requires PAN/ JD letter from the Corps
- Requires an alternatives analysis and avoidance of high quality wetlands
- Review within 90 days

Level 3 Review

- Essentially identical to an individual 401 review under Antidegradation Rules
- Review within 180 days

Part V. What's New/What's Next

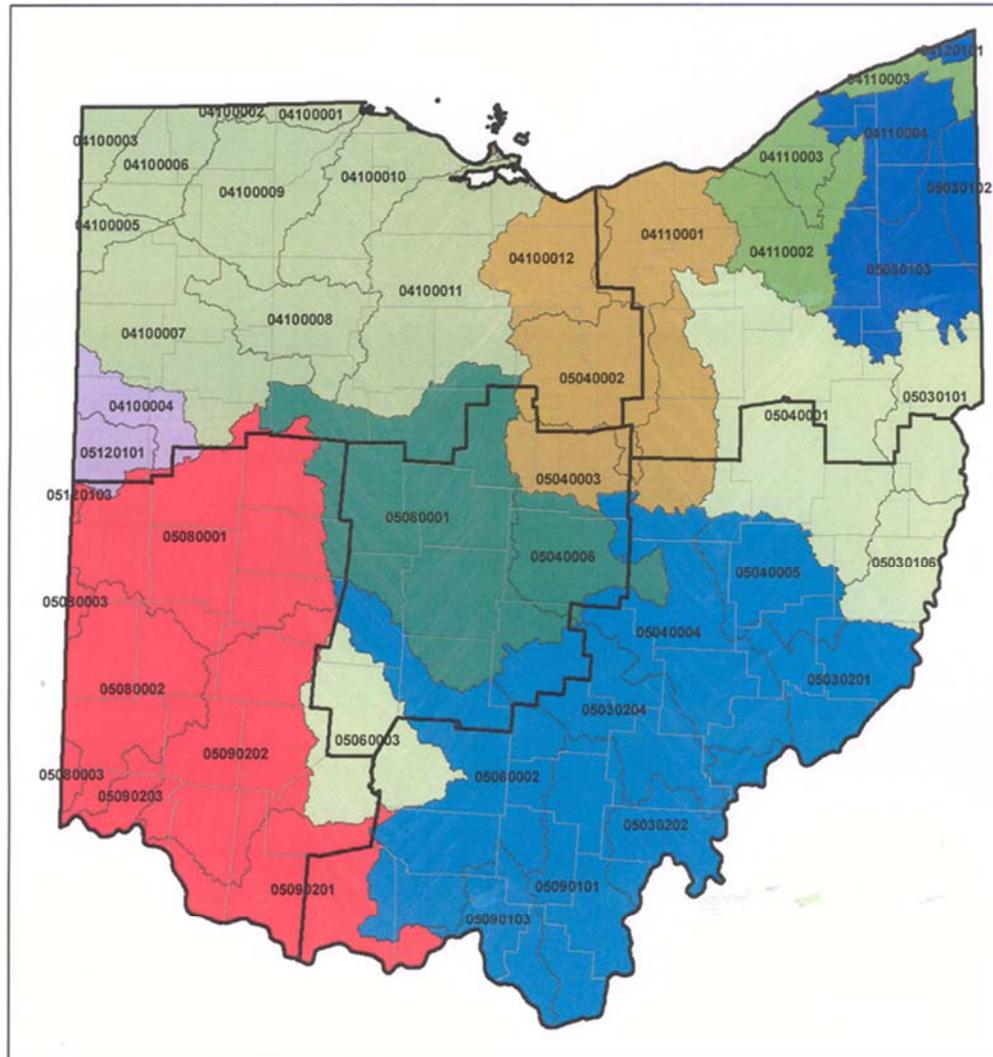
Major Program Development Initiative Underway

- Revised 401 application form and guidance document
- Proposed changes to rules governing 401 review process
- Continued implementation of Kaizen recommendations
- In-Lieu Fee development
- General permit of oil and gas drilling

How can you expedite the review

- Complete application first time
- Complete, accurate stream and wetland assessment done during proper season
- Meaningful alternatives analysis
- Appropriate mitigation plans
- Notify agency of changes to design

Watershed Contacts for 401 Water Quality Certifications & Isolated Wetland Permits



 Dan Osterfeld	 Joe Loucek	 Rahel Babb	 Ohio EPA Districts
 Ed Wik	 Lauren McElaney	 Rose McLean	
 Jeff Boyles	 Ben Smith	 Tom Harcarik	

HIERARCHY OF INDICATORS USED BY OHIO EPA

LEVEL 1

Actions by
EPA/States

LEVEL 2

Responses
by Regulated
Community

LEVEL 3

Changes in
Discharge
Quantities

LEVEL 4

Changes in
Ambient
Conditions

LEVEL 5

Changes in
Uptake and/or
Assimilation

LEVEL 6

Changes in
Health,
Ecology, or
Other Effects

Administrative Indicators

True Environmental Indicators

INFORMATION CURRENTLY AVAILABLE TO OHIO EPA

- | | | | | | |
|---|--|---|---|--|--|
| <ul style="list-style-type: none"> • NPDES • Funding • NPS (319) • CSOs • Stormwater • 404/401 • Stream Protection | <ul style="list-style-type: none"> • POTW Const. • CSO Controls • Local ordinances • Stormwater controls • NPS BMPs | <ul style="list-style-type: none"> • Loadings • WET/TRE • NPDES viol. • Spills, kills • Other releases | <ul style="list-style-type: none"> • Water column • Sediment • Habitat • Land use | <ul style="list-style-type: none"> • Tissue contaminants • TMDL • Biomarkers • Habitat | <ul style="list-style-type: none"> • Biota (Biocriteria) • Bacterial • Target assemblages |
|---|--|---|---|--|--|

Figure 1. Hierarchy of Indicators Used by Ohio EPA. The hierarchy of indicators is shown in the diagram above. The information currently available to Ohio EPA is listed below.

My Contact Information

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Questions?