USEPA
RAP LIAISON REPORT

December 9, 2010

USEPA CELEBRATES 40TH ANNIVERSARY

- **The U.S. Environmental Protection Agency was founded on December 2nd, 1970. In 1969, just before the agency was established, the Cuyahoga River in Ohio became so polluted that it caught fire – a situation that provided impetus for Congress to pass the federal Clean Water Act. Visit the Agency's 40th Anniversary website: http://www.epa.gov/40th/index.html**
- **40 Years of Images: Past, Present, Future - is a pictorial tour through the U.S. Environmental Protection Agency's forty year history. Track the inception and the evolution of the Agency through this interactive gallery of images that represent the past, present and future of environmental protection. View images**
- **40 Years of Milestones - Through this interactive timeline, you can explore more than 40 years of environmental milestones. View the timeline**
- **Current Priorities: Taking action on climate change; Improving air quality; Assuring the safety of chemicals; Cleaning up our communities; Protecting America's waters; Expanding the conversation on environmentalism and working for environmental justice; Building strong state and tribal partnerships.**

EPA ANNOUNCES 2010 ENFORCEMENT AND COMPLIANCE RESULTS

- **The U.S. Environmental Protection Agency (EPA) announced in December the release of its annual enforcement and compliance results. In fiscal year (FY) 2010, EPA took enforcement and compliance actions that require polluters to pay more than $110 million in civil penalties and commit to spend an estimated $12 billion on pollution controls, cleanup, and environmental projects that benefit communities. These actions when completed will reduce pollution by more than 1.4 billion pounds and protect businesses that comply with regulations by holding non-compliant businesses accountable when environmental laws are violated.**
- **View the FY 2010 results and an announcement message from Assistant Administrator for the Office of Enforcement and Compliance Assurance Cynthia Giles: http://www.epa.gov/compliance/resources/reports/endofyear/eoy2010/index.html**

EPA LAUNCHES WEBSITE TO INCREASE TRANSPARENCY OF REGULATORY ACTIVITY

- **The U.S. Environmental Protection Agency (EPA) has launched a new website called Reg Stat that will enhance public understanding of its regulatory process and the number, type, and range of regulatory documents developed each year by the agency. This new resource is part of the EPA's continuing efforts to enhance the accessibility and transparency of its regulatory activities.**
- **Users will be able to download and sort the data based on categories of interest. Information on Reg Stat will be updated annually. More information on Reg Stat: http://www.epa.gov/regstat**

EPA SEEKS COMMENTS ON NEW WEB-BASED TOOL FOR ACCESSING WASTEWATER POLLUTANT DISCHARGE INFORMATION: "BETA" VERSION NOW AVAILABLE

- **The U.S. Environmental Protection Agency (EPA) has released a "beta" version of a new web-based tool that allows anyone to search and identify the amount, type, and location of wastewater pollutant discharges and the identity of the discharger. EPA is seeking comments on how to**

improve this tool and on the accuracy of the discharge monitoring data supporting it. EPA has designed the tool for two main audiences: (1) members of the general public (concerned citizens, researchers), and (2) technical users (National Pollutant Discharge Elimination System permit writers, watershed modelers, and regulatory agencies). The increased access to wastewater pollutant discharge data will allow for better transparency of wastewater pollutant discharges and enhanced utility of the data.

- **EPA will accept comments on the new tool through February 4, 2011. This two-month period will also allow reviewers to submit requests to EPA to correct any data they suspect is in error. To access the "beta" version of the tool go to: http://www.epa.gov/pollutantdischarges/.**

Ohio EPA
Maumee RAP Coordinator Report

US EPA Supports Maumee AOC with three GLRI fund projects

- At the request of Ohio EPA, US EPA is conducting three projects in the Maumee AOC. US EPA contractor, Tetra Tech, is working on the following:
  - Lower Maumee Tributaries and Lake Erie Tributaries TMDL
    - Bruce Cleland is presenting on this at the Summit
  - Eastern Maumee AOC Wetland & Riparian Inventory and Restoration Plans
    - See below for update
  - SUSTAIN model for Swan Creek

Eastern Maumee AOC Wetland & Riparian Inventory and Restoration Plans

- The Project Management Team is comprised of 20-25 people with diverse backgrounds and expertise working to develop a plan similar to the Swan Creek and Ottawa River Plan that PCS created last year.
- At this point, data sets have been collected and are being weighted and modeled to determine potential project areas.
- At the Spring Summit, we will present the findings of the models and discuss how the sites were categorized and determined.

Ohio EPA moves Ottawa River up on TMDL schedule

- Ohio EPA has decided to move the Ottawa River biological, chemical and sediment sampling for the TSD (Technical Support Document) up to 2011. This data is the basis for the TMDL Report that will follow.
- An effort is also underway to secure resources to concurrently conduct additional sampling in the Ottawa River to evaluate the ability to reduce and/or remove the contact and consumption advisories. There should be more to report on this at the Spring Summit.

Additional Data Collection in Maumee ACO

- Ohio EPA has also been working with US EPA GLNPO to identify reaches of streams in the AOC that need to be characterized as to the conditions of the sediment with respect to contamination. This includes portions of the lower Maumee River, Lower Swan Creek, and Maumee Bay near the mouths of Duck & Otter Creeks.
- Brenda Jones is presenting more on these GLLA funded activities at the Summit.

Ottawa River Dredging is Complete

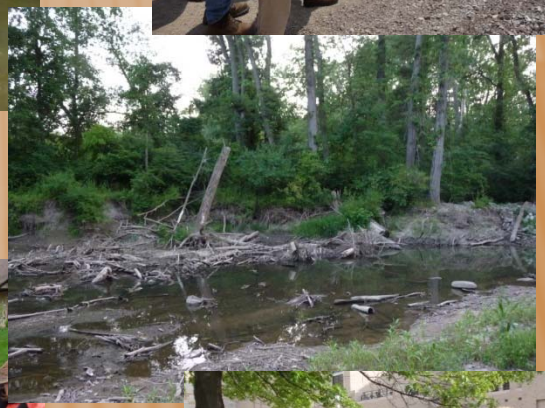
- The GLLA remediation project to dredge a 5½-mile stretch of the Ottawa River and Sibley Creek is completed.
- The completion of this project marks further progress in the cleanup of the Maumee AOC.
- A celebratory Press Conference will be held at the Ottawa River Yacht Club (5844 Edgewater Drive, Toledo, Ohio) on Monday, Dec 13, 2010 at 11:30am. Please consider joining us.
- Brenda Jones is presenting more on this project at the Summit.

Updating Stage 2 Watershed Restoration Plan

- Ohio EPA has been working with a consultant to develop a proposal for an analytical data, delisting target, and project management database with a mapping component that could be made available online. This system would take the place of the current Volume 2 of the Stage 2 Report and allow our regional watershed plan to always be current. I should have more information at the Spring Summit.
- Volume 1 of the plan will be undergoing an update this winter/spring to explain the current environmental organizations of our region as well as updating the maps and tables to reflect the new boundaries of the AOC and the Coastal Management Measures needed for full state endorsement of this plan.

Great Lakes Restoration Initiative *(info based on a regional conference call that was held 12/8/10)*

- The federal agencies are working on a presumed authorization of $300 million for FFY11 GLRI
- US EPA GLNPO has an RFP prepared, but doesn't intend to release it until their FFY11 budget is finalized
    - US EPA will not fund any habitat projects this cycle; habitat funds are being directed to USFWS
    - Projects that will delist or can show a step-by-step path to delisting will be given priority.
        - US EPA has identified 3 main paths to delisting:
          1) Problem/impact is state/lakewide condition and not specific to one AOC
          2) All projects have been implemented and need to wait for natural attenuation to restore (Area of Recovery designation)
          3) Problem/impact has been mitigated/removed and AOC is restored
    - The main driver for US EPA GLNPO's RAP program is helping them to achieve their goals as outlined in the Great Lakes Restoration Action Plan (specifically page 19-per John Perrecone)
- NOAA expects to be issuing two anticipatory RFPs in late December or early January with a deadline of early Febuary 2011 for 1)Planning, design, and implementation of habitat restoration projects in AOCs, and 2) AOC land acquisition and conservation habitat.
    - NOAA's Habitat RFP will be very similar to last year however it will be exclusively available to AOCs. The focus will be on Habitat (#10), Population (#3) and Benthos (#6) BUIs.
        - All proposals must have a letter of support from the local or state RAP coordinating organization (PCS or Ohio EPA).
        - Projects need to make ties to a RAP Stage 2 Report or similar planning document.
        - They must show measurable gains towards delisting. AND . . .
        - In order to limit the amount of proposals received, each AOC will be limited to the submission of TWO proposals.
    - NOAA's Acquisition RFP will follow the Coastal & Estuarine Land Conservation Program (CELP) guidance, and like the Habitat RFP will be exclusively for AOCs.
        - Proposal must be endorsed by a local or state RAP coordinating organization.
        - Projects need to make ties to a RAP Stage 2 Report or similar planning document.
        - These proposals will be limited as well, and are to be submitted to NOAA through the State Coastal Zone Management Agency (ODNR in Ohio)
        - No match is required for this grant
        - They prefer "ready to acquire" property that must have conservation or restorability value. Contaminated sites are NOT eligible
- ACE does not have grants to issue, but does have money to cost-share projects as at 35% non-fed/65% fed rate. Match can be completely in-kind. They primarily have worked in AOCs under WRDA 401-Techincal Assistance to RAP and Great Lakes Fishery & Ecosystem Restoration (GLFER)
    - RAP Technical Assistance Projects can be just about anything (planning, project development, field studies, etc) except for construction. Money is currently available from FFY10 funds, so projects can begin as quickly as an agreement can be put together.
    - GLFER Projects can be used for projects like, fish passage, invasive species control (plant and aquatics), dam removal, etc.
- USFWS will be using several existing authorities to distribute grant funds. These projects will not be limited to AOCs. Details on their many program is available on-line at www.fws.gov/glri
    - Funding for Toxics will be used to support the GLLA process/projects
    - Aquatic Invasive Species funding will be directed to Asian Carp issues
    - Habitat funding will be handled much the same as FFY10; pre-proposals under Great Lakes Fish and Wildlife Restoration are being accepted through Dec 13 with a 25% match
    - Wetland Conservation for Migratory Birds expect to be funded with a 1 to 1 match
    - Partners for Wildlife and Endangered Species projects will also be funded
- Sustain our Great Lakes and National Fish and Wildlife Foundation expect to be issuing anticipatory RFPs in January. These programs are where US EPA's habitat funds are being directed.



Welcome to

PARTNERS FOR CLEAN STREAMS
2010 FALL/WINTER MAUMEE RAP SUMMIT

8TH ANNUAL PARTNERING FOR CLEAN STREAMS YOUTH/SCOUT PATCH PROGRAM

Sunday , March 14, 2010

- PCS Workshop
- 194 total participants
  - 186 Girl Scouts
  - 4 Boy Scouts
  - 4 Other

Saturday, April 24, 2010

- Global Youth Service Day
- Storm Drain Marking
- Nearly 400 pre-registered
- Rained Out in April
  - 124 participated in rain date events in May through July

6TH ANNUAL
GET THE LEAD OUT! CLEANUP

May 21 to June 18, 2010

- Rescheduled to July due to high water
- 62 Total Participants
- Mostly fishing line and garbage

14TH ANNUAL
CLEAN YOUR STREAMS DAY

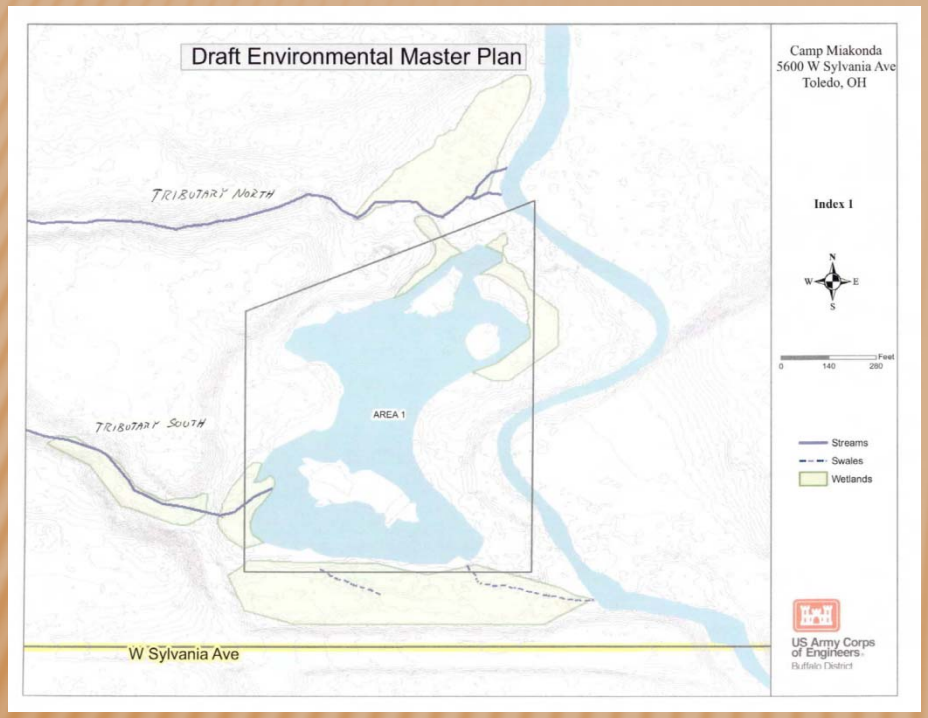
September 11, 2010

- 665 Total Participants
- 50 land sites and 1 boat site cleaned
- 22,840 lbs (18,700 lbs garbage + 276 tires)
- Peculiar Items Found: gun safe, prom dress, koala statue, 18' boat w/motor, pipe organ, 1988 hunting license, antique ringer washing machine, parking tickets (5), Employee of the Month award, 1973 Pepsi can, book bag w/anatomy & biology books

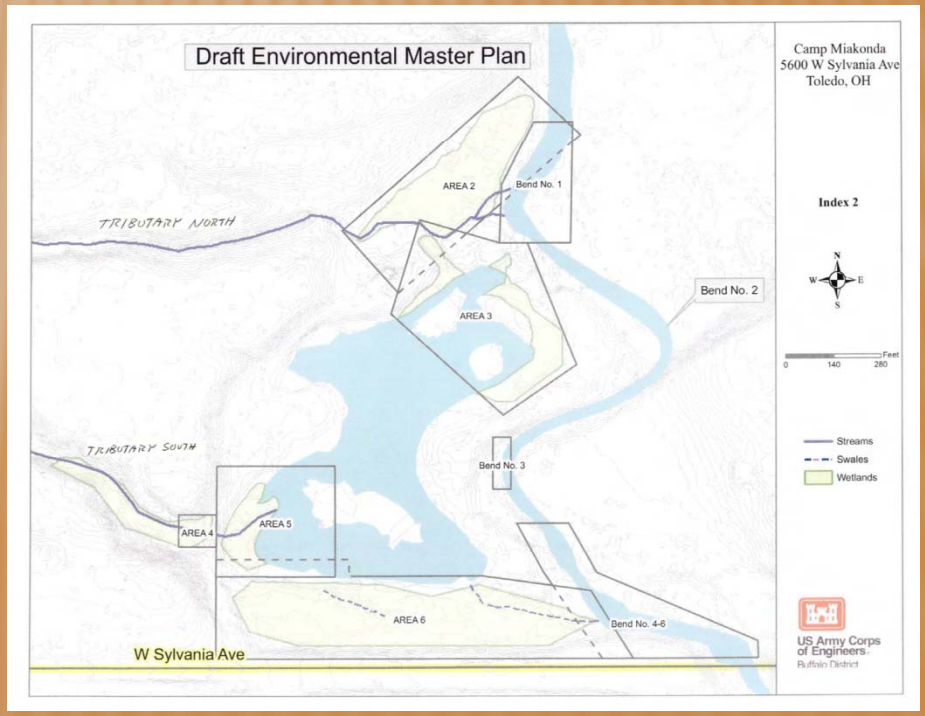
CAMP MIAKONDA AND OTTAWA RIVER RESTORATION

- $1.35 Million GLRI grant from US EPA
  - (2 year duration)
- Goals of restoration project
  - Restore/enhance approx. 10 acres wetland & approx 30 acres associated upland habitat
  - Reduce erosion from 1200’ of adjacent Ottawa River
  - Stream bank restoration of 1200’ linear of Ottawa River
  - Increase in-stream habitat for fish and macroinvertebrates
  - Increase diversity of in-water habitat for Lake Sawyer, allowing fish to winter over and allowing more active use of Lake Sawyer by Scouts
  - Encourage educational use of wetland, lake, river, and upland habitat
  - Project contributes to BUI goals and improvements for BUI 14 - Loss of Fish and Wildlife Habitat, BUI 3 - Degradation of Fish and Wildlife Habitat

CAMP MIAKONDA AND OTTAWA RIVER RESTORATION

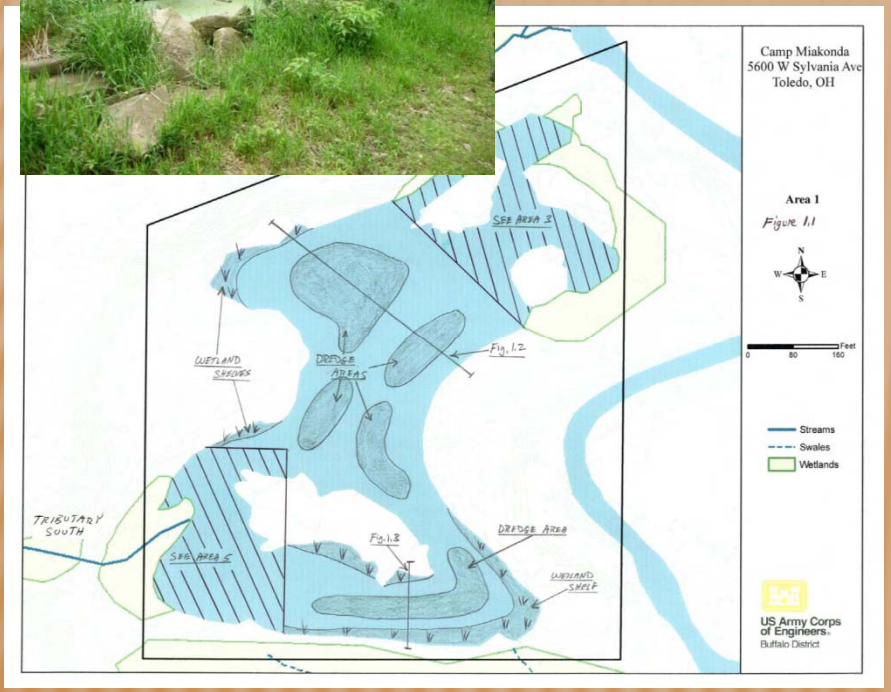


Improvement of Lake Sawyer



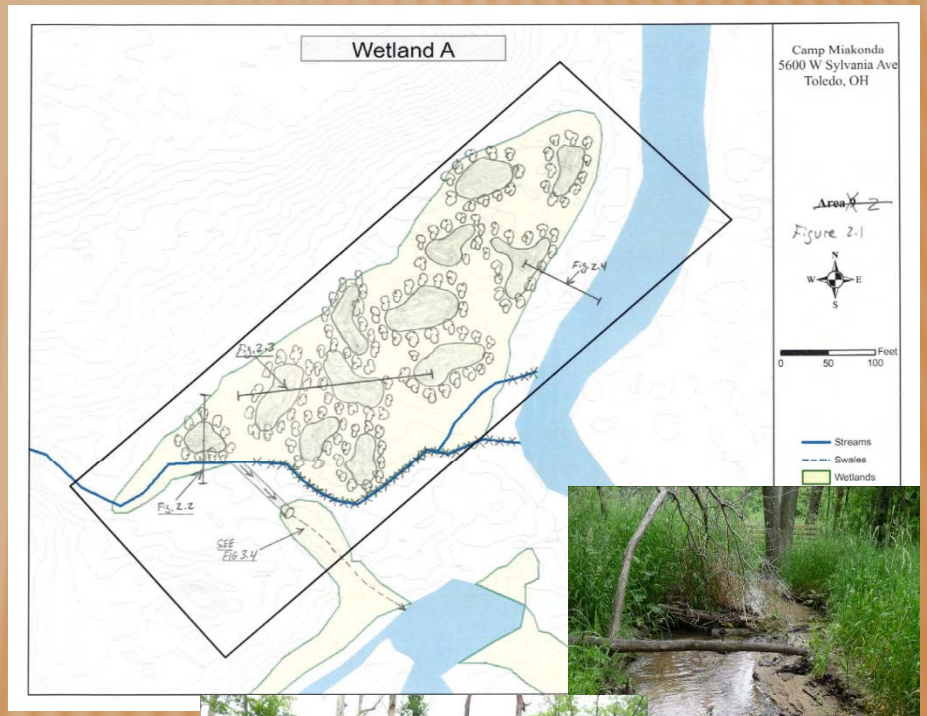
Improve surrounding wetland/upland areas and Ottawa River

CAMP MIAKONDA AND OTTAWA RIVER RESTORATION



Improve conditions in Lake

Enhance northern wetland



CAMP MIAKONDA AND OTTAWA RIVER RESTORATION

Enhance wetlands

Rubble piles between River & Lake Sawyer

Address severe stream bank erosion

WHERE IS PCS HEADED IN 2011?

- Swan Crk & Ottawa River Riparian and Wetland Inventory
  - Project development for other sites?
  - Landowner meetings
- Great Lakes Restoration Initiative
  - Building partnerships & future projects
  - Implementation of Camp Miakonda restoration project
- Continue Community Outreach and Education
  - PCS Patch Program, Get the Lead Out!, Clean Your Streams
  - E-Newsletter and Increasing Membership
- Implementation of Camp Miakonda & Ottawa River project
  - Restoration in 2011, with ongoing PR and outreach
- Hiring staff – very soon!
  - Office Manager and Program Coordinator

PCS EXECUTIVE DIRECTOR'S WISH LIST

- Consider "de-cluttering" or sale shopping for items on our wish list and help support PCS. Or earmark your end-of-the year gift for something you see here!
  - Small 2-3 shelf bookcases
  - Wildlife or scenic wall art
  - Large, lockable storage cabinet
  - Line1/Line2 phones (4 units)
  - Office supplies *(colored or white paper, stamps, file folders, ink, etc)*
- PCS is also in need of professional services that we can't afford to purchase. Do you or someone in your company or organization have knowledge in one of these areas?
  - 25 hours for web site development and maintenance support
  - 8-10 hours of IT support (to help set up new office & equipment)
  - 25 hours for donor management support
  - 25 hours for stuffing, sticking, ~~licking~~, peeling support

THANK YOU

PCS greatly appreciates your
time, commitment, energy, and effort.
We look forward to your continued support
in 2011 and beyond.

Wolf Creek - Berger Ditch

Restoration Plan

Kurt Erichsen
TMACOG

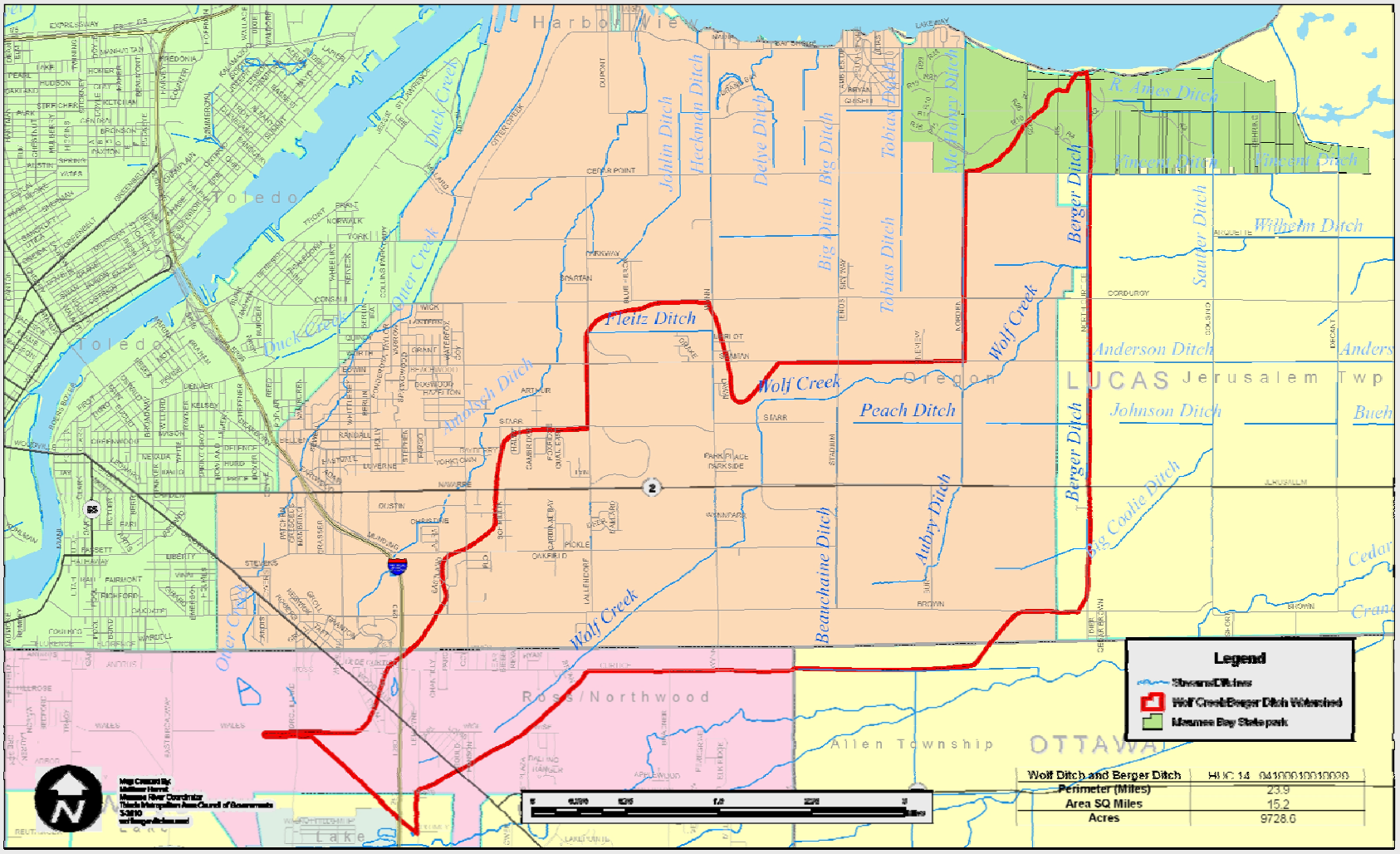
Dr. Kristopher Barnswell
UT Lake Erie Center

Hugh Crowell
Hull & Associates

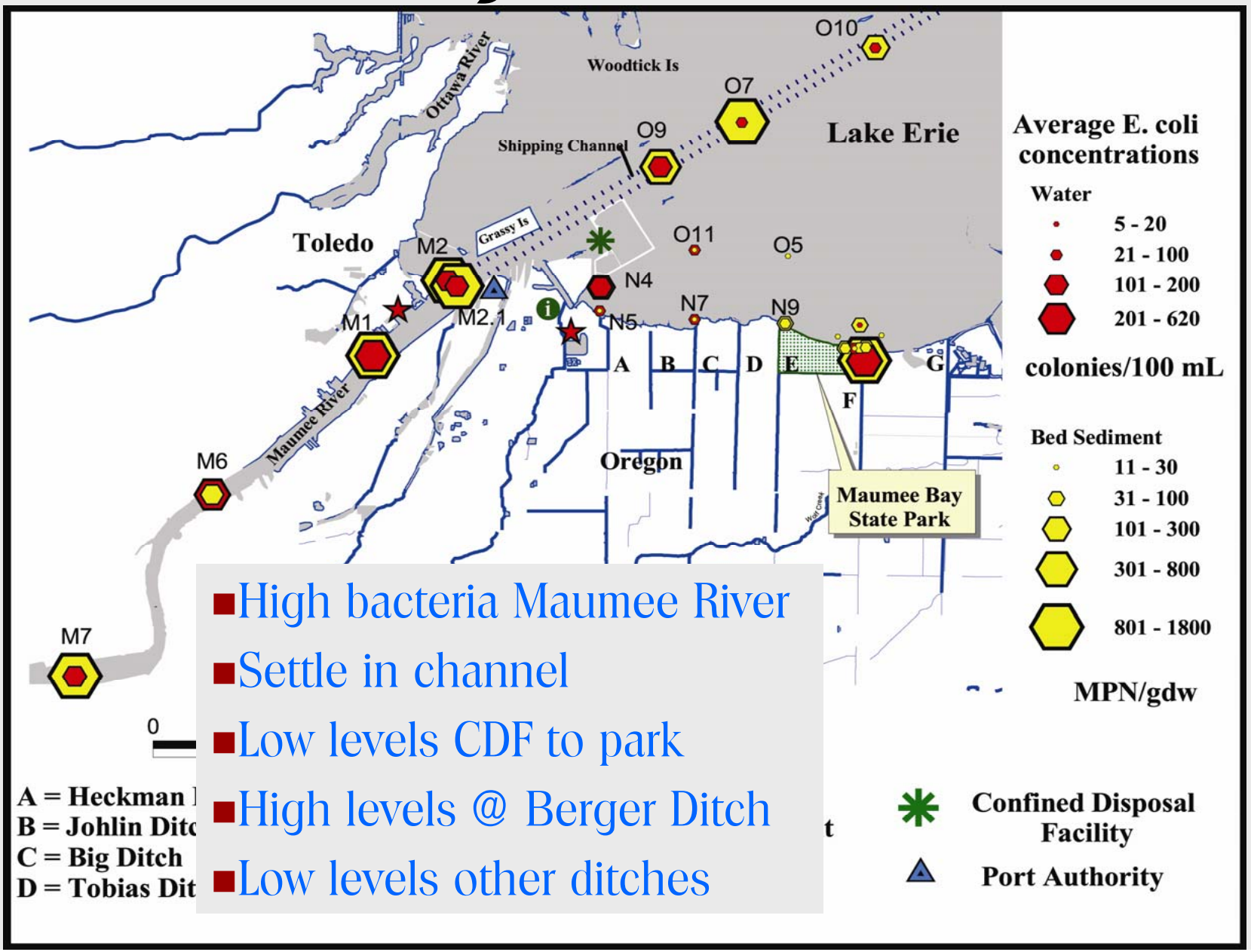
Bacteria at the Beach

- Fecal bacteria
- From intestinal tracts of birds, wild & domestic animals, humans
- Park beaches posted
- Bathing season 100 days per year

Wolf Creek Watershed



Maumee Bay 2004: *E. Coli*

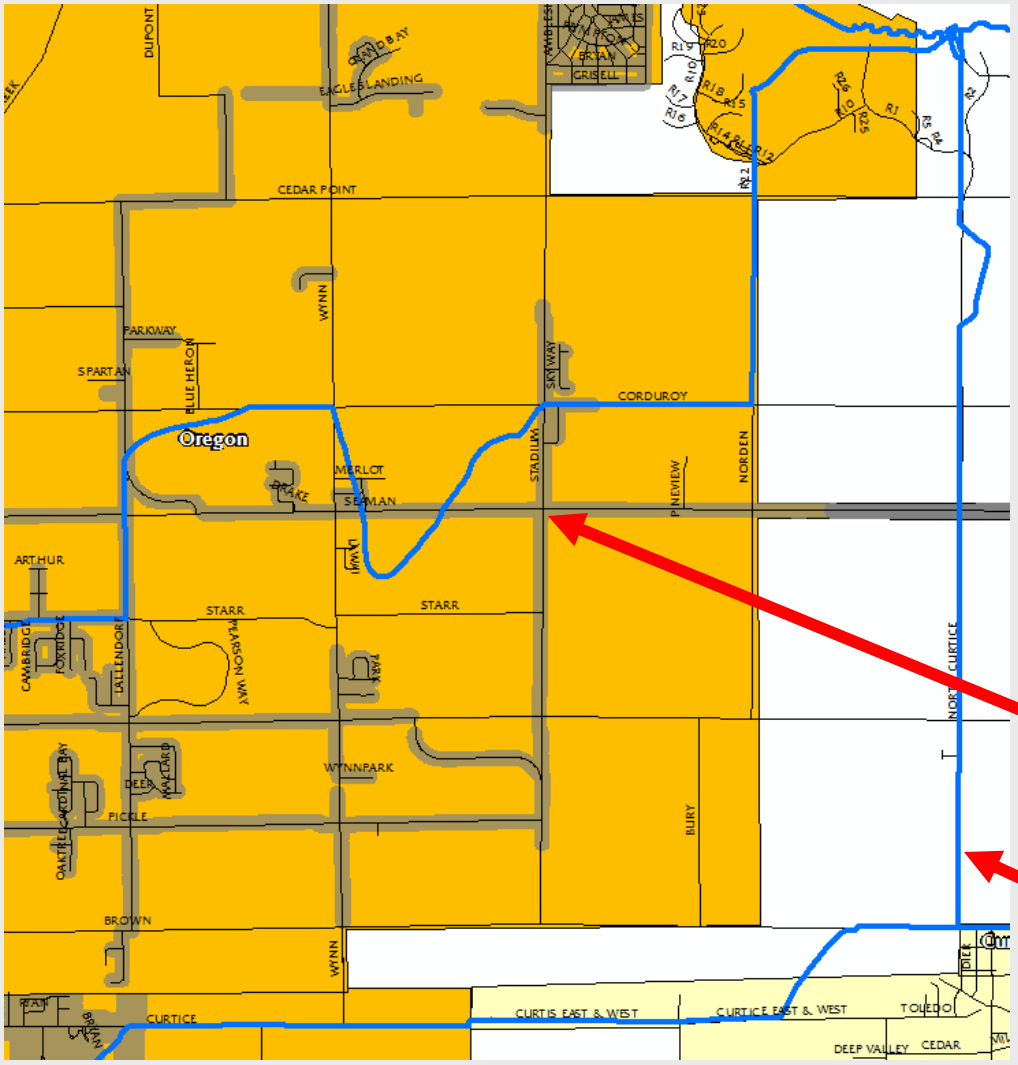


- High bacteria Maumee River
- Settle in channel
- Low levels CDF to park
- High levels @ Berger Ditch
- Low levels other ditches

Options to Reduce Fecal Bacteria

- Eliminate the sources of bacteria
  - Sewage
  - Warm-blooded animals
- Re-route stream water away from the Lake Erie beaches
- Treat the stream water

Sewers & Septic Tanks

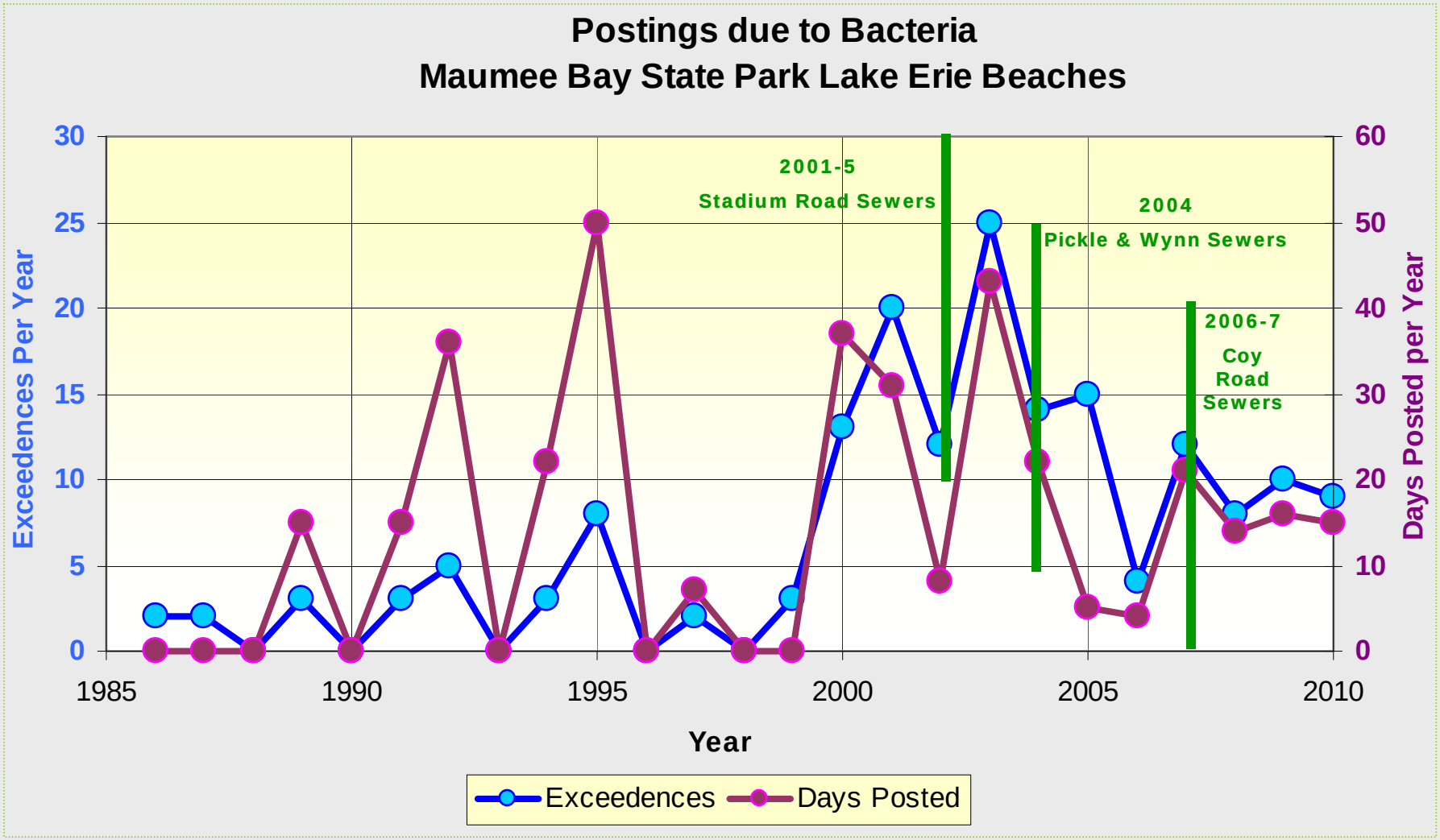


- Toledo/Lucas County Health Department tested septic systems
- Required failed systems to upgrade
- Oregon built sewers @ $12 M
- Eliminated several package plants
- Eliminated hundreds of septic systems

Grey = sewer line

Blue = Watershed Boundary

Beach Postings – Bacteria



Average postings: 14 days / year

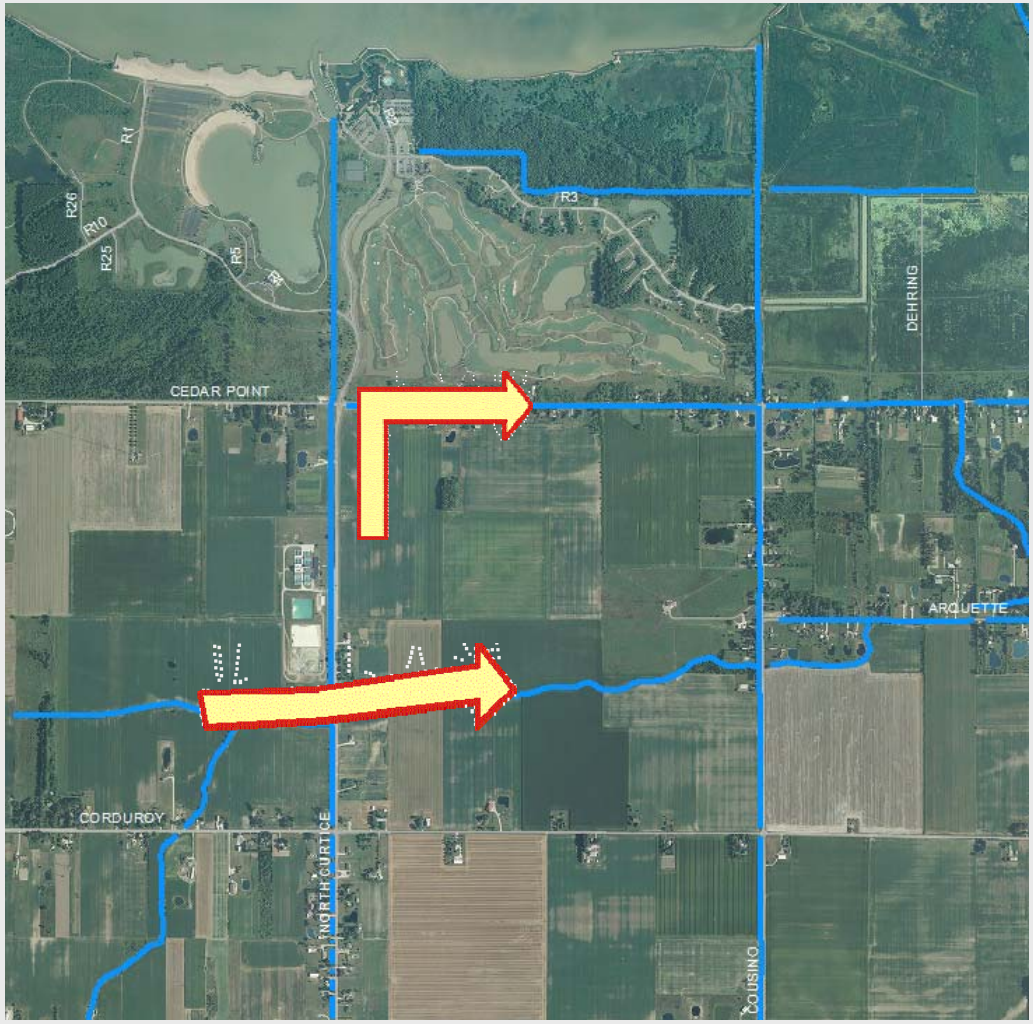
Route Flow to Northwest

- Remove creek flow from beach, but still close
- Control bacteria in stream water
- May require pumping

Route Flow to Northeast

- Distant from beaches
- Park wetlands could benefit, treat water
- Too many roads, pipelines in the way
- Loss of water control for golf course

Route Flow to East



- Distant from beaches
- Flooding
- Berger ditch was built to solve flooding problems

Current Flow

- Does not require pumping
- Close to beach
- Control / capture bacteria in stream water
- Selected alternative
- Basis of 2007 Conceptual Plan

North Coast Ecotourism

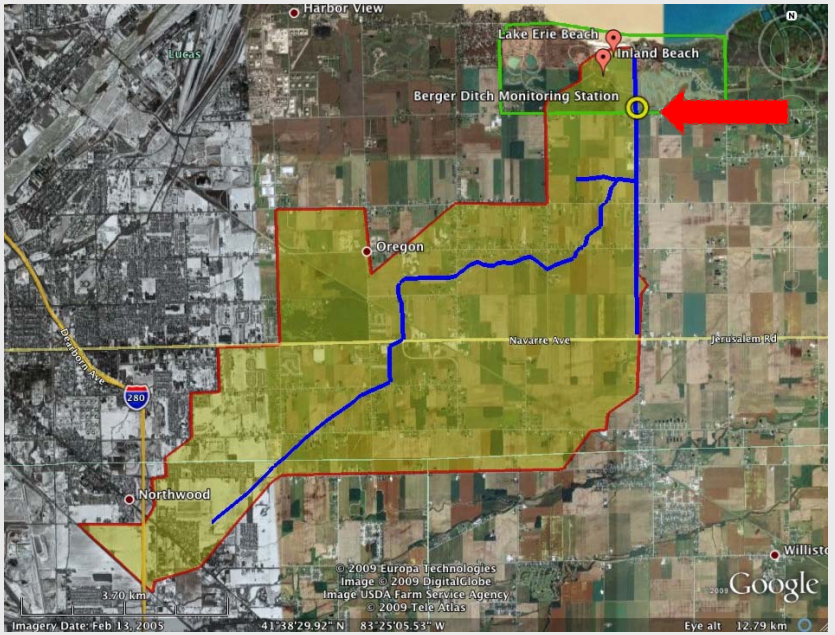
- Coastal wetlands critical habitat for migratory songbirds
- Annually 50,000 birders
- Among the best birding destinations in the Western Hemisphere

- Tens of millions of ecotourism dollars to NW Ohio yearly
- Potential 44 acres habitat; 33 with public access

Research by University of Toledo

- Determine the levels of bacteria and nutrients from Wolf Creek Watershed to Maumee Bay
- Data will be used to design the wetlands

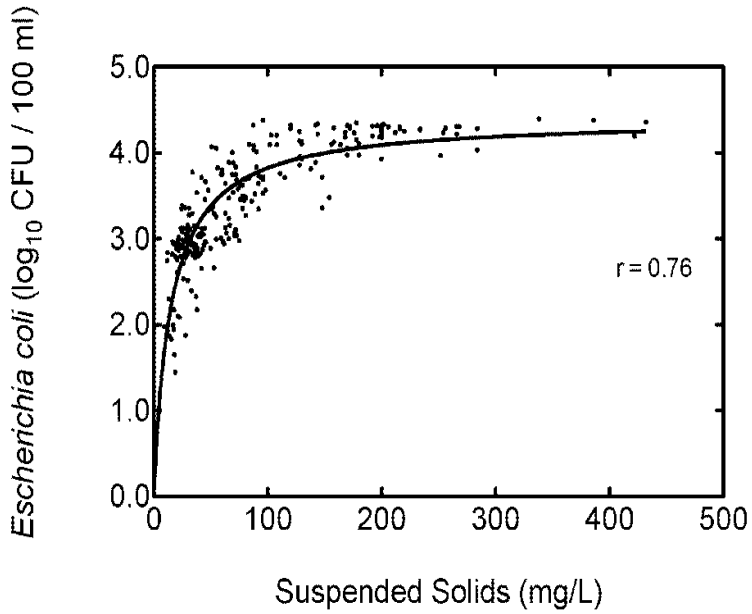
Maumee Bay State Park

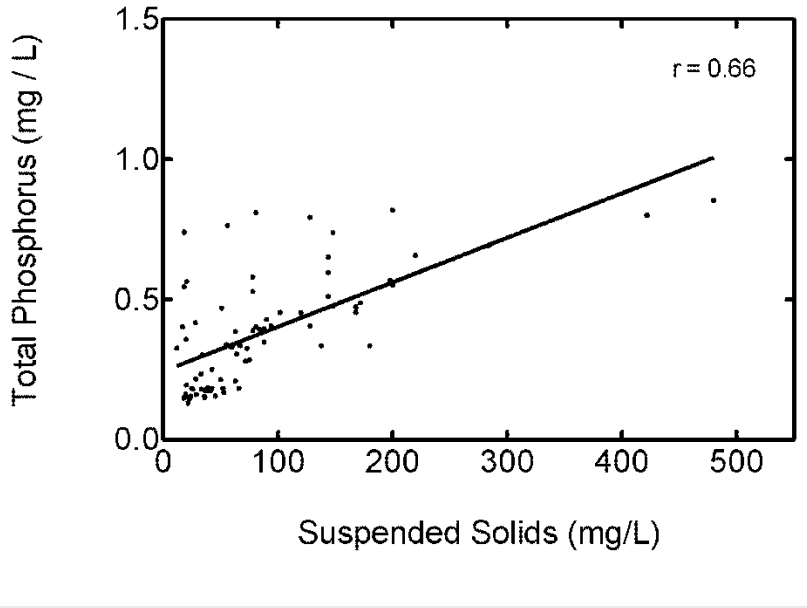


Parameters measured

- Velocity = speed of water
- Discharge = volume of water per time
- *E. coli* = bacteria indicator for fecal contamination
- Suspended solids = particles in water
- Total phosphorus = dissolved and particulate phosphorus

Relationships between tested parameters in the summer





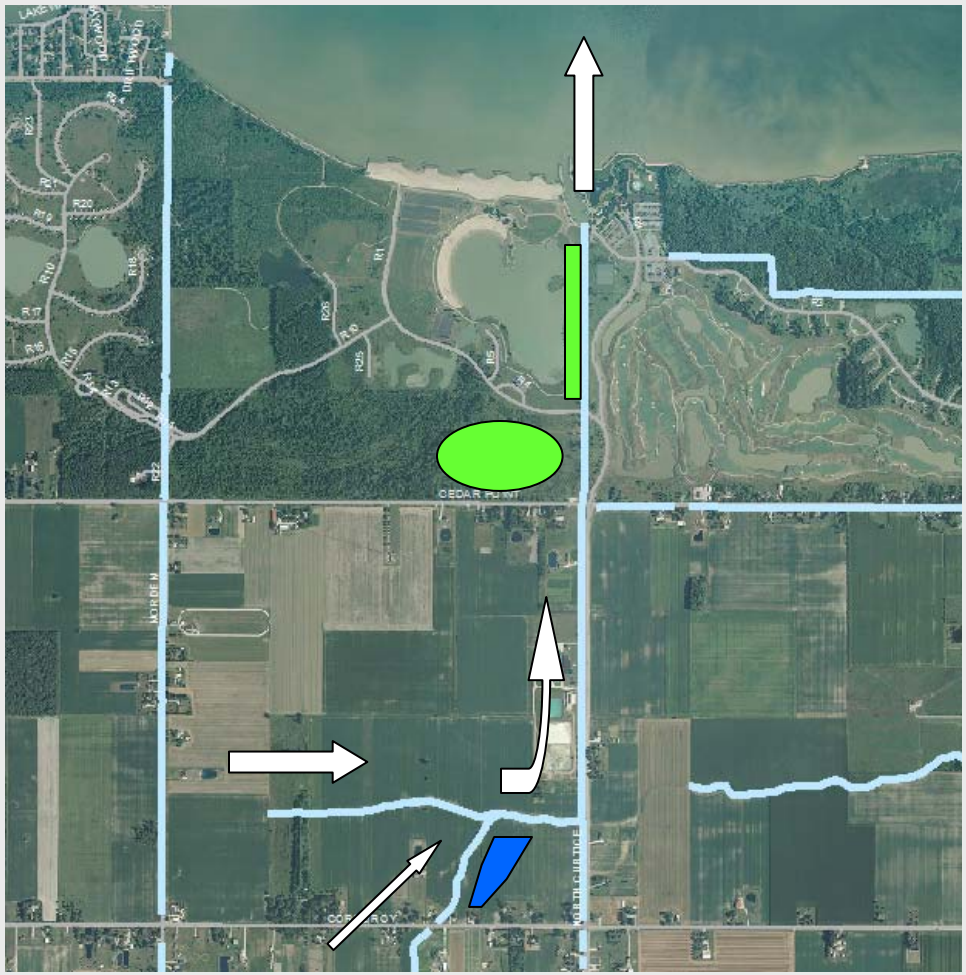
Reduce *E. coli* and phosphorus by removing suspended solids!

Wetland System Design Objectives

- Reduce beach advisories
- Restore wetland habitat
- Minimize operation & maintenance
- Restore stream floodplains
- Reduce sediments and *E. coli* in Berger Ditch during recreational season
- Intercept/treat both low and high flows
- Include both surface and subsurface flow wetlands

Restoration Concept

- Stage 1: Upstream Floodplain Restoration and Sediment Removal Area
- Floodplain
- Stage 2: Downstream Terraced Wetland Habitat Restoration and Treatment System
- Terraced surface flow wetlands with subsurface flow wetland components



Treatment Goals

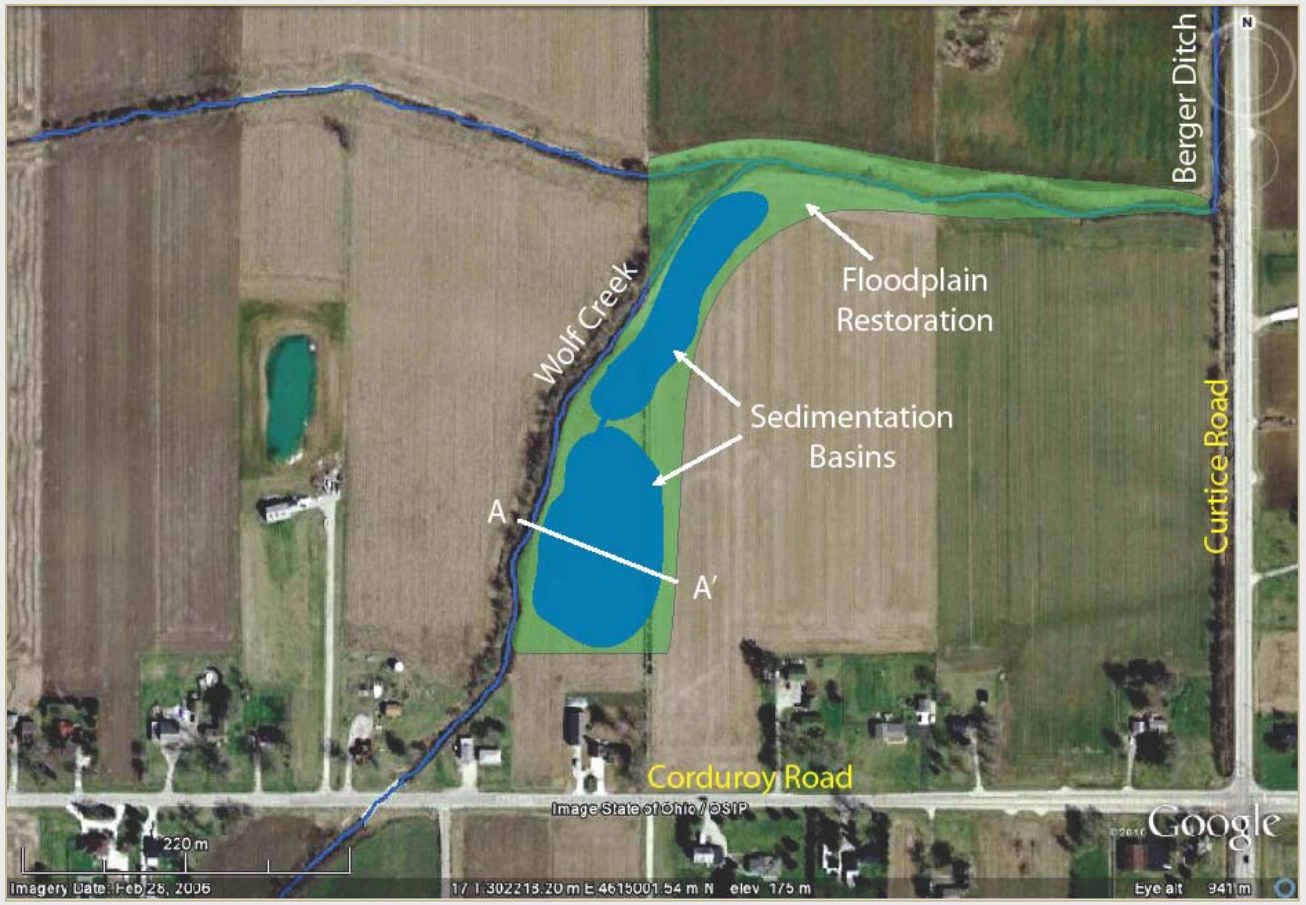
Stage 1 (Upstream/Corduroy Road):

- Removal of suspended solids
- Removal of *E. coli* and nutrients
- Reduction of sediment to protect Stage 2 wetlands
- Floodplain/habitat restoration

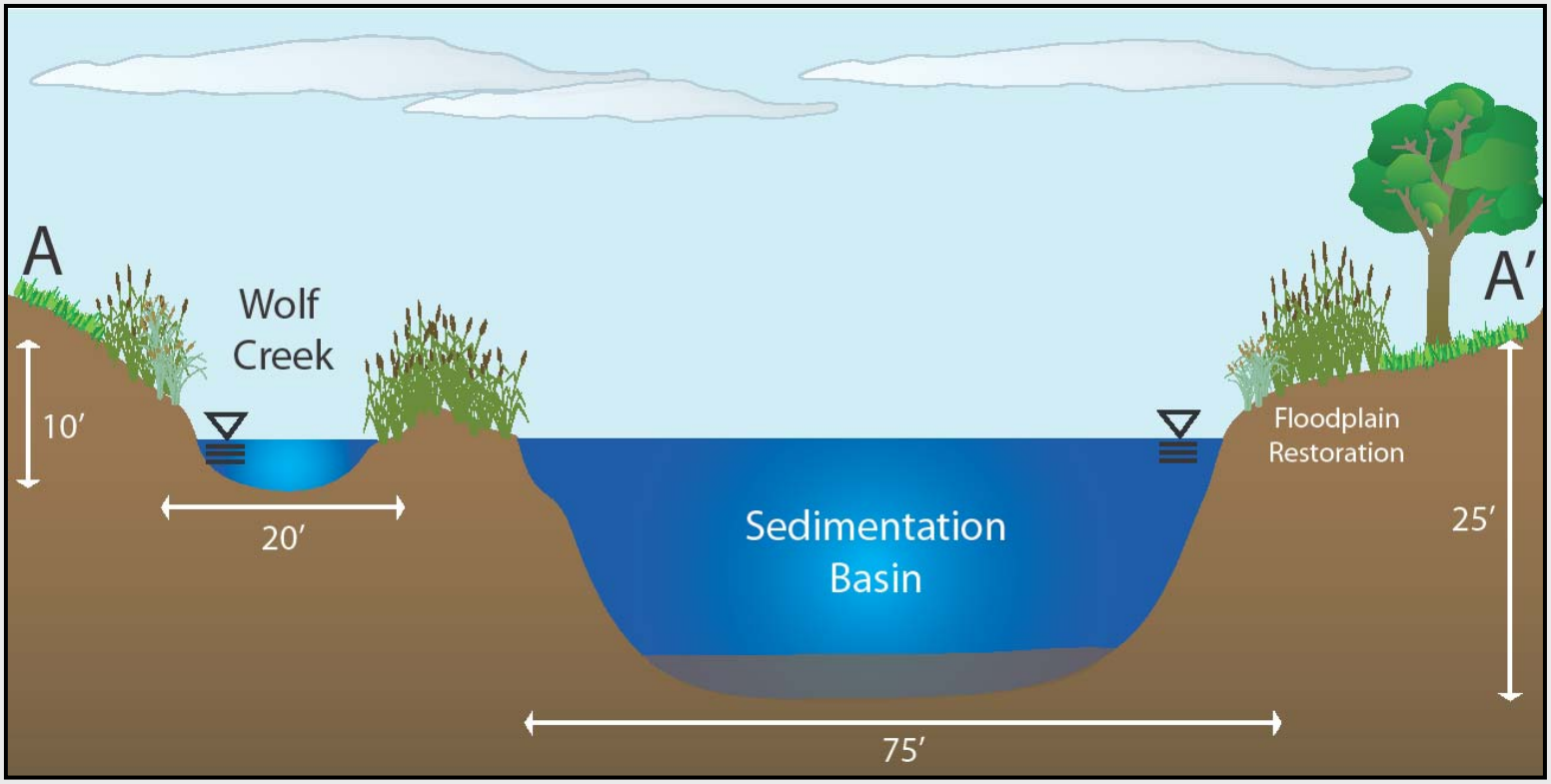
Stage 2 (Downstream/MBSP):

- Reduce *E. coli*
- Reduce nutrients
- Restore wetland
- Restore habitat benefits

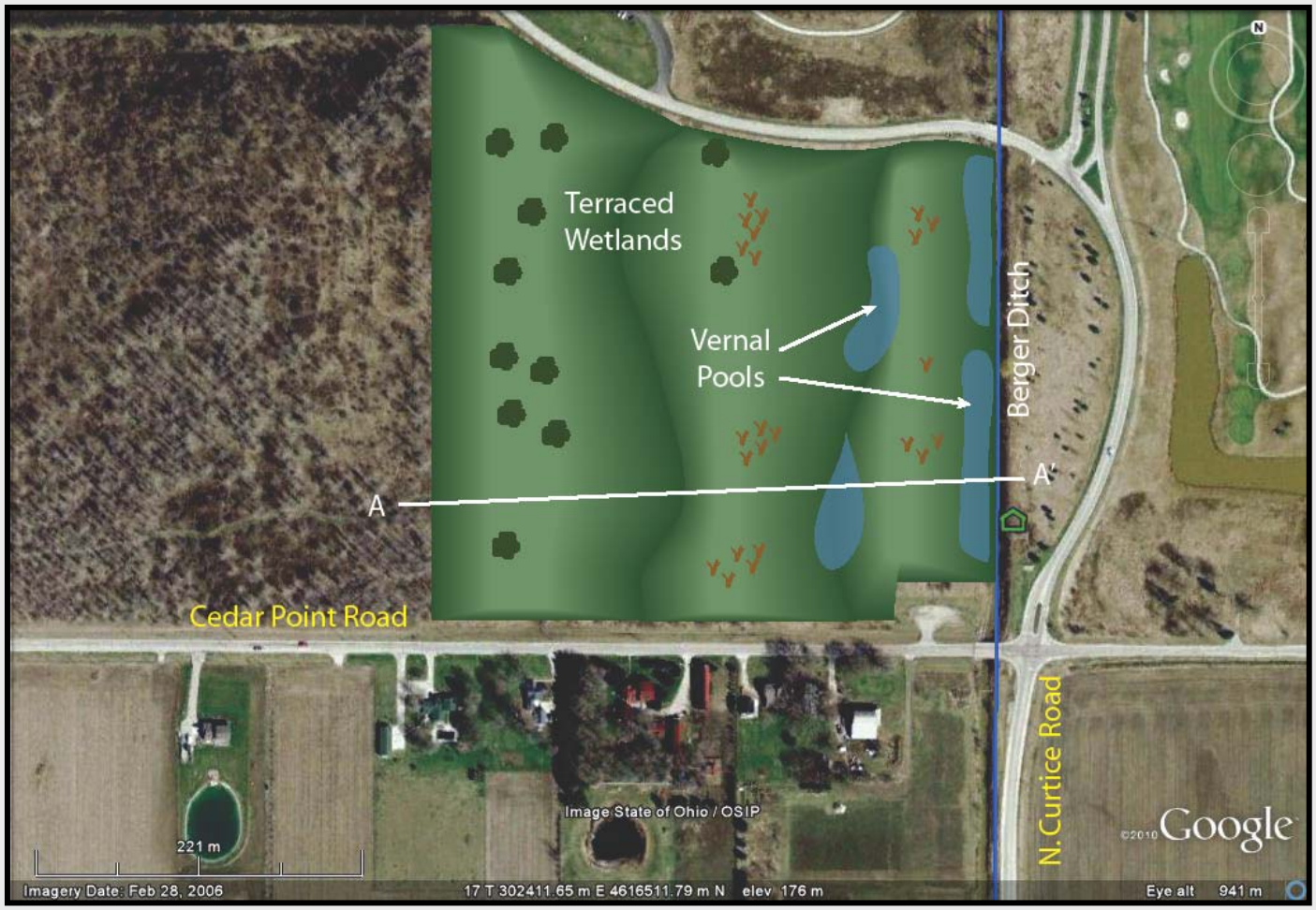
Stage 1: Upstream Floodplain Restoration and Sediment Removal Area



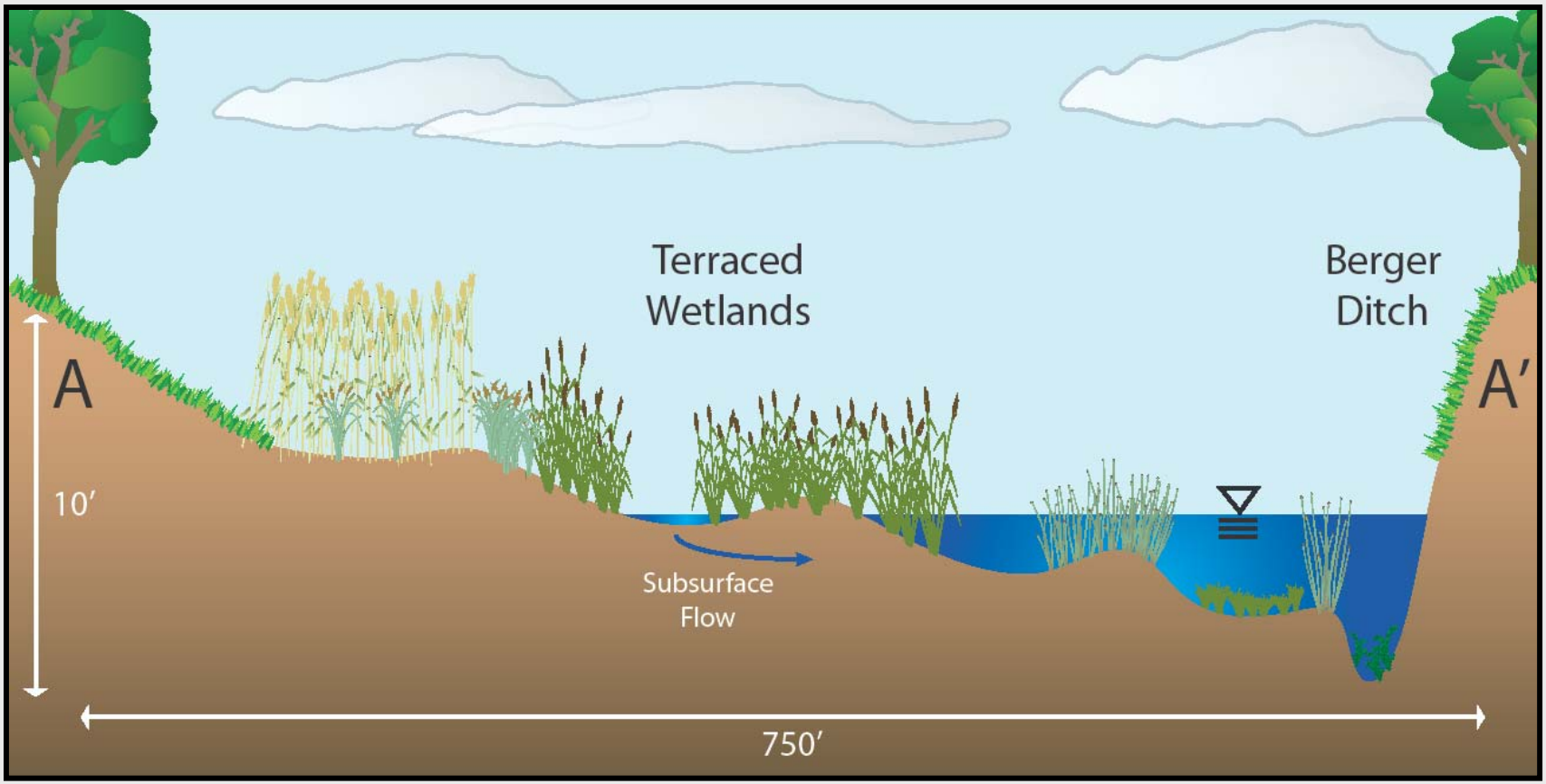
Stage 1: Upstream Floodplain Restoration and Sediment Removal Area



Stage 2: Downstream Terraced Wetland System



Stage 2: Wetland Habitat Restoration and Treatment System



Preliminary Cost Estimates

Wolf Creek - Berger Ditch Wetland Restoration
Estimated Design and Construction Costs

Individual Project Phases

Project Site	Phase	Low Range Cost	High Range Cost	Estimated Cost
Oregon - Wolf Creek	Wolf Creek floodplain wetlands and sedimentation basins	$1,387,130	$2,311,890	$1,849,500
Maumee Bay State Park	Berger Ditch Corridor Restoration (3 sites together) and terraced wetland	$2,628,960	$4,381,590	$3,505,280
Total Estimated Costs		$4,016,080	$6,693,470	$5,354,780

Steps to Implementation

- Acquire property or conservation easement in Oregon
- Finalize report
- Partnership between UT Lake Erie Center and ODNR Maumee Bay State Park
- Funding

Acknowledgments

Ohio Lake Erie Phosphorus Task Force

Chris Riddle, Ohio EPA, Division of Drinking & Ground Waters

for Gail Hesse, Ohio EPA, Division of Surface Water

December 9, 2010

Topics

- Background
- Findings
- Recommendations

The Ohio Lake Erie Phosphorus Task Force

- Convened to analyze the increases in dissolved reactive phosphorus (DRP) levels and corresponding increases in algal blooms
- Both trends began to appear in the mid-1990s with extensive blooms since 2007
- Evaluated point and nonpoint sources of DRP
- Sparked by Heidelberg University's stream loading data.

Ohio Phosphorus Task Force Members

- Composition
  - State program personnel from Ohio EPA, ODNR and ODA
  - Academia
  - Agricultural agencies and organizations at the federal, state and local level
  - USEPA-Great Lakes National Program Office
  - USGS
  - Wastewater Treatment Plant


SEP 19 2008

P Task Force Approach

- Identify all possible sources of DRP
- Quantify what we can with existing data sources
- Consult with topical experts
- Consult peer-reviewed publications
- Compare *relative contributions* from possible sources
- Develop recommendations

List of Possible Sources

- Point sources
  - POTWs, Industrial, CSOs, HSTS
- Agriculture
- Urban/residential
  - Lawn care fertilizers, storm water, orthophosphate in treated water, dishwasher detergent
- Other
  - In lake loads/recycling
  - Streambank erosion
  - Detroit River/upper lake loads
- Transport mechanisms
  - Subsurface drainage, surface runoff

Findings

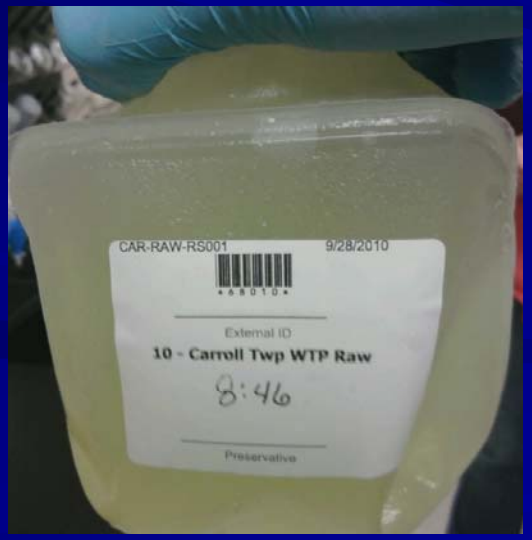
- Point sources have remained relatively consistent
- Lawn care – can have localized impact
- Mussels have altered P cycling
  - Extent unknown
  - Processing external sources
- Transport mechanisms – surface and subsurface drainage
  - Relative contribution unknown

Findings

- Soil nutrient interactions are key to understanding nutrient movement
- Soil P naturally fluctuates between dissolved and solid forms
- Soil mineralogy influences solubility
- Other factors, including nitrogen, may be affecting algal blooms

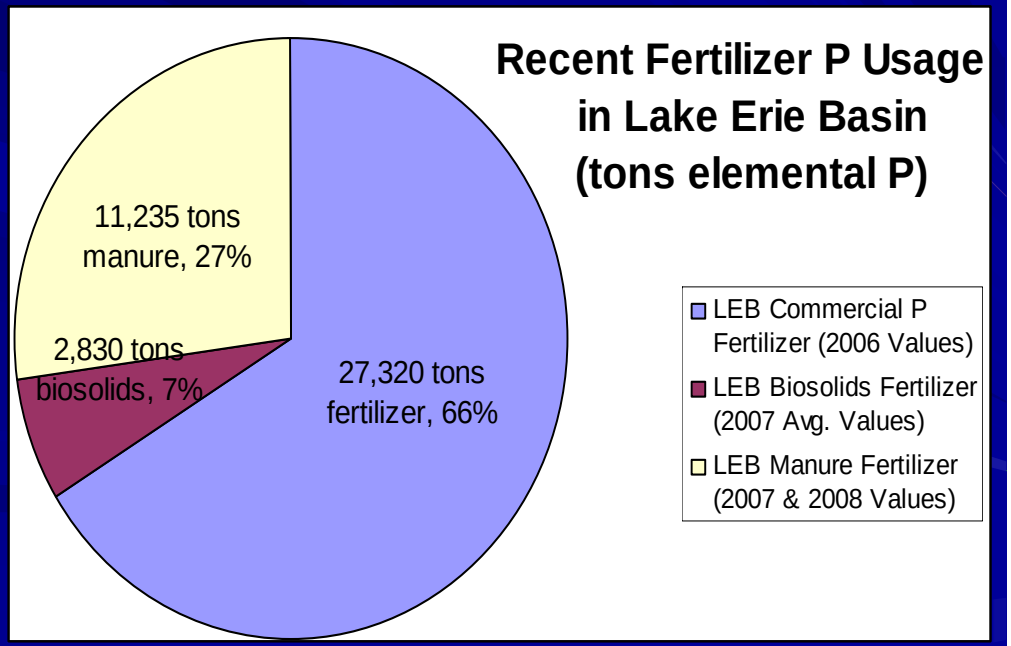
Findings

- DRP loadings are driven by runoff events
- Weather trend changes: higher intensity storms, less snowfall, high winter runoff events
- Multiple contributors; agriculture is key
- Need to look at how we manage our P inputs



Phosphorus Inputs Agriculture

- Biosolids
- Animal manure
- Commercial fertilizer



Trends in Agriculture

- Overall, nutrient inputs are down
  - Biosolids, animal manure, commercial fertilizer
- Larger farms, larger fields and larger equipment
  - Larger equipment has multiple functions, more year-round operations
  - Larger, heavier equipment may be leading to soil compaction

Trends in Agriculture, cont.

- More fall preparation of seed beds, *more fall and winter application*
- Changing methods: more broadcast application without incorporation
- Unknown and uncertain use of soil tests and adherence with recommendations
- Changes in soil quality
- Changes in drainage

3 Categories of Recommendations

- Priority practices
- Tools to quantify edge of field runoff potential
- Research

Recommendations - Practices

- Push for “Priority Practices” for nutrient management
- Use innovative approaches to sell these practices
- Apply adaptive management principles
- Key issues:
  - Amount
  - Timing
  - Incorporation
  - Management of field runoff

No single practice will result in lower nutrient runoff


No-Till
Fertilizer Mgt
Waste Mgt
Cover Crops

Recommendations - Tools

- Ensure consistent, reliable soil tests

  and increase the frequency of testing

- Update screening tools that account for agronomic need and environmental risk

  USE THE TOOLS

  - Link soil test results to fertilizer recommendations
  - Link recommendations to applications
  - Link nutrient management practices to highly variable conditions

Recommendations - Research

- Pursue the Research Agenda: field to stream to nearshore to in-lake
- Review new information, monitor progress, course correct as necessary

Current Status

- Task Force report released at a time of increasing urgency to address nutrient issues
- Current research projects underway
- Ohio is coming up with a nutrient strategy
- Regional efforts make a difference
  - LaMP
  - Gulf of Mexico strategy

For more information contact:

Gail Hesse

Ohio EPA

Division of Surface Water

Harmful Algal Blooms

http://www.epa.ohio.gov/dsw/HAB.aspx

LE Phosphorus Task Force

http://www.epa.ohio.gov/dsw/lakeerie/ptaskforce/index.aspx

Maumee RAP Summit December 9, 2010

Toledo Harbor Task Force Update:
Joe Cappel, Director of Cargo Development, TLCPA

TOLEDO | LUCAS COUNTY
PORT AUTHORITY

Toledo Harbor Task Force Update

TOLEDO | LUCAS COUNTY PORT AUTHORITY

What is it: The Toledo Harbor Task Force is established to convene representation from all impacted stakeholders to collaboratively resolve challenges regarding the management of dredged material in the Toledo Harbor vicinity.

Toledo Harbor Task Force

TOLEDO | LUCAS COUNTY PORT AUTHORITY

Who we are: Port Authority, USACE, USDA, ODNR, OEPA, ODOT, OLEC, ODOD, Lucas County, City of Toledo, City of Oregon, Lake Erie Waterkeepers Assocation, Maritime Industry, Ohio Sea Grant College Program, Toledo Metroparks, Office of Congresswoman Marcy Kaptur, Office of Congressman Bob Latta, Office of Senator George Voinovich, Office of Senator Sherrod Brown

Toledo Harbor Task Force Update: 7 Goals

TOLEDO | LUCAS COUNTY PORT AUTHORITY

1. Enhancement of native fish, bird, wildlife and plant habitats and minimization of environmental deterioration;
2. Ensuring dredging of all Toledo Harbor shipping channels in conjunction with maintaining all channels to authorized depths for safe and commercially viable navigation;
3. Development of a plan to ultimately eliminate open lake disposal through environmentally acceptable and financially feasible alternative analysis;
4. Development and implementation of a Sediment Management Plan for Toledo Harbor emphasizing beneficial re-use of sediments dredged from Toledo Harbor;
5. Development and design of at least one HRU project ready to move to final construction.
6. Encourage consideration of dredge material as resource for beneficial reuse
7. Assist in identifying and securing funding for sediment management plans and projects.

Toledo Harbor Task Force Update

TOLEDO | LUCAS COUNTY PORT AUTHORITY

What has been accomplished to date:

September 2009: Toledo Harbor Dredging Summit held in conjunction with Ohio Freight Conference

November 2009: Task Force was officially formed and convened first meeting (9 meetings total through November 2010)

April 2010: Task Force Charter and Roles and Responsibilities Defined

August 2010: Great Lakes Commission proposed two workshops to review and solicit ideas from stakeholders. US EPA Director, Lisa Jackson announces GLRI funding for the creation of a Toledo Harbor Dredge Material Management Plan.

September 2010: GLRI sub granted from OLEC to TLCPA

November / December 2010: Three teams of consultants interviewed and team led by Hull & Associates selected to work with Task Force on plan construction.

Toledo Harbor Task Force

What's Next:

Hull & Associates will work with the task force membership to create an **online data repository** for review

Hull & Associates will work with the task force and Great Lakes Commission on soliciting ideas for the beneficial use of material through **workshops**

Habitat Restoration Units (design, location, etc.) and other beneficial reuse **options will be evaluated** according to critical criteria (such as cost, volume, environmental benefit) along with sediment reduction strategies and dredging techniques.

The best short and long term options will be recommended and the **plan will be finalized by May 2012**. The task force will work to **identify funding to implement the plan** as it is being devised.

Lake Erie - Lower Maumee River Tributaries TMDL

Maumee RAP Summit
December 9, 2010

OhioEPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

TETRA TECH

complex world | CLEAR SOLUTIONS™

LE-LM Tributaries TMDL

Discussion Overview

- **Work Plan Review**
- **Watershed Characterization**
- **Source Assessment**
- **Next Steps**

LE-LM Tributaries TMDL

Phased Approach

- **Phase 1**
  - ***Characterization***
  - ***Source Assessment***
  - ***Linkage Analysis***
  - ***Draft TMDL***
- **Phase 2**
  - ***Final TMDL***
  - ***Implementation plan***

LE-LM Tributaries TMDL

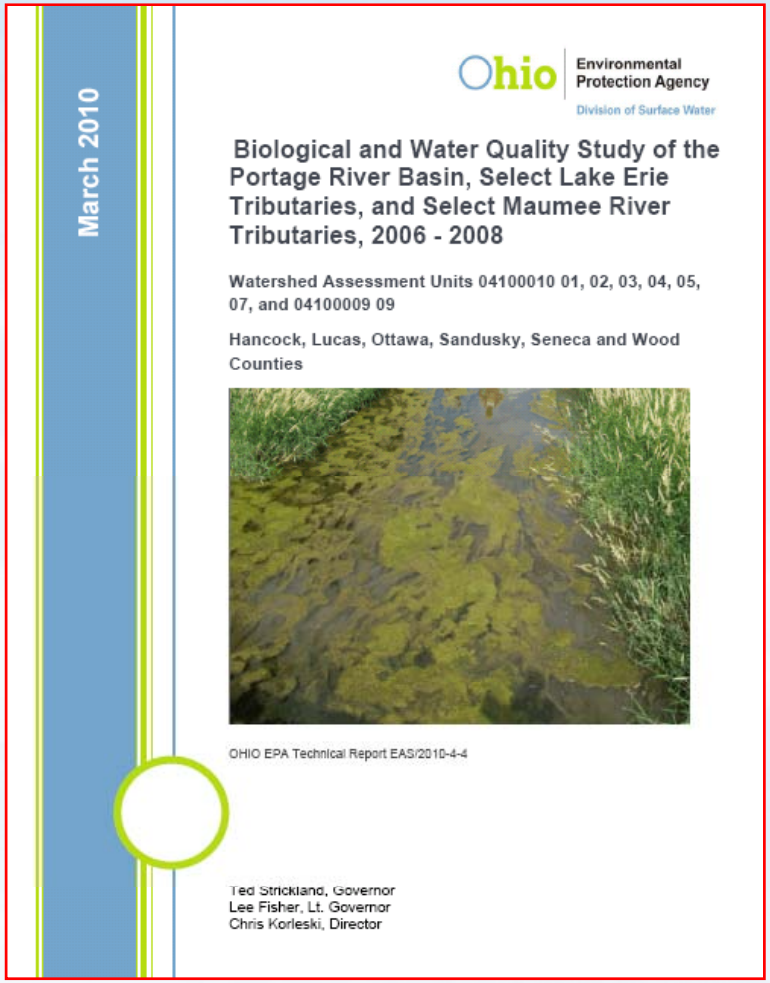
Phase 1

- **Watershed Characterization**
  - ***Background Information***
  - ***Water Quality Indicators & Potential Targets***
  - ***Data Summary***

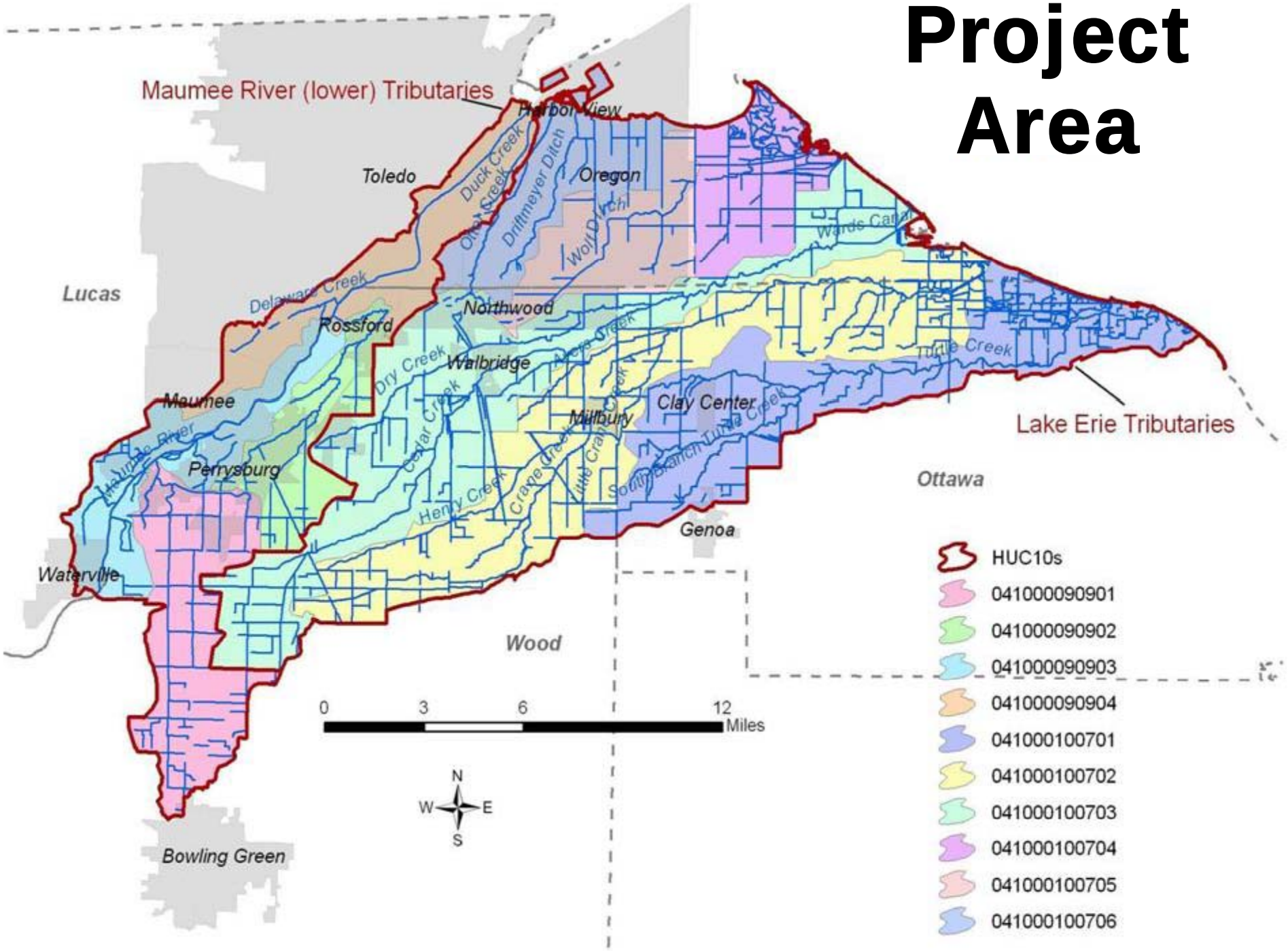
LE-LM Tributaries TMDL

Watershed Characterization

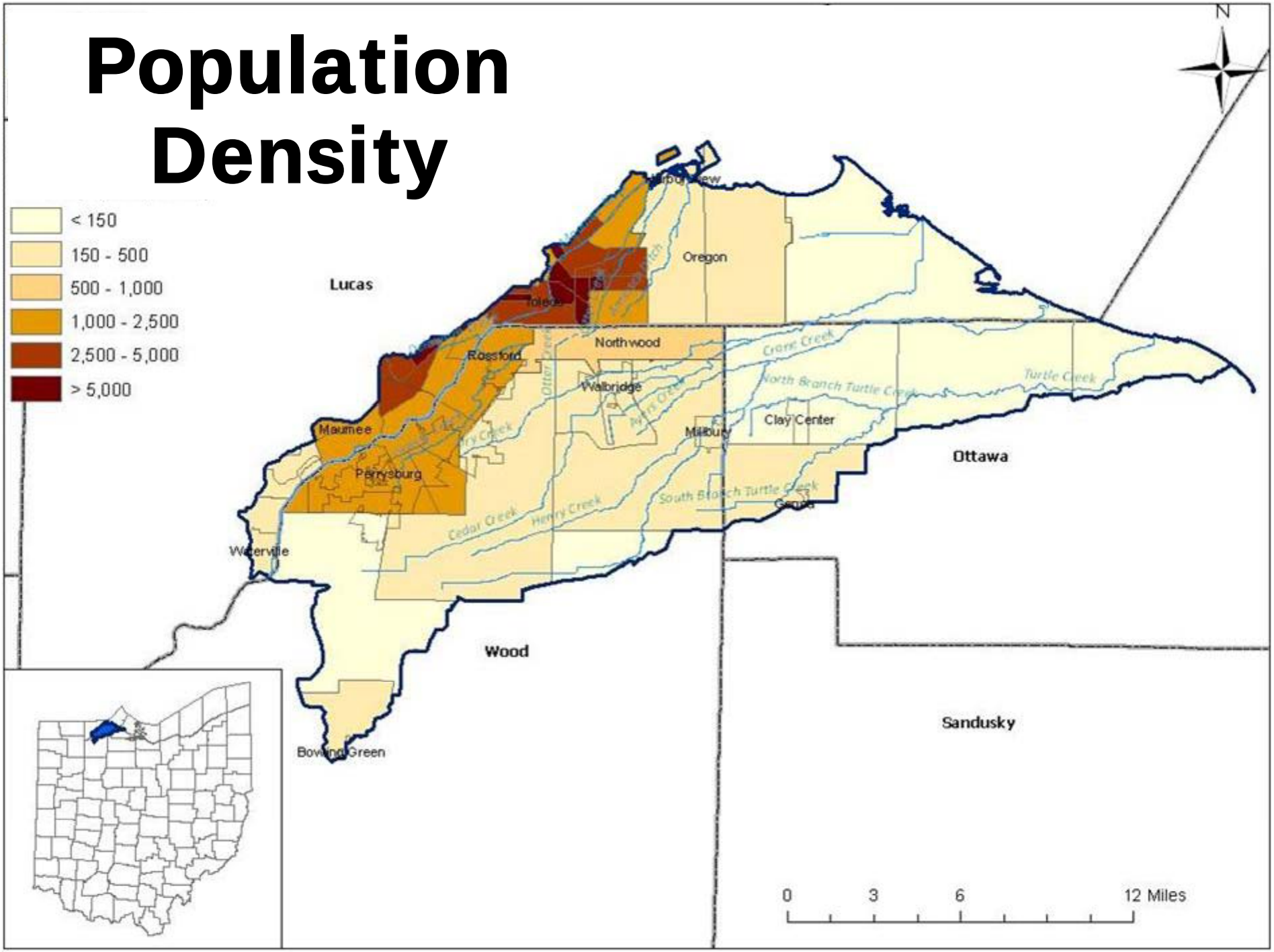
- **Background Information**
  - ***Setting***
  - ***Community Profile***
  - ***Climate***
  - ***Land Use / Land Cover***
  - ***Geology and Soils***
  - ***Hydrology***



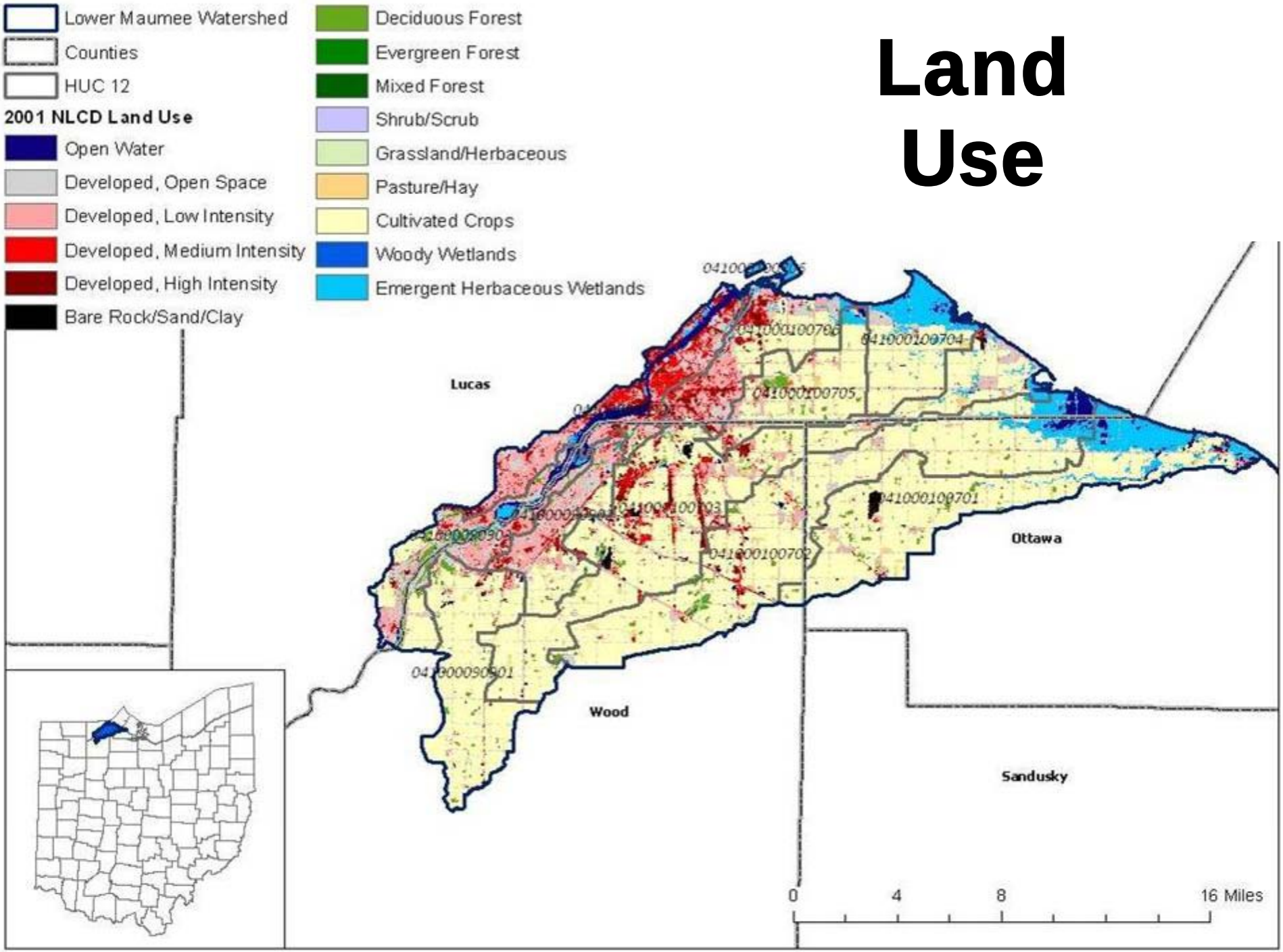
Project Area



Population Density



Land Use

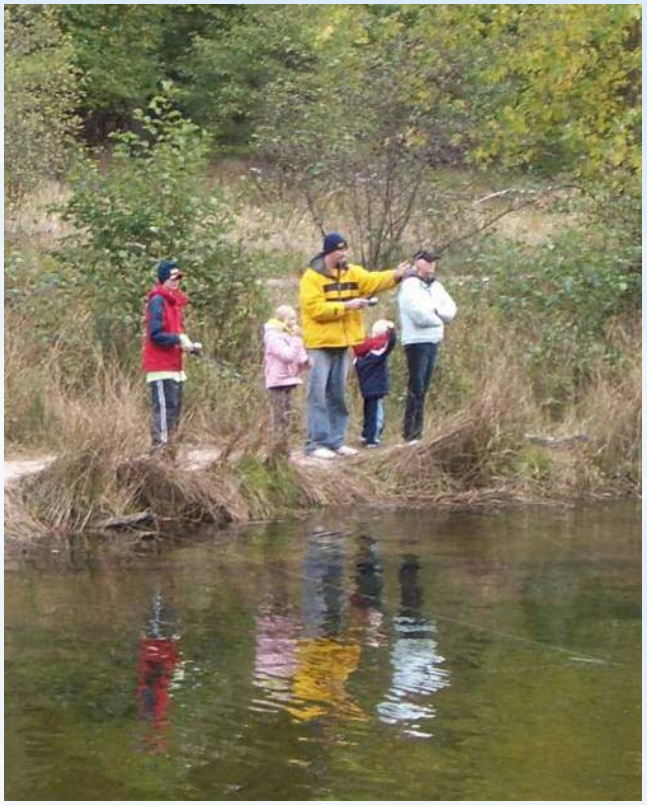

Lower Maumee Watershed
Counties
HUC 12
2001 NLCD Land Use
Open Water
Developed, Open Space
Developed, Low Intensity
Developed, Medium Intensity
Developed, High Intensity
Bare Rock/Sand/Clay
Deciduous Forest
Evergreen Forest
Mixed Forest
Shrub/Scrub
Grassland/Herbaceous
Pasture/Hay
Cultivated Crops
Woody Wetlands
Emergent Herbaceous Wetlands
Lucas
Ottawa
Wood
Sandusky
041000100704
041000100705
041000100701
041000100702
041000090501
0
4
8
16 Miles

TMDL Development

Problem Solving Framework

Practical approach using key questions …

- ***WHY* the concern**
- ***WHAT* reductions are needed**
- ***WHERE* are the sources**
- ***WHO* needs to be involved**
- ***WHEN* will actions occur**



LE-LM Tributaries TMDL

WHY the Concern

- ***Not meeting Contact Recreation, Aquatic Life, and Water Supply, designated uses***

- ***Determined by:***
  - ***poor aquatic biology***
  - ***water chemistry sampling***

- ***Supported by exceedances of:***
  - ***water quality standards***

LE-LM Tributaries TMDL

WHY the Concern

- **Lower Maumee River tributaries**

Assessment Unit (AU)	Area (mi^2)	Impairments
04100009 09 01 Grassy Creek Diversion	24.78	bacteria
04100009 09 02 Grassy Creek	13.68	bacteria, sedimentation / siltation
04100009 09 03 Crooked Creek	18.89	bacteria
04100009 09 04 Delaware Creek	19.25	bacteria, sedimentation / siltation, aluminum, total dissolved solids, pesticides

WHY the Concern

Assessment Unit (AU)	Area (mi^2)	Impairments
04100010 07 01 Turtle Creek	40.66	bacteria, sedimentation / siltation, direct habitat alterations, phosphorus (total), ammonia (total), D.O.,total dissolved solids
04100010 07 02 Crane Creek	56.48	bacteria, sedimentation/siltation, phosphorus (total), total dissolved solids
04100010 07 03 Cedar Creek	58.05	bacteria, sedimentation/siltation, D.O., ammonia (total), organic enrichment (sewage) biological indicators
04100010 07 04 Wolf Creek	15.16	bacteria
04100010 07 05 Berger Ditch	16.06	bacteria, sedimentation / siltation, organic enrichment (sewage) biological indicators
04100010 07 06 Otter Creek	18.13	bacteria, sedimentation / siltation, arsenic, contaminated sediments, polynuclear aromatic hydrocarbons (PAHs)

LE-LM Tributaries TMDL

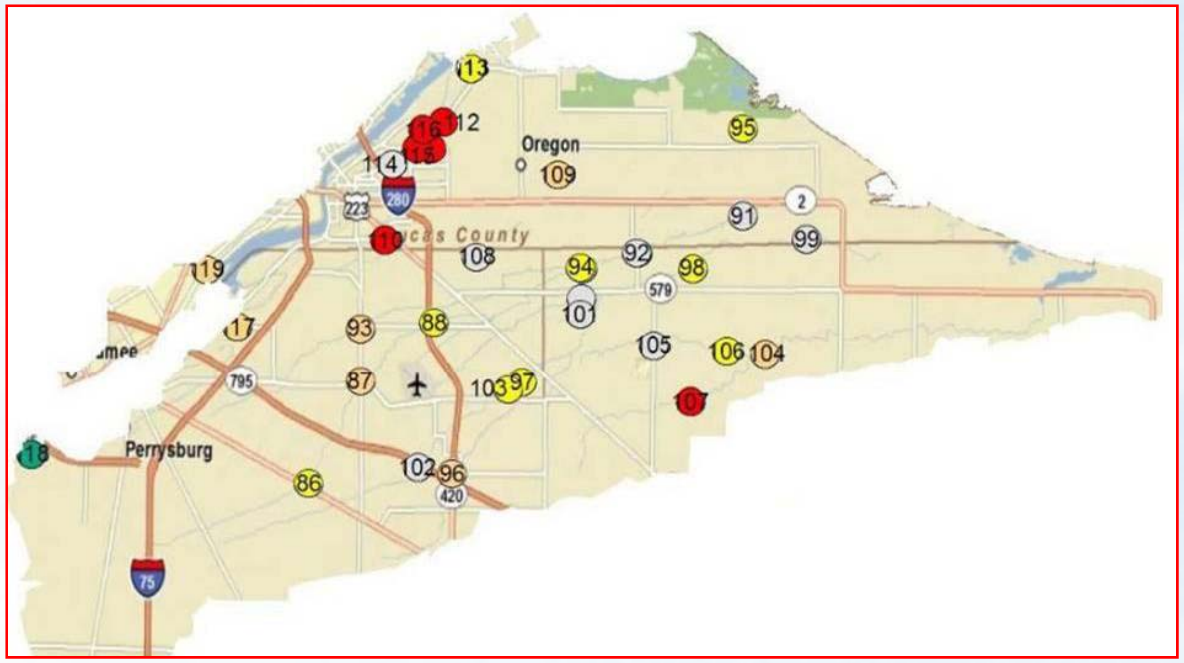
Water Quality Standards

Parameter	Units	Aquatic Life	Recreation	Water Supply
Ammonia	mg/L	See tables		
Dissolved Oxygen	mg/L	*WWH:* 5.0 / 4.0		
E. coli	#/100 mL		161 / 523 206 / 940	
Arsenic	µg/L	150 / 340		
a-BHC	µg/L			0.0048
NO2 + NO3	mg/L			10
Strontium	µg/L	21,000 / 40,000		18,000
Benzo(a)pyrene	µg/L			0.00002
Total Dissolved Solids (TDS)	mg/L	1,500		750 / 500
Phosphorus, Total	µg/L	*Headwaters:* 80 *Wadeable:* 100		

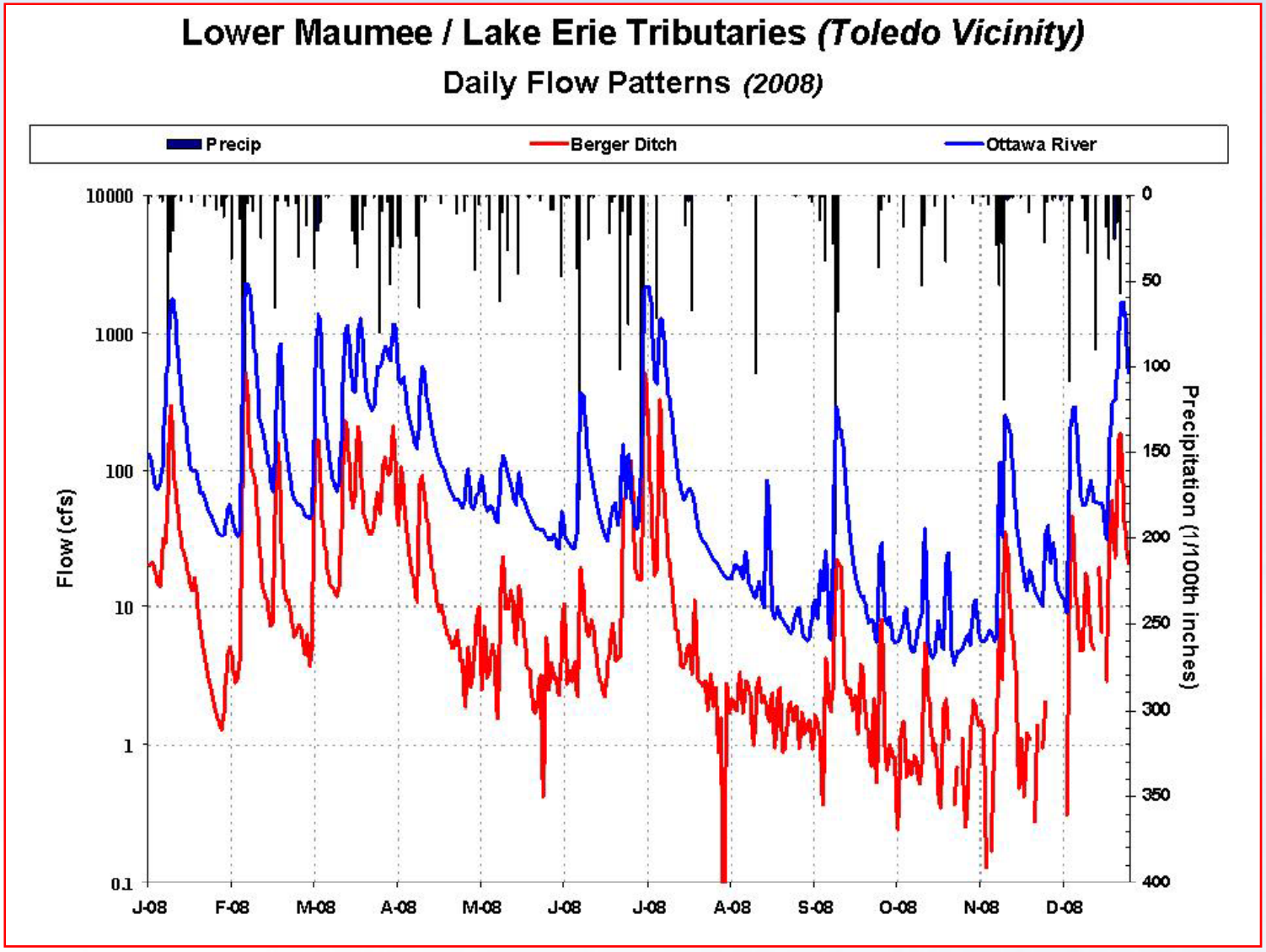
LE-LM Tributaries TMDL

Data Summary

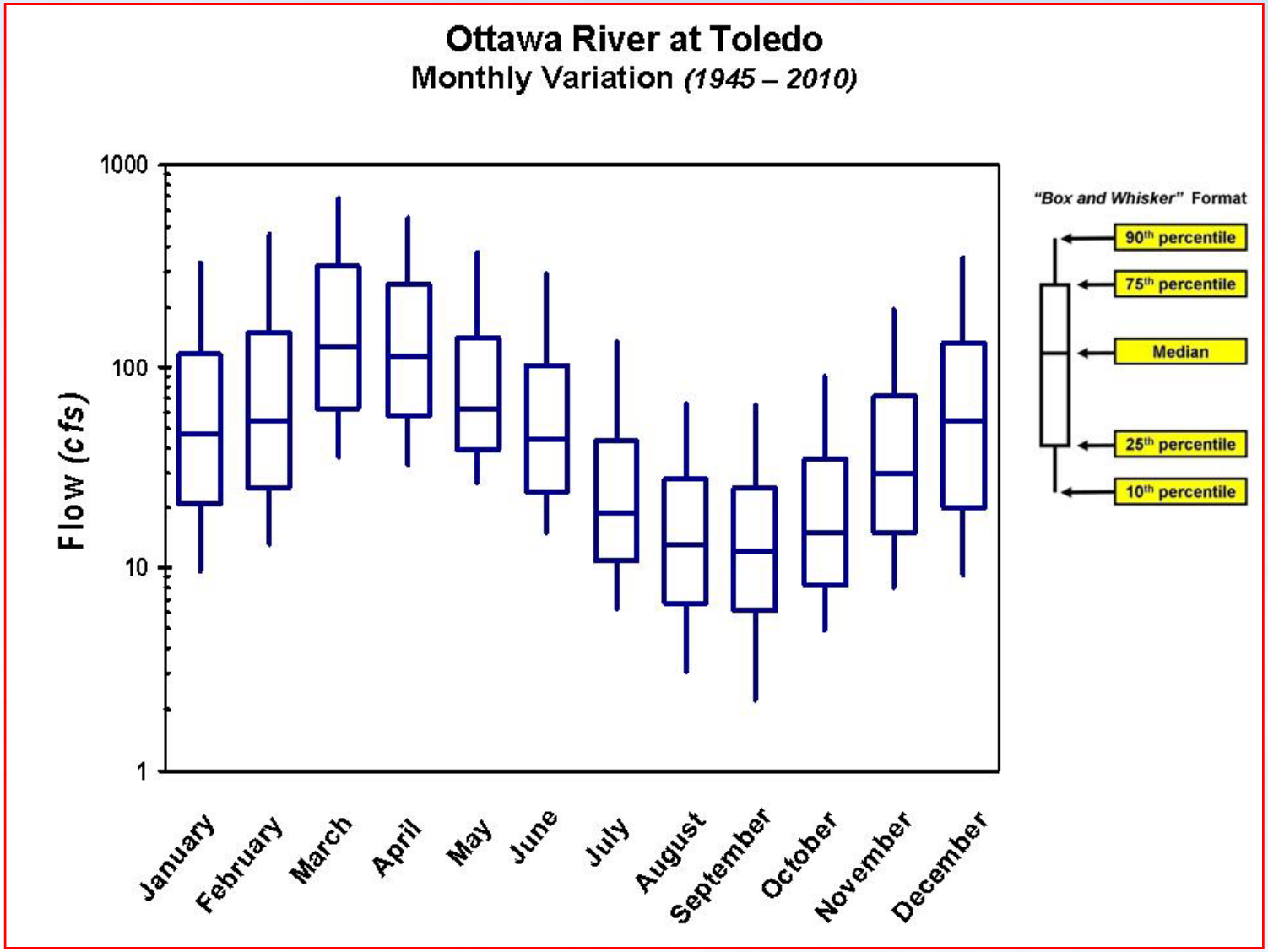
- ***Evaluate existing information***
  - ***Ohio EPA sampling (biology, habitat, water chemistry)***
  - ***USGS***
  - ***Other efforts***



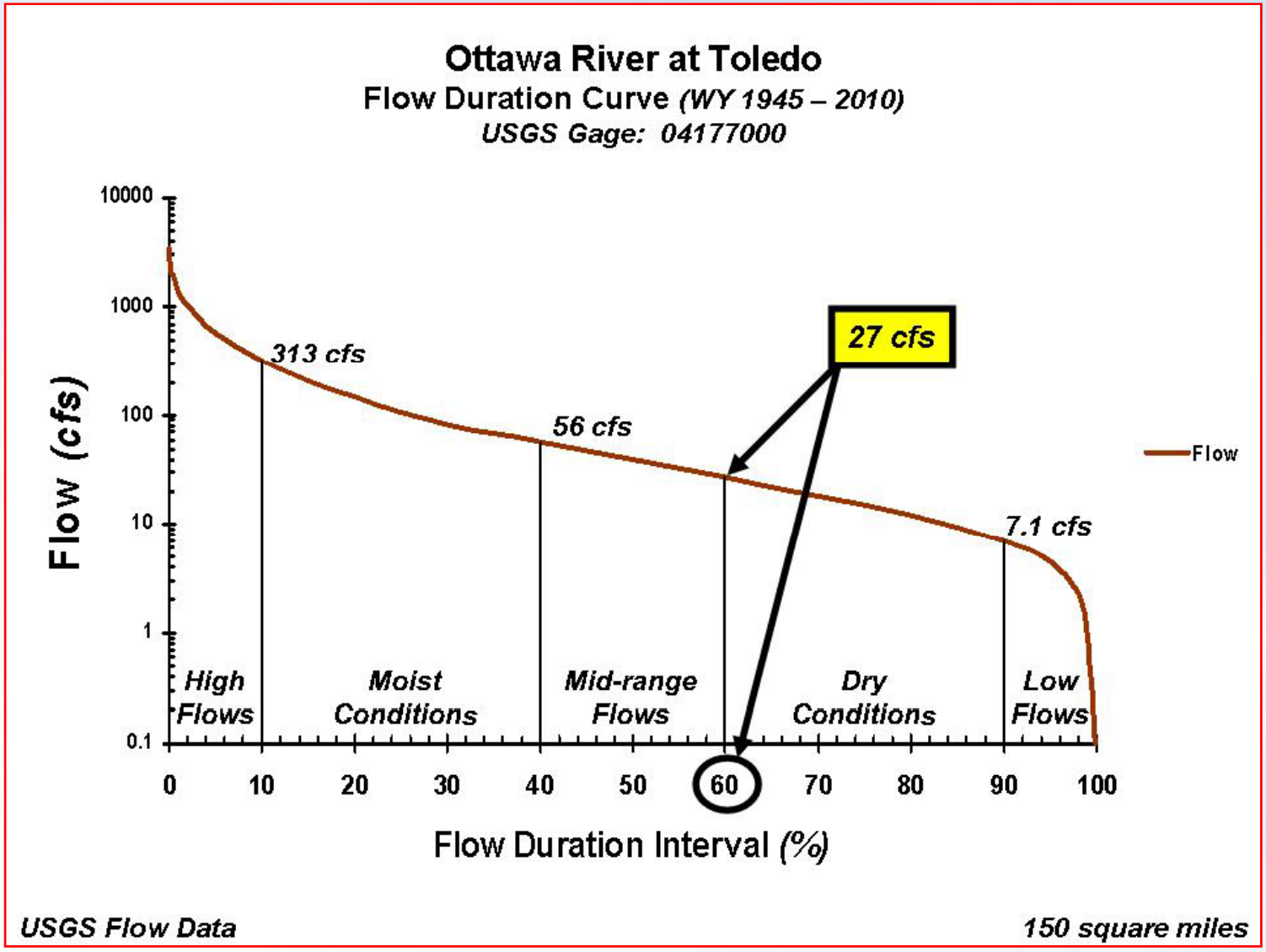
Hydrology


Lower Maumee / Lake Erie Tributaries (Toledo Vicinity)
Daily Flow Patterns (2008)
Precip
Berger Ditch
Ottawa River
Flow (cfs)
10000
1000
100
10
1
0.1
Precipitation (1/100th inches)
0
50
100
150
200
250
300
350
400
J-08
F-08
M-08
A-08
M-08
J-08
J-08
A-08
S-08
O-08
N-08
D-08

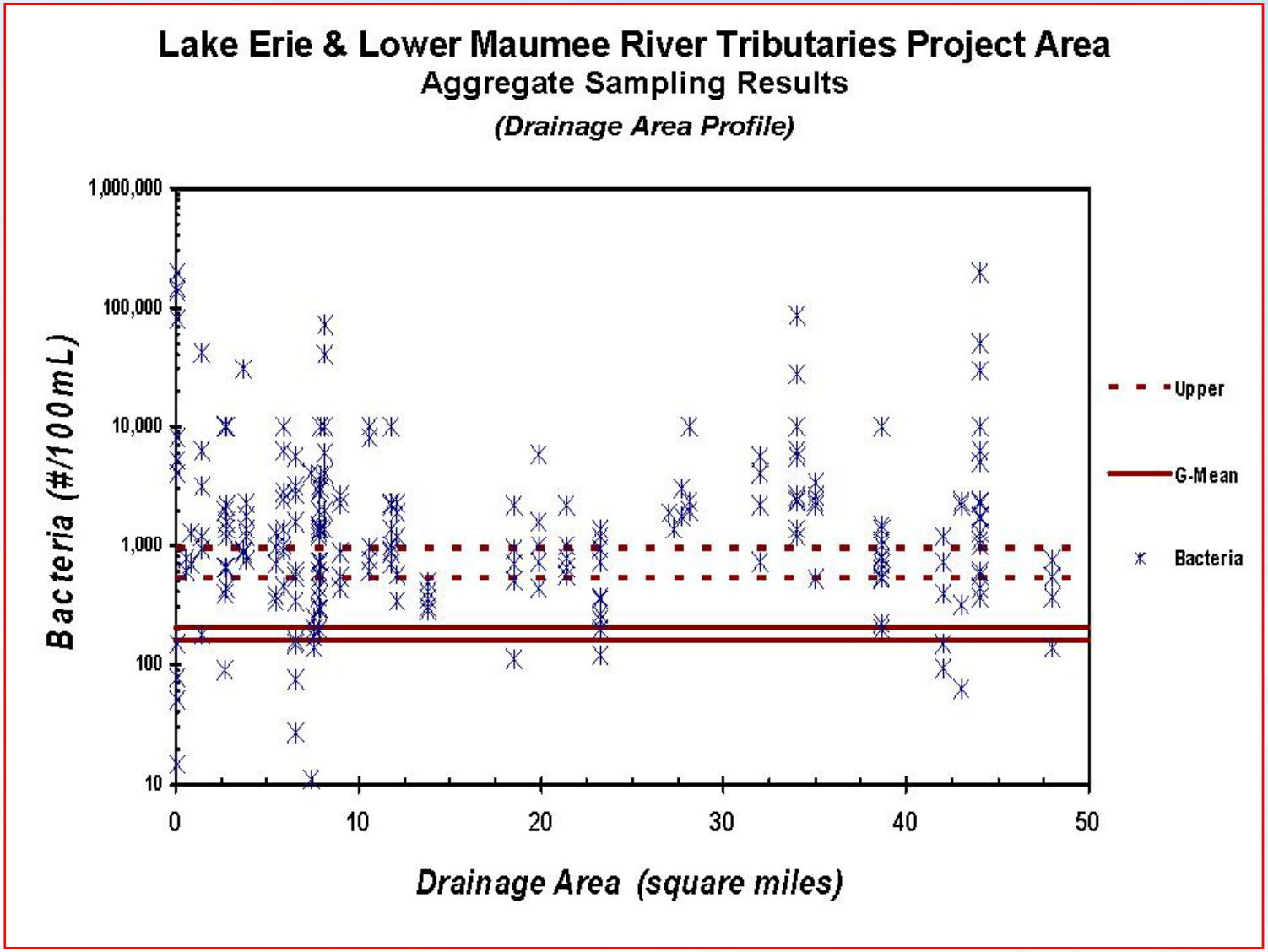
Hydrology


Ottawa River at Toledo
Monthly Variation (1945 – 2010)
Flow (cfs)
1000
100
10
1
January
February
March
April
May
June
July
August
September
October
November
December
"Box and Whisker" Format
90th percentile
75th percentile
Median
25th percentile
10th percentile

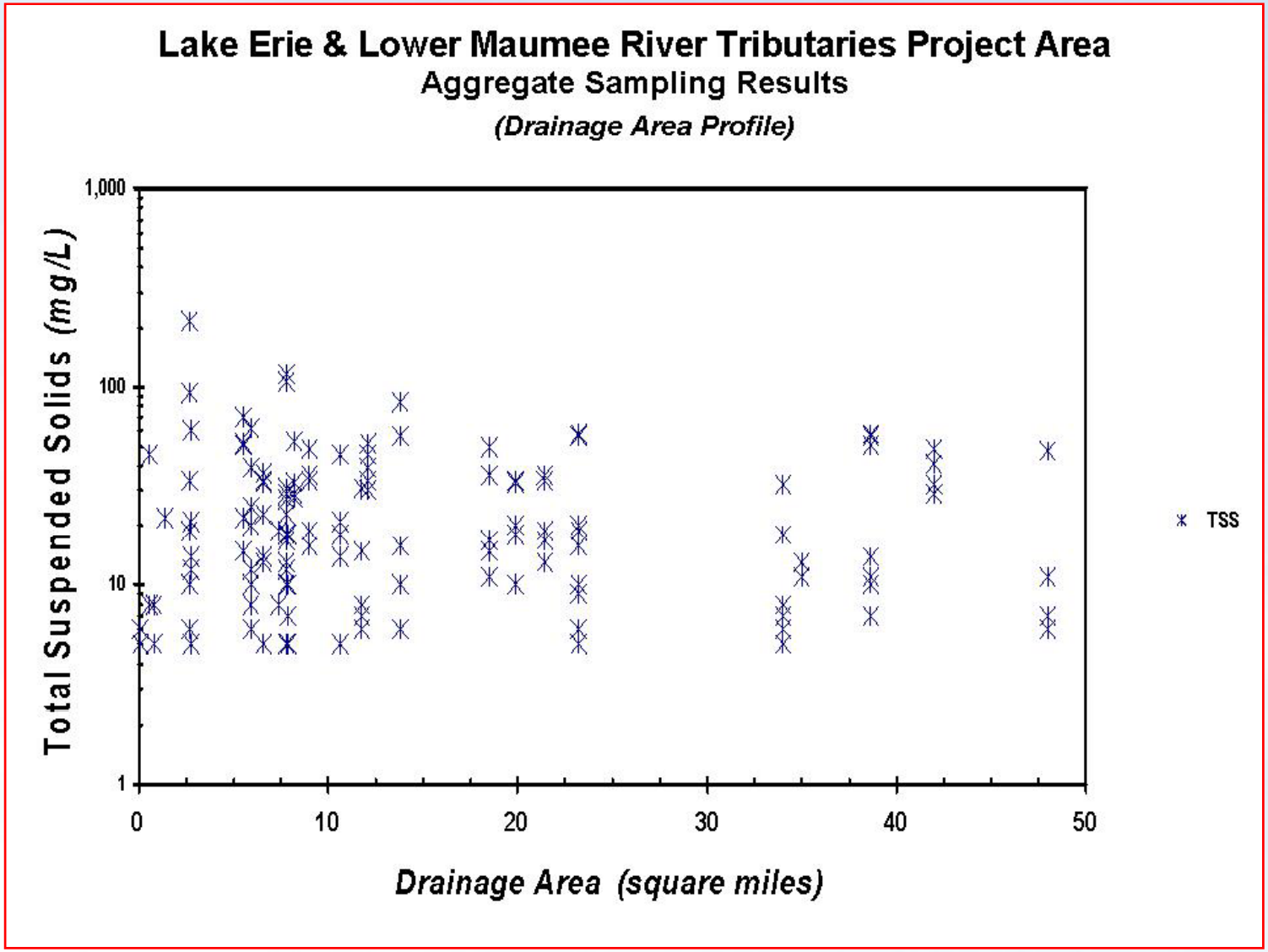
Hydrology


Ottawa River at Toledo
Flow Duration Curve (WY 1945 – 2010)
USGS Gage: 04177000
Flow (cfs)
10000
1000
100
10
1
0.1
313 cfs
56 cfs
27 cfs
7.1 cfs
Flow
High Flows
Moist Conditions
Mid-range Flows
Dry Conditions
Low Flows
0
10
20
30
40
50
60
70
80
90
100
Flow Duration Interval (%)
USGS Flow Data
150 square miles

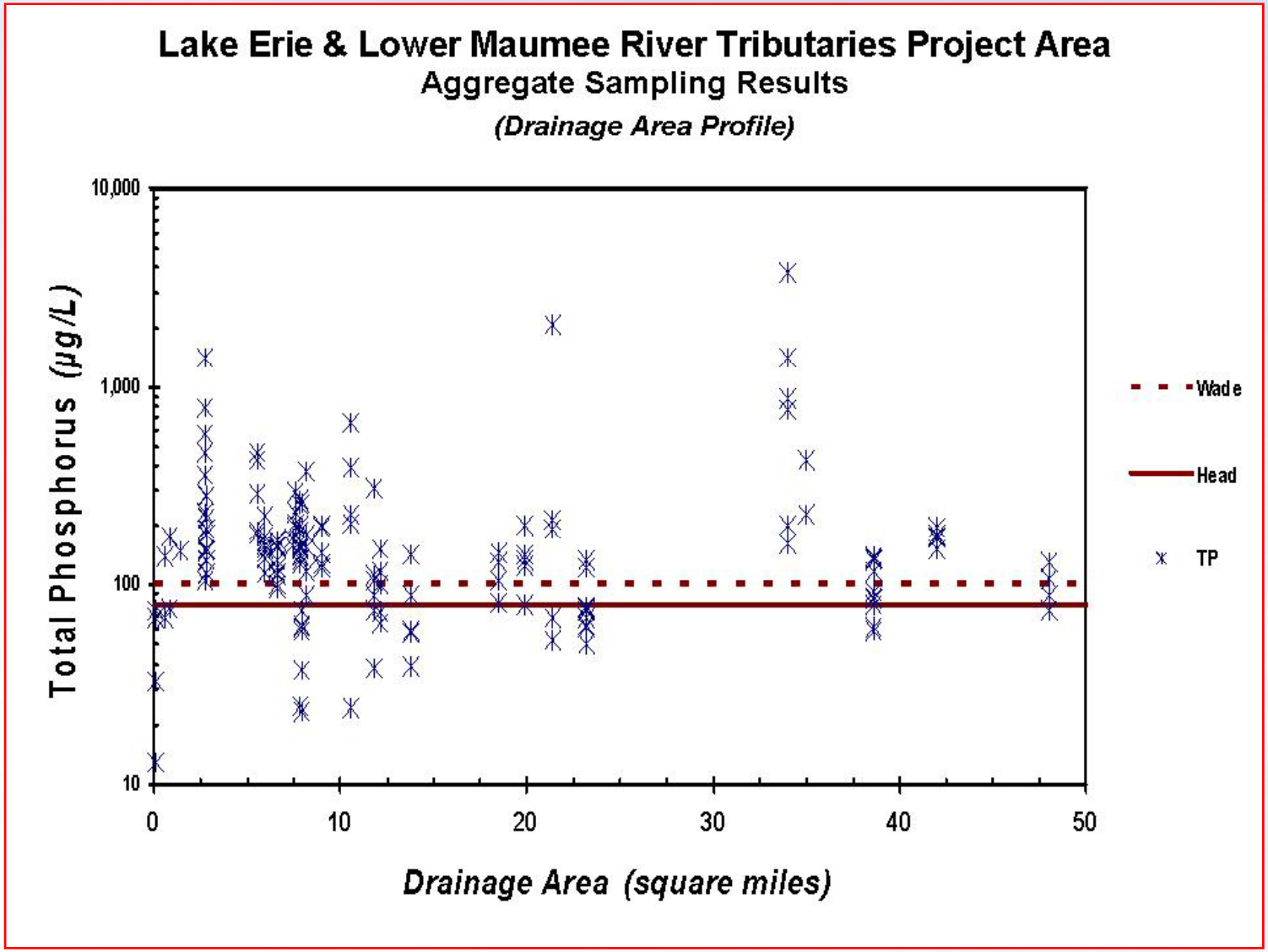
Drainage Area Patterns



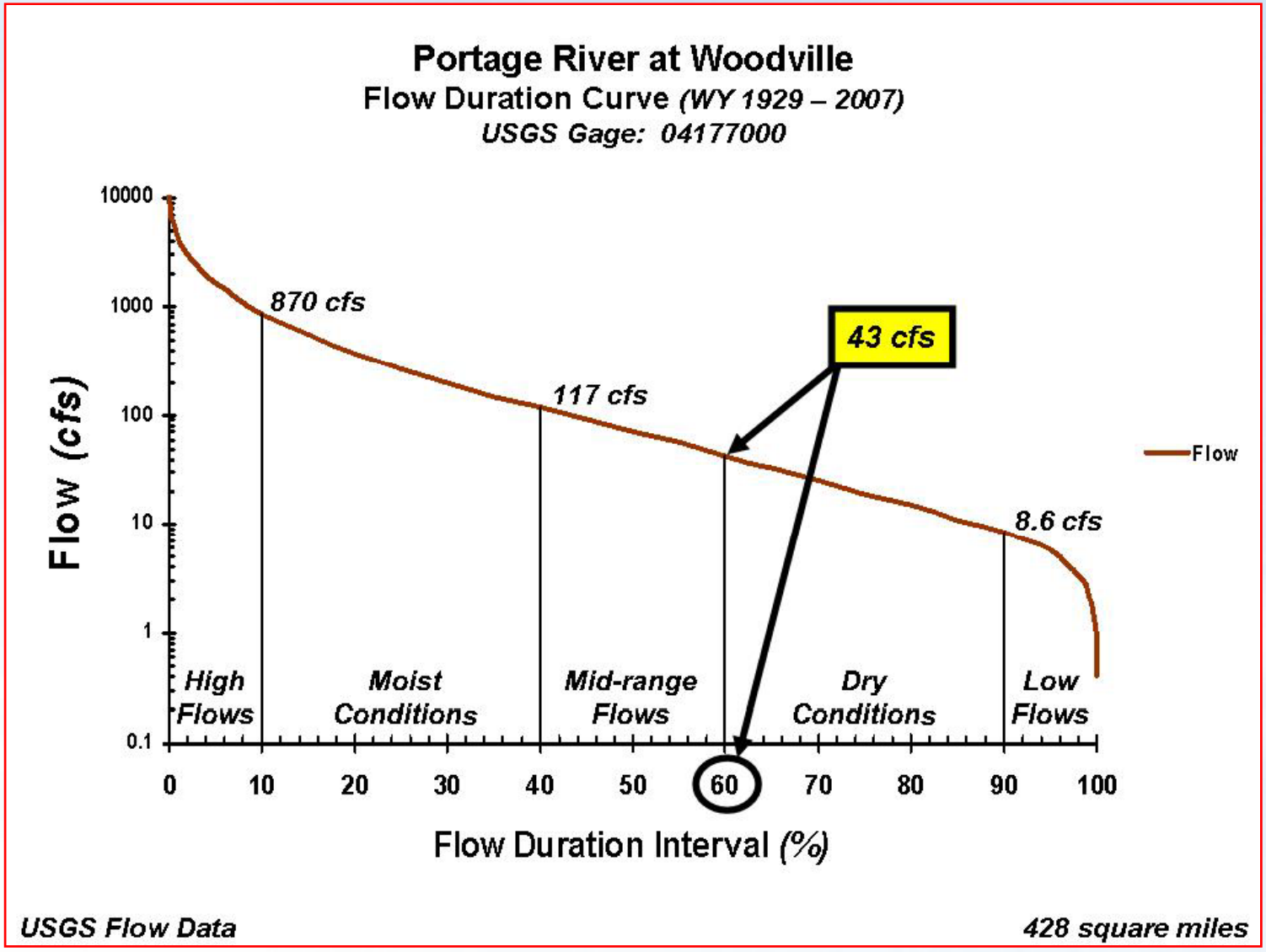
Drainage Area Patterns



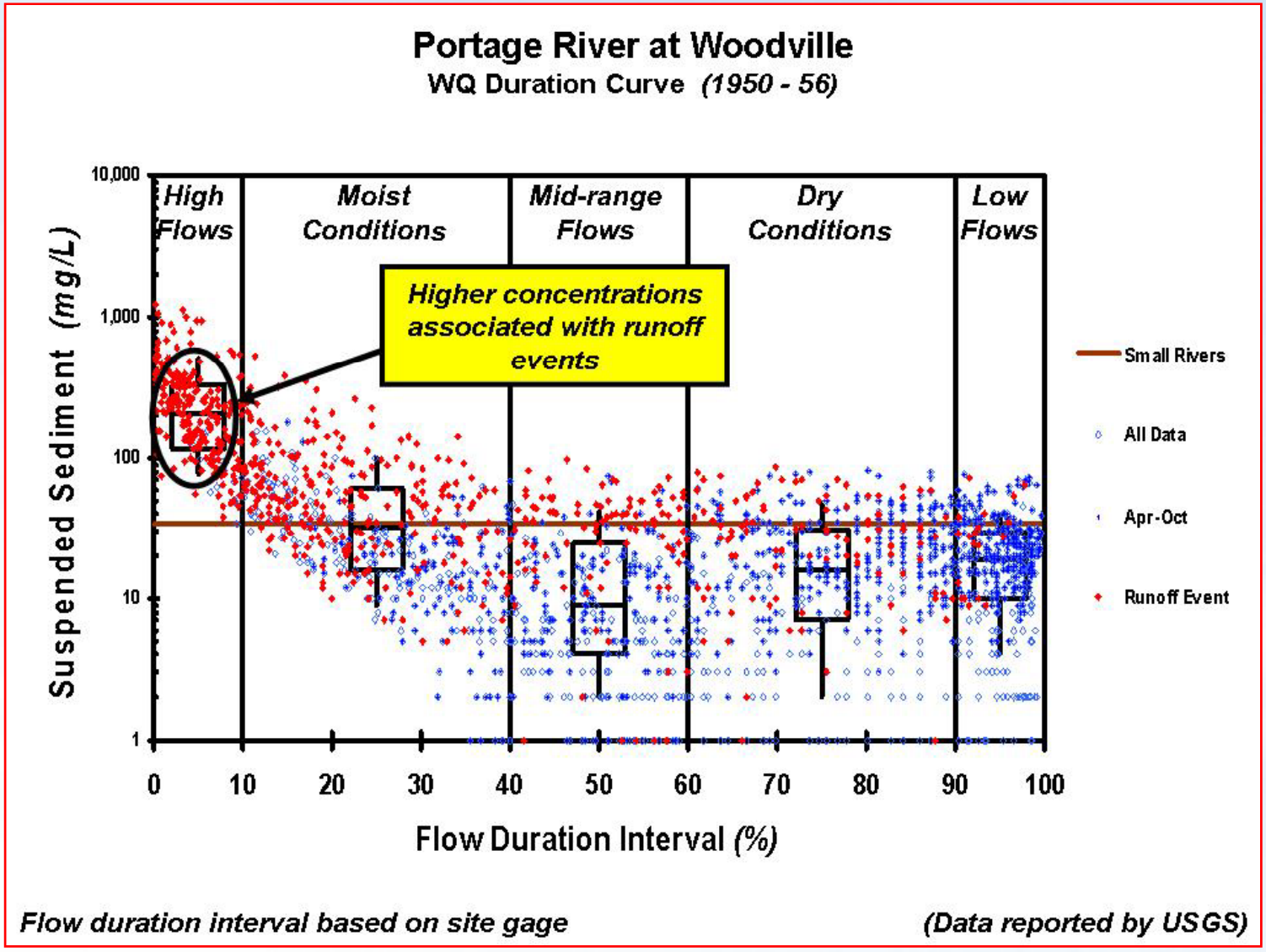
Drainage Area Patterns



Flow & WQ Relationships



Flow & WQ Relationships



Source Assessment

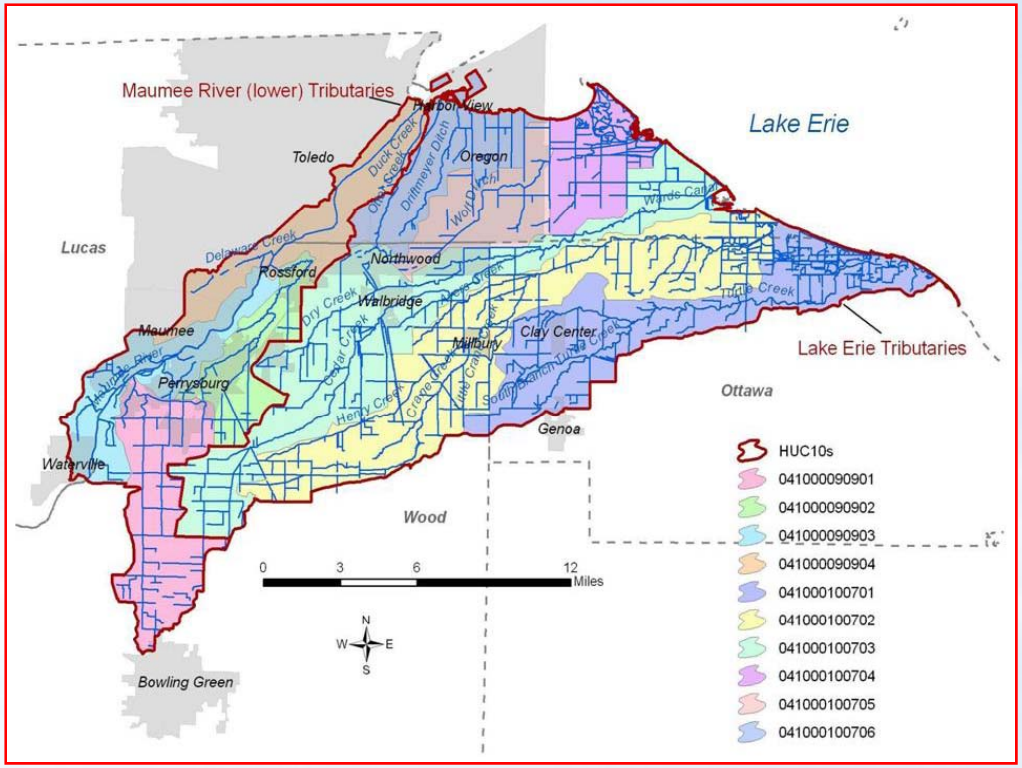
Subwatershed Approach

- **Source Data Review**
  - ***NPDES Facilities***
  - ***Storm Water (MS4 & CSO)***
  - ***Land Use***
- **Integrated Summary**

LE-LM Tributaries TMDL

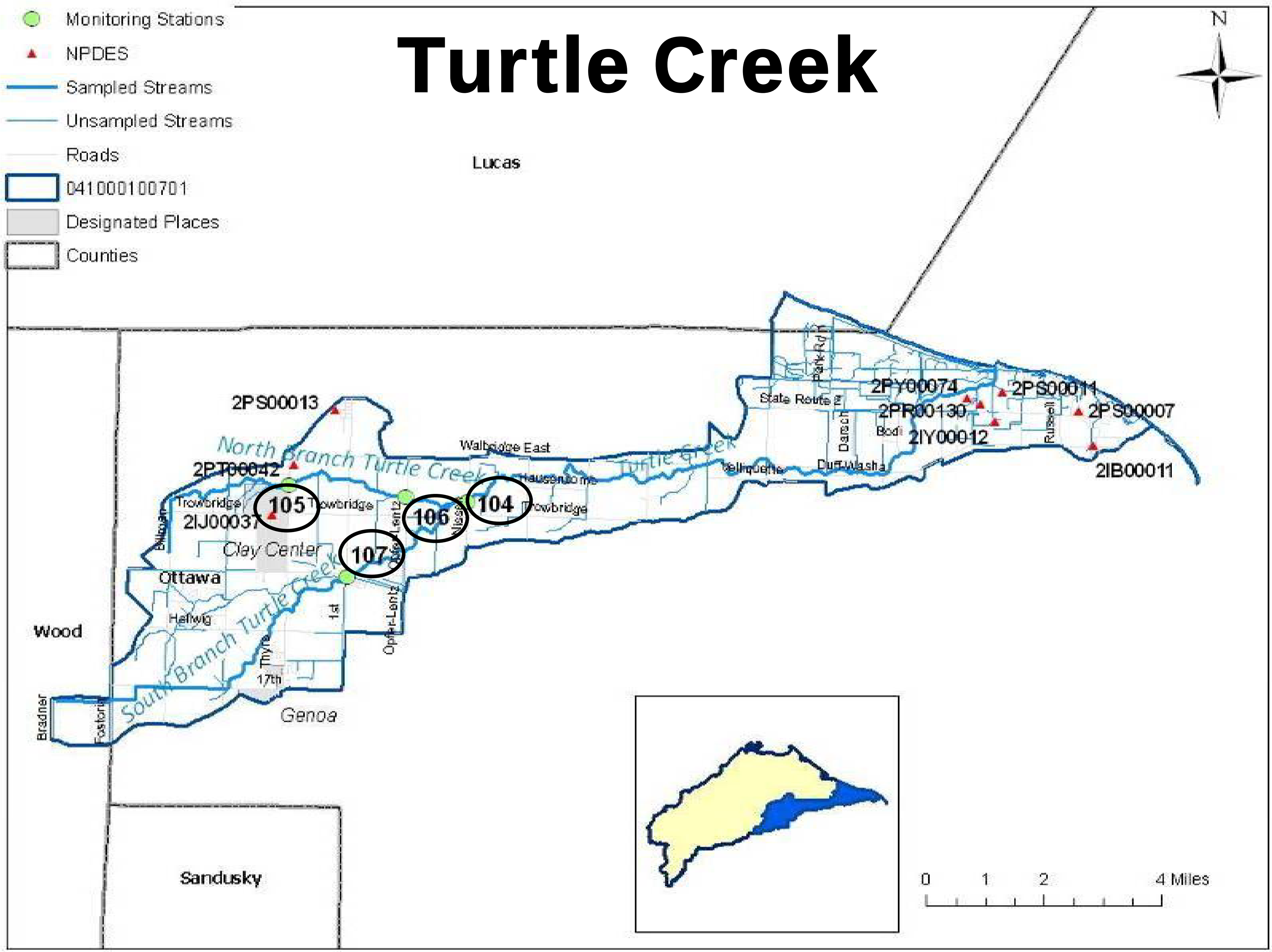
Subwatershed Approach

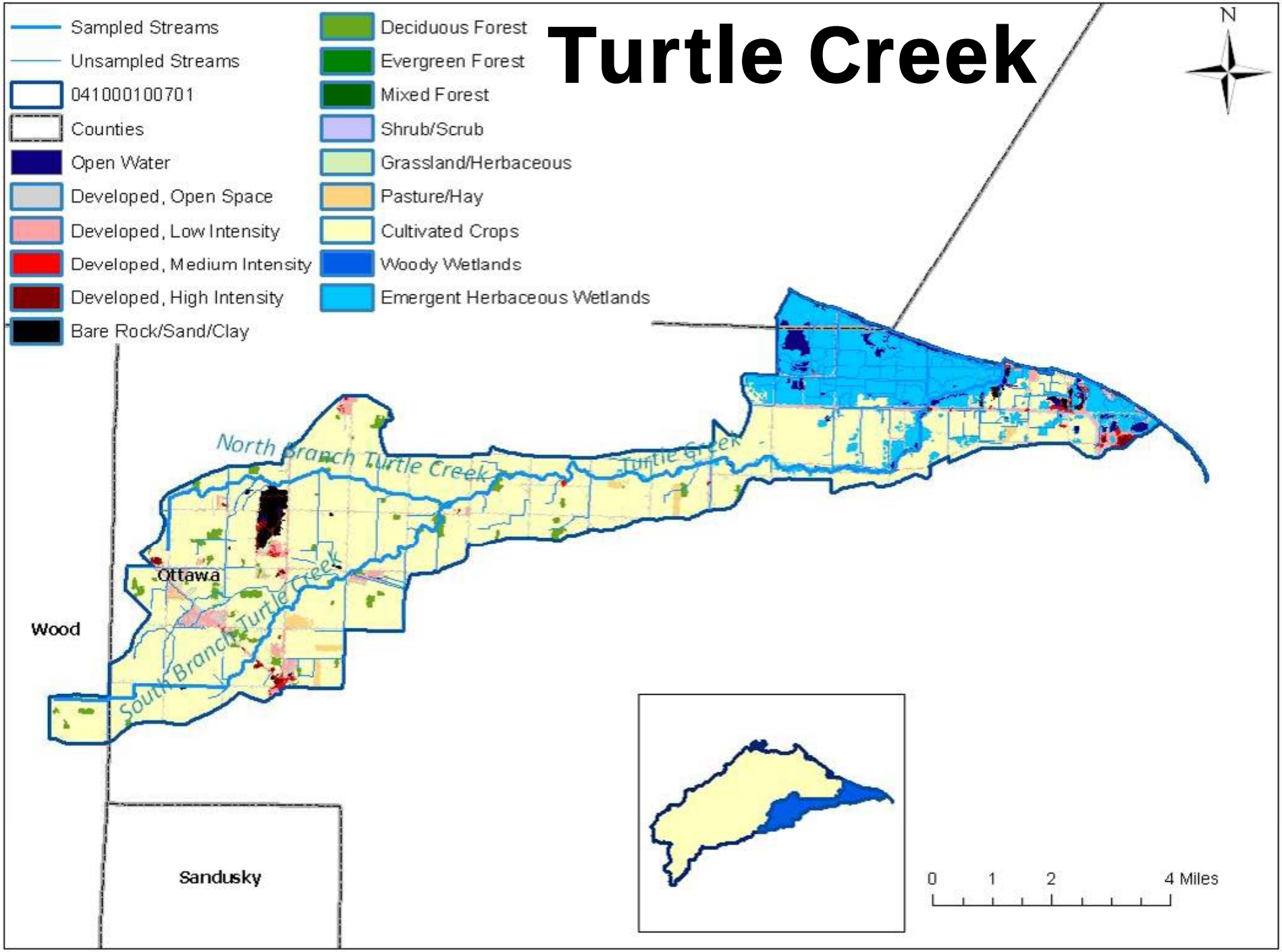
Subwatersheds	Area (sq. mi.)
Turtle Creek	40.7
Crane Creek	56.6
Cedar Creek	58.1
Wolf Creek	15.1
Berger Ditch	16.0
Otter Creek / Duck Creek	18.0
Grassy Creek / Grassy Creek Diversion	38.4
Delaware Creek / Crooked Creek	38.1
TOTAL	281.0



Integrated Summary

Turtle Creek


Turtle Creek
Monitoring Stations
NPDES
Sampled Streams
Unsampled Streams
Roads
041000100701
Designated Places
Counties
N
Lucas
Wood
Sandusky
Ottawa
Clay Center
Genoa
North Branch Turtle Creek
South Branch Turtle Creek
Turtle Creek
2PS00013
2PT00042
2IJ00037
2PY00074
2PS00011
2PS00007
2PR00130
2IY00012
2IB00011
105
106
104
107
Trowbridge
Walbridge East
State Route 2
Park
Darsch
Bodi
Russell
Duff Washa
Hellwig
1st
Thyre
17th
Bradner
Fostoria
Opfer-Lentz
Lentz
0
1
2
4 Miles


Turtle Creek
Sampled Streams
Unsampled Streams
041000100701
Counties
Open Water
Developed, Open Space
Developed, Low Intensity
Developed, Medium Intensity
Developed, High Intensity
Bare Rock/Sand/Clay
Deciduous Forest
Evergreen Forest
Mixed Forest
Shrub/Scrub
Grassland/Herbaceous
Pasture/Hay
Cultivated Crops
Woody Wetlands
Emergent Herbaceous Wetlands
N
North Branch Turtle Creek
Turtle Creek
South Branch Turtle Creek
Ottawa
Wood
Sandusky
0
1
2
4 Miles

Integrated Summary

Turtle Creek

Impairments	Sources of Aquatic Life Use Impairment
bacteria, sedimentation / siltation, direct habitat alterations, phosphorus (total), ammonia (total), dissolved oxygen, total dissolved solids	channelization, nonirrigated crop production, on-site treatment systems (septic systems and similar decentralized systems)

Integrated Summary

Turtle Creek

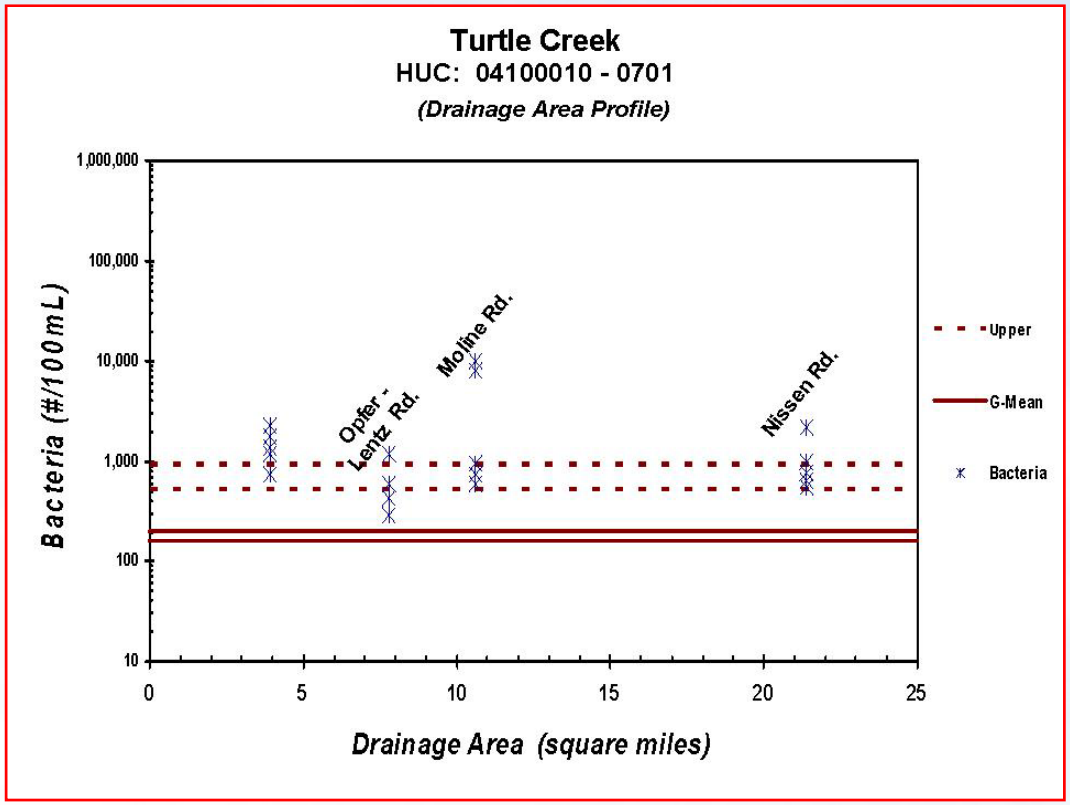
NPDES Facilities

Ohio EPA #	Type		Name
2IJ00037	Industrial		White Rock Quarry LP
2PT00042	Municipal		Genoa Area Local Schools
2IB00011	Industrial	*(Major)*	FirstEnergy - Davis-Besse
2IY00012	Industrial		Carroll Water & Sewer
2PS00013	Municipal		Luther Home of Mercy
2PS00007	Municipal		Carroll Twp Treatment Services Inc
2PR00130	Municipal		Fenwick Marina
2PY00074	Municipal		Inland Marina & Campground
2PS00011	Municipal		Turtle Creek Marina & Campground

Integrated Summary

Turtle Creek

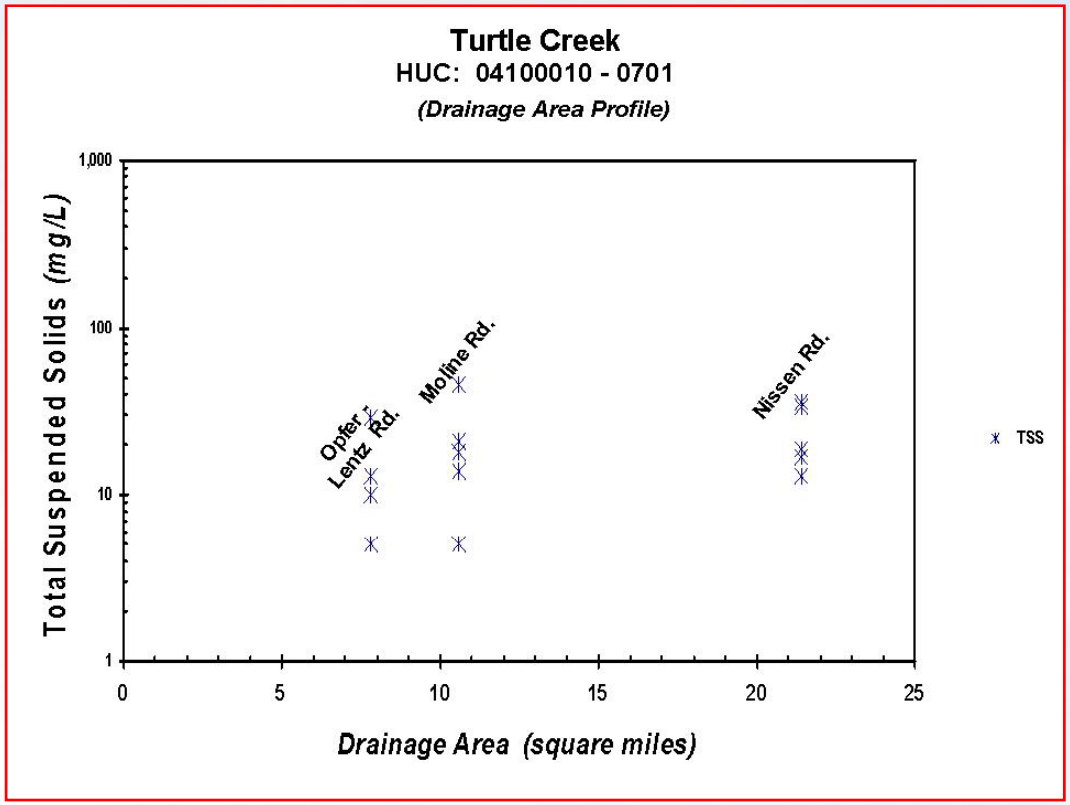
Examine Water Quality Patterns *(Bacteria)*



Integrated Summary

Turtle Creek

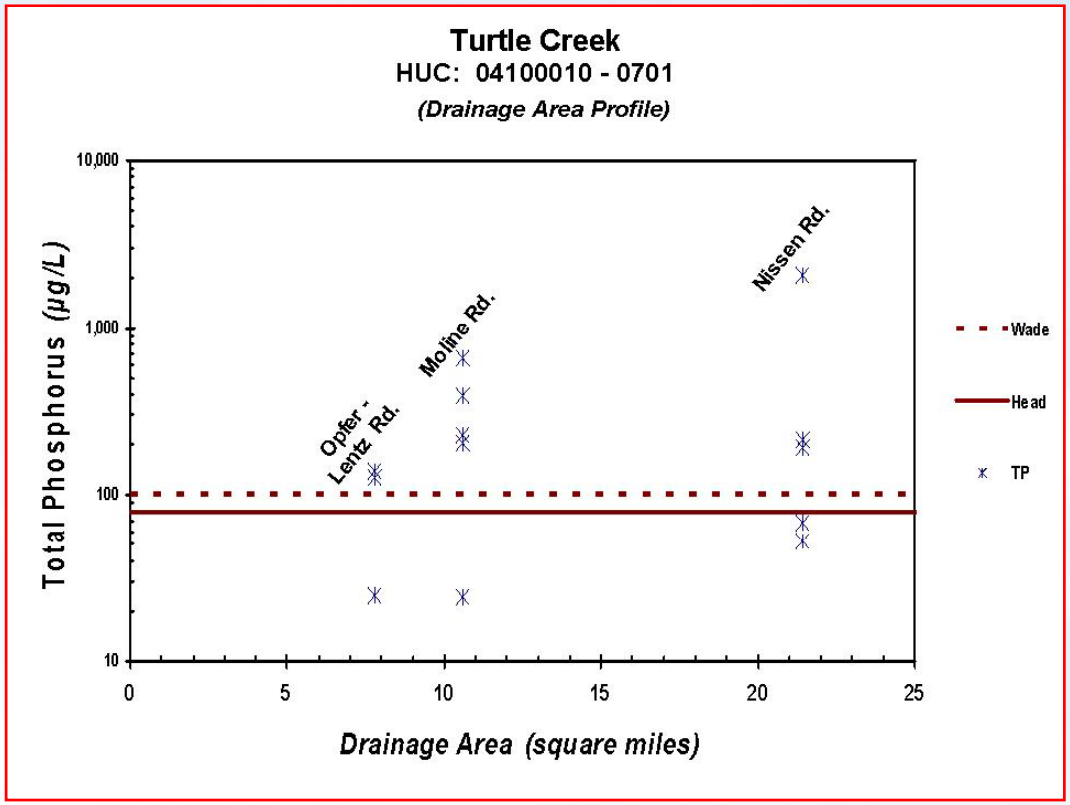
- **Examine Water Quality Patterns *(TSS)***



Integrated Summary

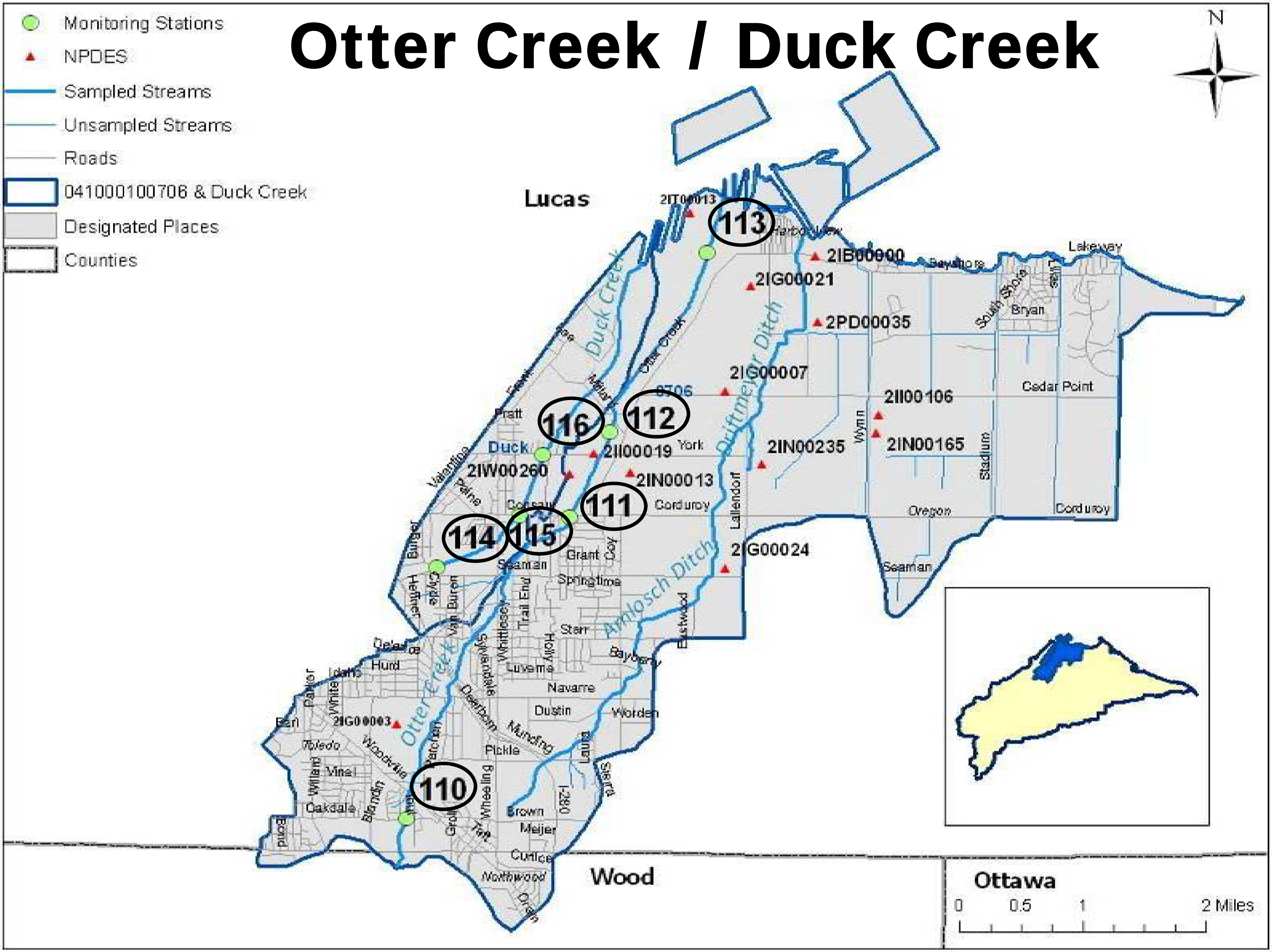
Turtle Creek

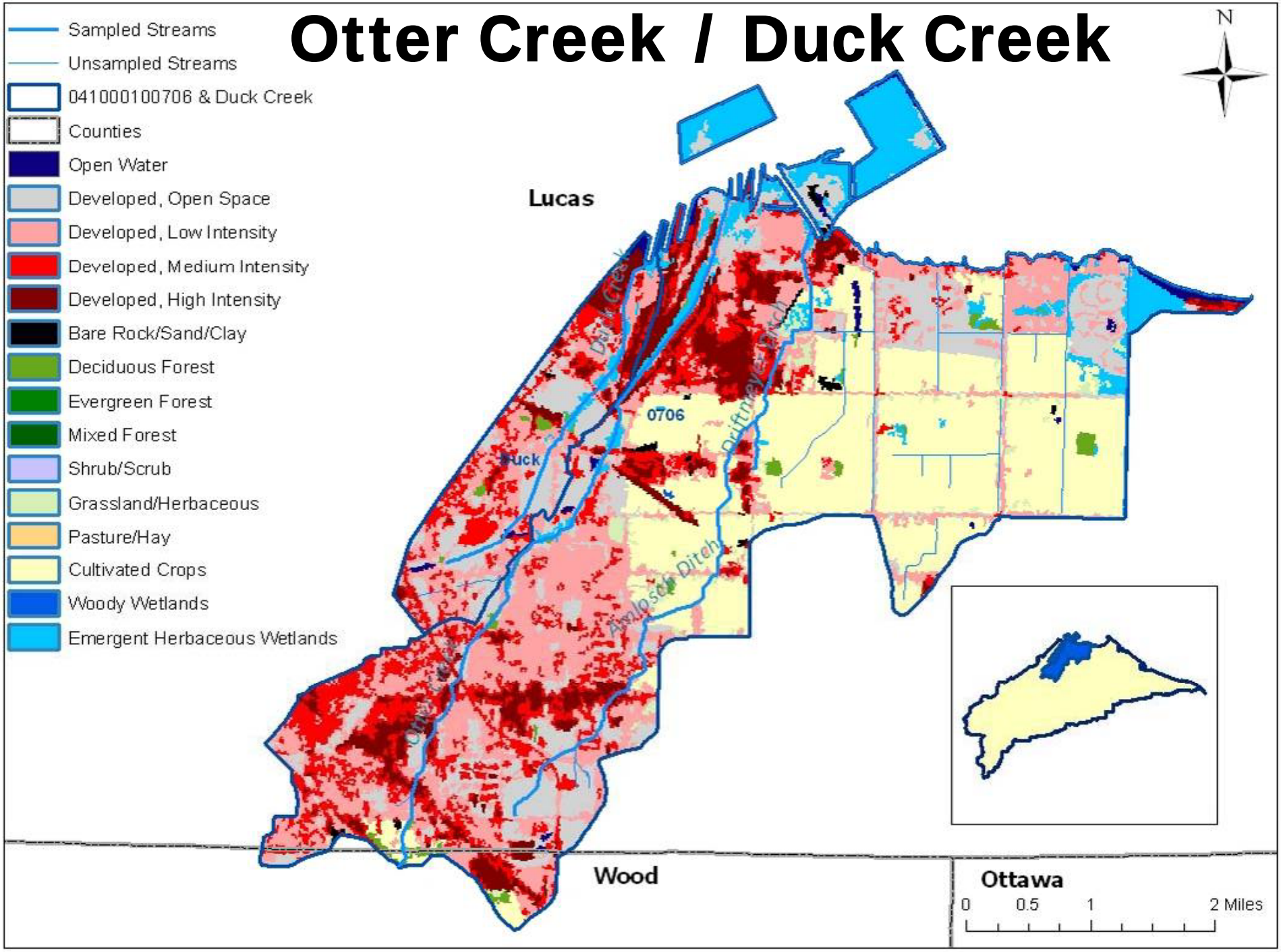
- **Examine Water Quality Patterns** ***(Phosphorus)***



Integrated Summary

Otter Creek / Duck Creek


Otter Creek / Duck Creek
Monitoring Stations
NPDES
Sampled Streams
Unsampled Streams
Roads
041000100706 & Duck Creek
Designated Places
Counties
N
Lucas
Wood
Ottawa
0 0.5 1 2 Miles
113
116
112
111
114
115
110
2IT00013
2IB00000
2IG00021
2PD00035
2IG00007
2II00106
2IN00165
2IN00235
2II00019
2IW00260
2IN00013
2IG00024
2IG00003
Duck Creek
Otter Creek
Driftmeier Ditch
Amlosch Ditch
Cedar Point
Lakeway
Bryan
Harbor View
York
Corduroy
Oregon
Seaman
Pratt
Valentine
Lallendorf
Wynn
Stadium
Eastwood
Grant
Springtime
Starr
Bayberry
Navarre
Dustin
Worden
Pickle
Brown
Meijer
Oakdale
Earl
Hurd
Wheeling
Dearborn
Munding
Woodville
I-280


Otter Creek / Duck Creek
Sampled Streams
Unsampled Streams
041000100706 & Duck Creek
Counties
Open Water
Developed, Open Space
Developed, Low Intensity
Developed, Medium Intensity
Developed, High Intensity
Bare Rock/Sand/Clay
Deciduous Forest
Evergreen Forest
Mixed Forest
Shrub/Scrub
Grassland/Herbaceous
Pasture/Hay
Cultivated Crops
Woody Wetlands
Emergent Herbaceous Wetlands
N
Lucas
0706
Duck
Wood
Ottawa
0
0.5
1
2 Miles

Integrated Summary

Otter Creek / Duck Creek

Impairments	Sources of Aquatic Life Use Impairment
bacteria, sedimentation / siltation, arsenic, contaminated sediments, polynuclear aromatic hydrocarbons (PAHs)	**commercial districts (industrial parks), contaminated sediment, channelization**

Integrated Summary

Otter Creek / Duck Creek

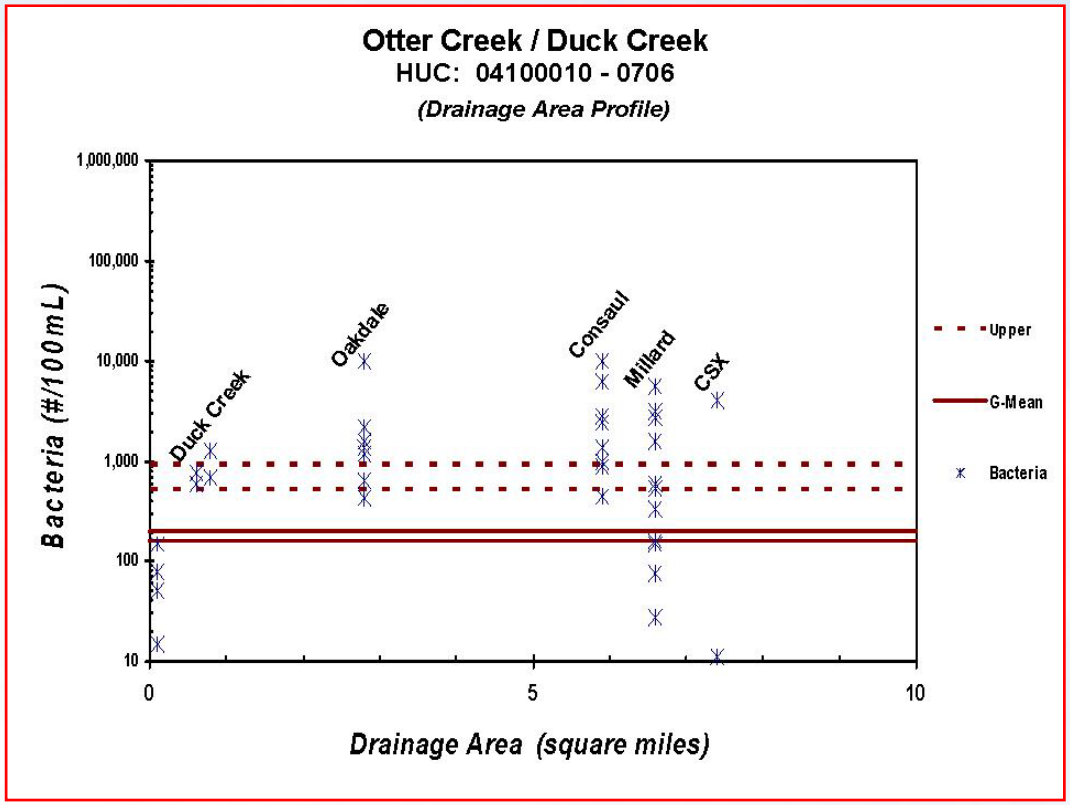
NPDES Facilities

Ohio EPA #	Type	Name
2IG00003	Industrial	Sunoco Inc R & M
2IG00024	Industrial	Marathon Petroleum LLC Oregon Terminal
2IW00260	Industrial	Toledo WTP
2IN00013	Industrial	Envirosafe Services of Ohio
2IN00235	Industrial	Fresenius Medical Care
2II00019	Industrial	Buckeye Pipe Line Co LP Toledo Station
2IN00165	Industrial	Asphalt Materials Inc
2II00106	Industrial	Cedar Point Development LLC
2IG00007	Industrial *(Major)*	BP Products Toledo Refinery
2PD00035	Municipal *(Major)*	Oregon WWTP
2IG00021	Industrial	CITGO Petroleum Corp Toledo Terminal
2IB00000	Industrial *(Major)*	FirstEnergy Generation Corp - BayShore Plant
2IT00013	Industrial	CSX Transportation Inc Toledo Dock Yard

Integrated Summary

Otter Creek / Duck Creek

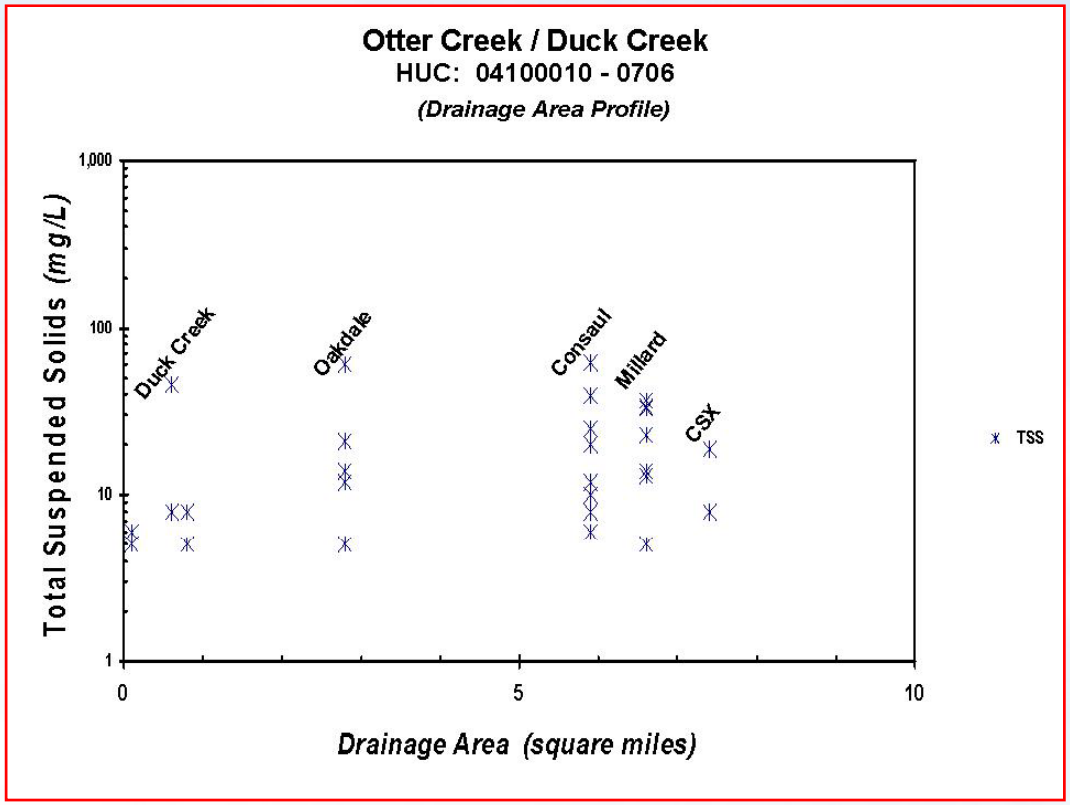
Examine Water Quality Patterns *(Bacteria)*



Integrated Summary

Otter Creek / Duck Creek

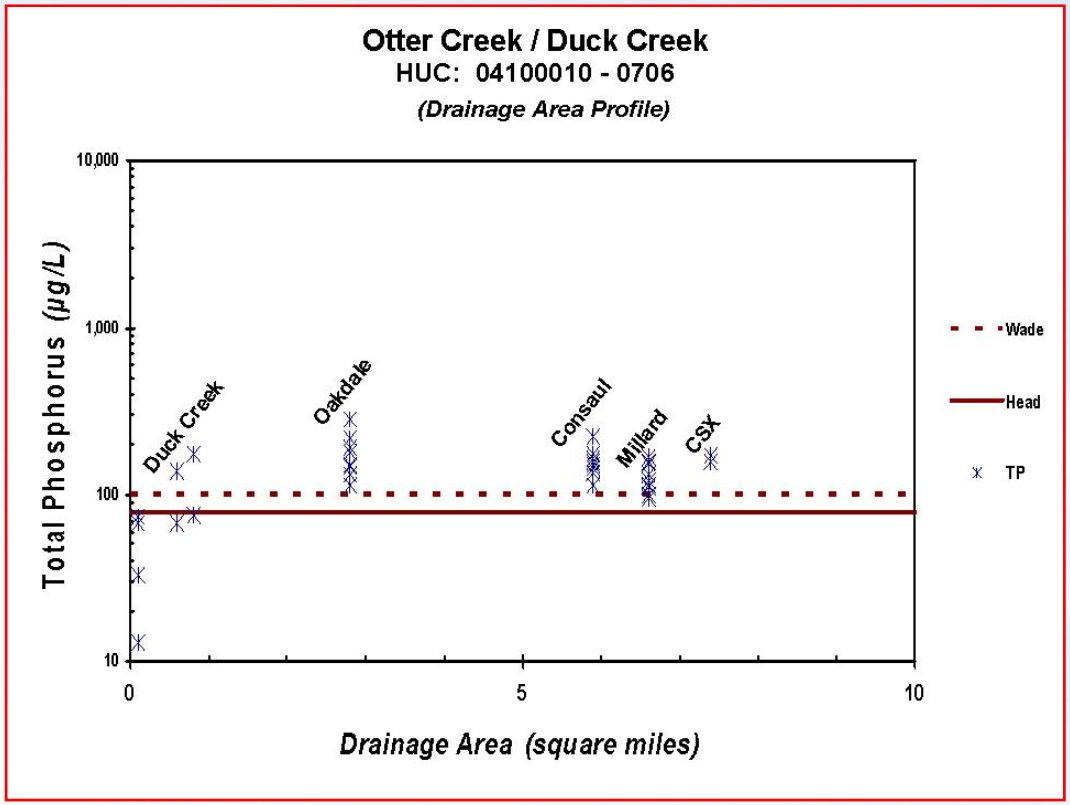
Examine Water Quality Patterns *(TSS)*



Integrated Summary

Otter Creek / Duck Creek

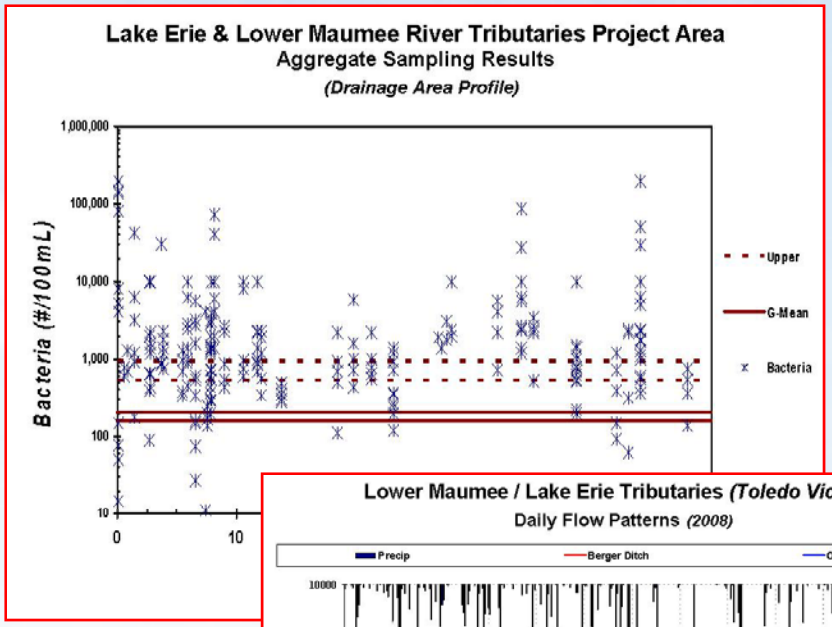
Examine Water Quality Patterns *(Phosphorus)*

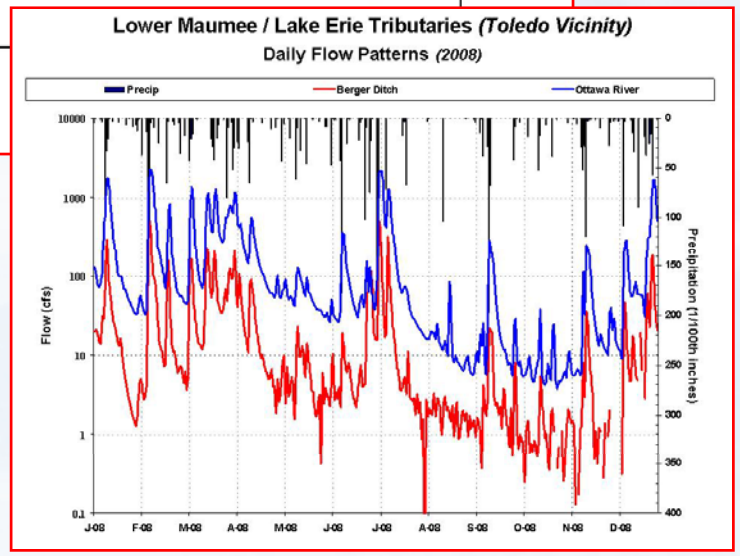


LE-LM Tributaries TMDL

Next Steps

- **Linkage Analysis**
  - ***Connect the Pieces***
    - ***Biology***
    - ***Water Quality***
    - ***Hydrology***
    - ***Source Loads***
  - ***Examine Relationships***

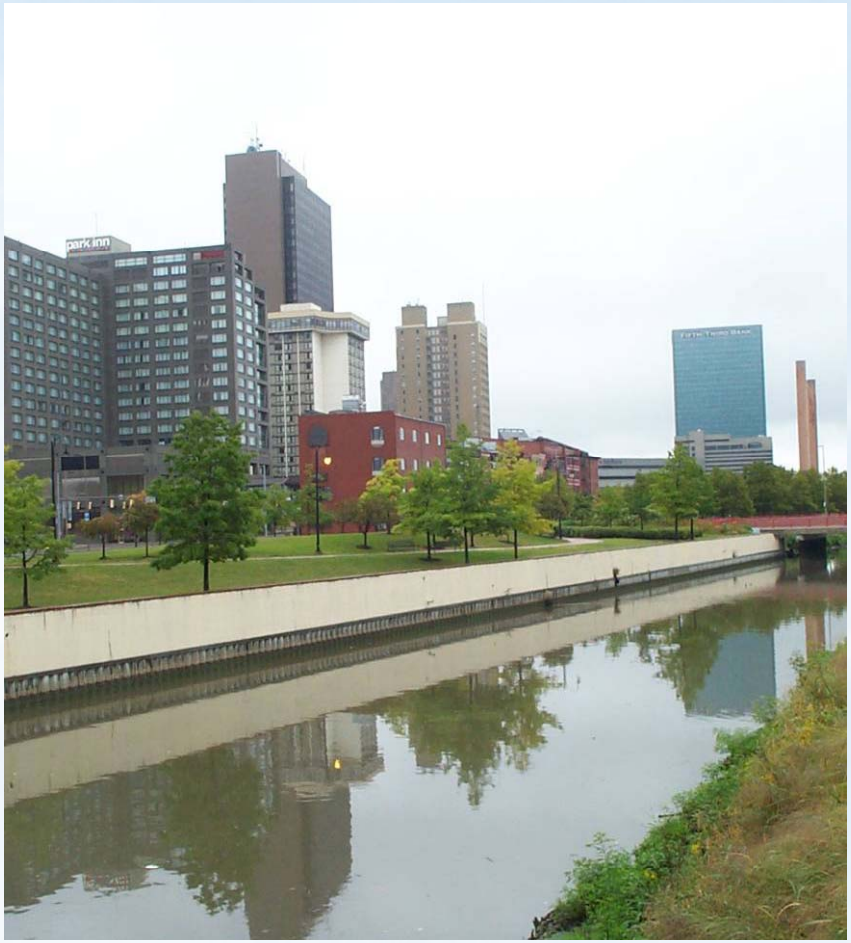




LE-LM Tributaries TMDL

Next Steps

- **TMDL Document**
  - ***Draft Report***
  - ***Public Review***
  - ***Final to USEPA***
- **Implementation Plan**
  - ***Remediation Efforts***
  - ***Stormwater Management***
  - ***Effectiveness Monitoring***



Identifying Priority Areas

Challenges

- ***Logistically difficult***
- ***Potentially expensive***

Honoring our Water

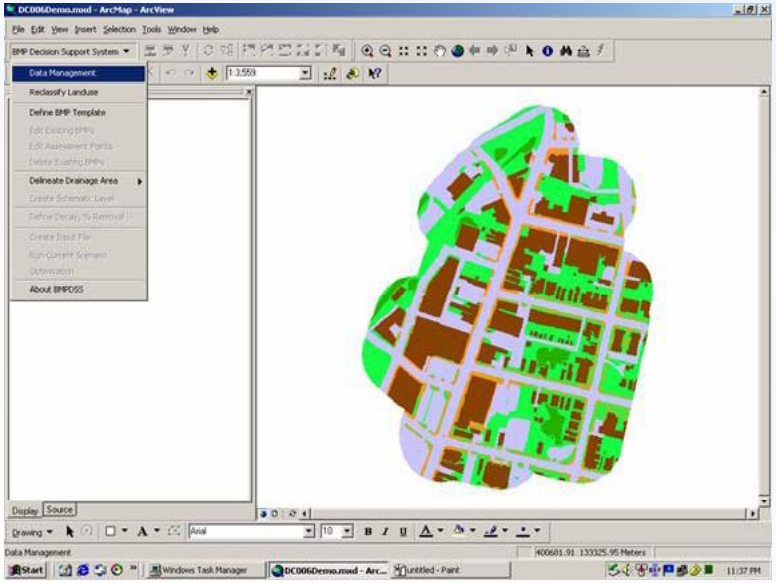
A Regional Stormwater Plan for Peoria, Tazewell, and Woodford Counties of Illinois

Prepared by Nicholas Hayward and Melissa Eaton of the Tri-County Regional Planning Commission under the guidance of the Illinois River Valley Council of Governments' Stormwater Advisory Committee
May 2009

BMP Targeting & Optimization

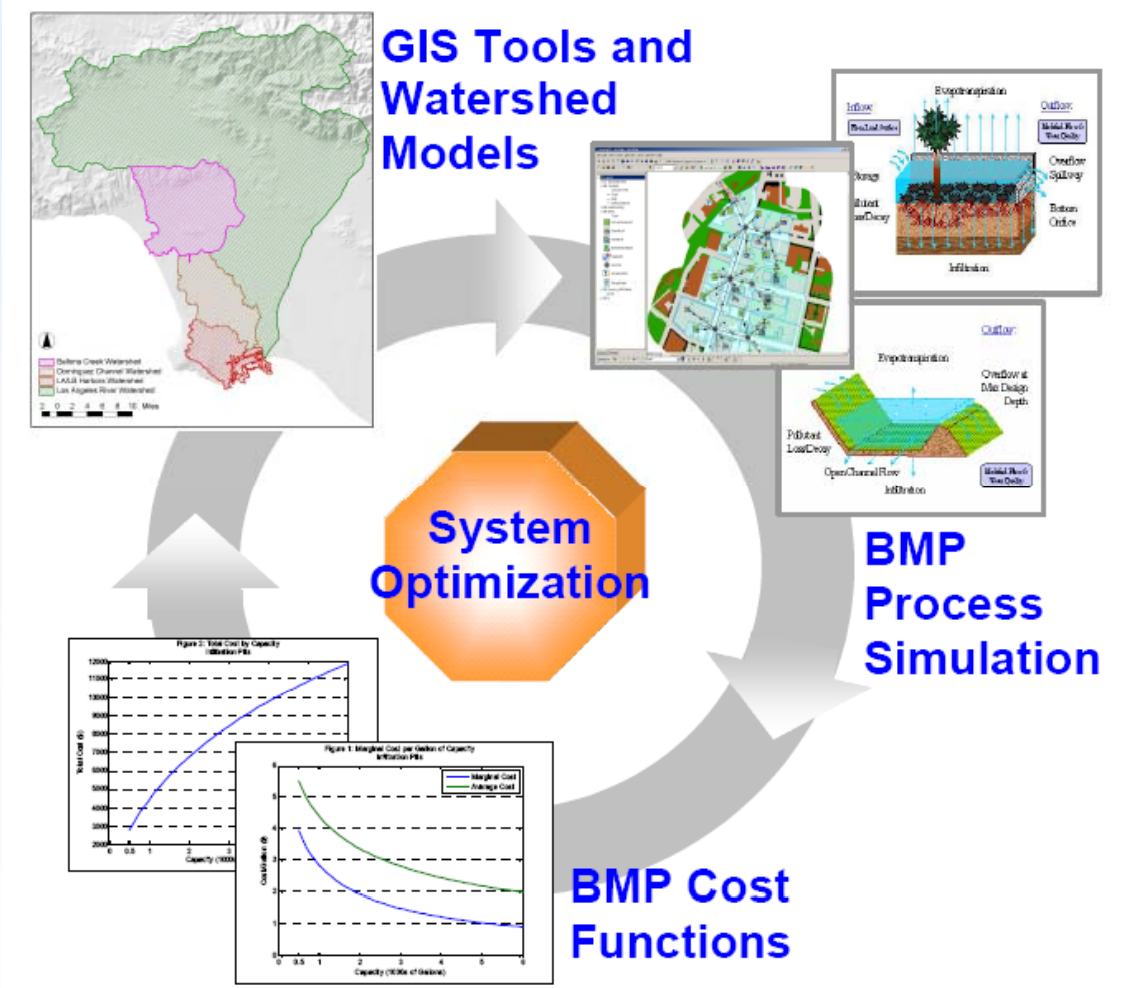
Type & Placement

- ***Evaluation Criteria*** ***(hydrology or WQ-based focus)***
  - ***Maximize reduction***
  - ***Minimize cost***



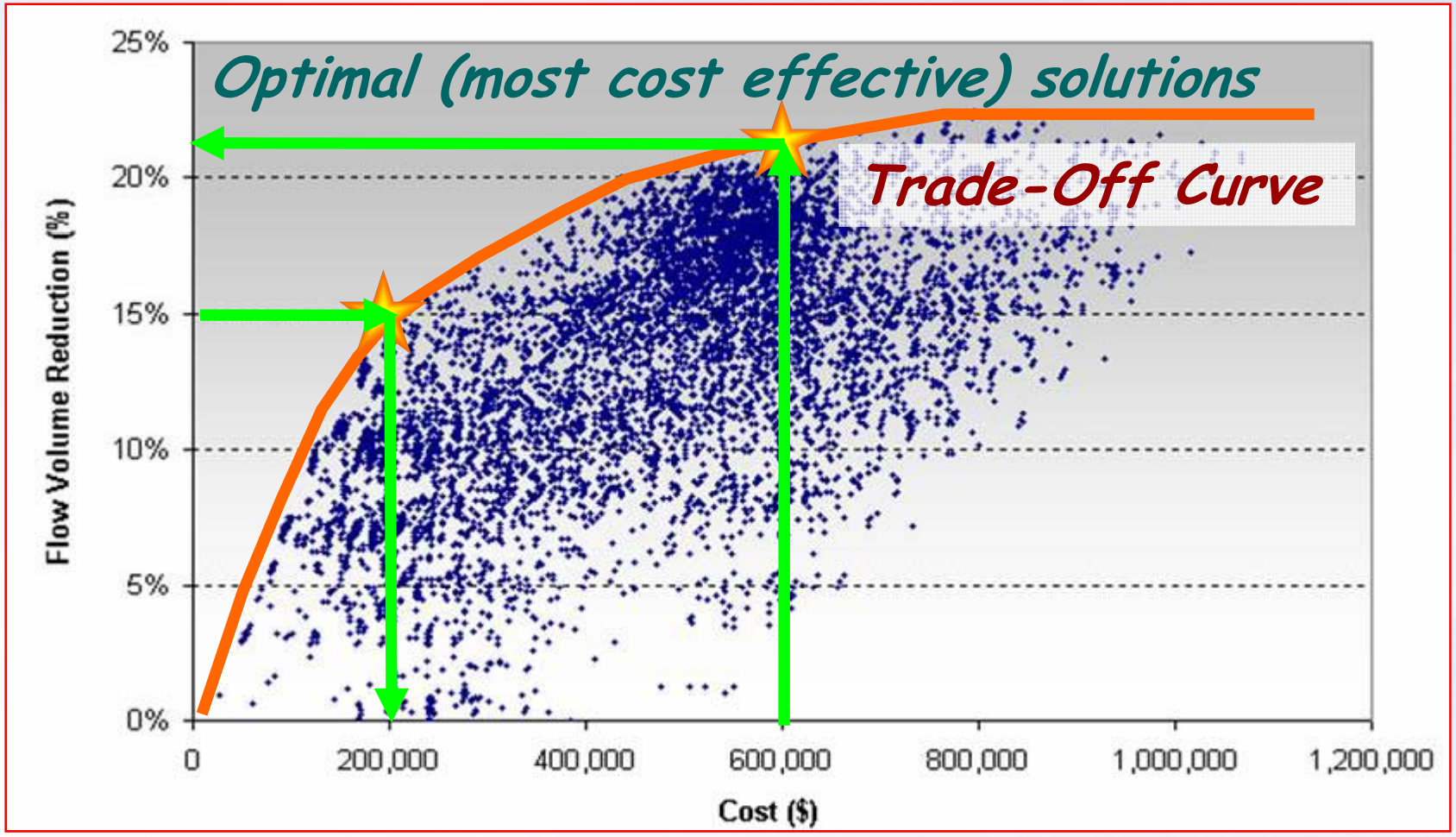
BMP Targeting & Optimization

Utilize New Tools



Stormwater BMP Optimization

Solutions



LE-LM Tributaries TMDL

Goal of Project

- **Driving Principles**
  - ***Technically-based (logic path)***
  - ***Meaningful (easily understood)***
  - ***Value-added (connect to implementation efforts designed to solve problem)***

LE-LM Tributaries TMDL

Next Steps

- **Questions**
- **Feedback**
- **Additional Information**

Questions & Feedback

Contact Information

Cherie Blair
Northwest District Office, Ohio EPA
347 North Dunbridge Road
Bowling Green, OH 43402
Phone: (419) 373-3010
E-Mail: Cherie.Blair@epa.state.oh.us

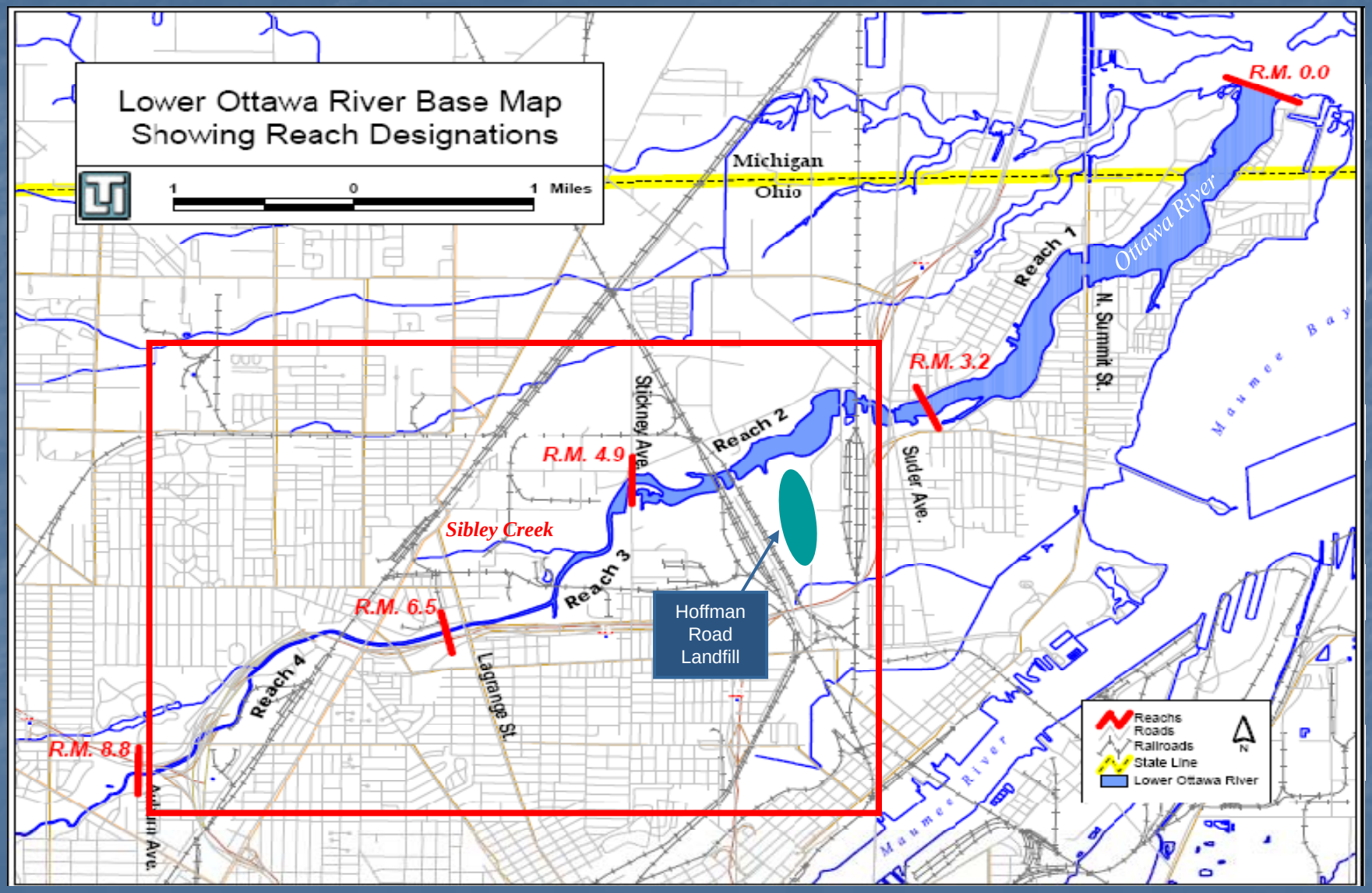
Bruce Cleland
Tetra Tech
25919 – 99th Avenue S.W.
Vashon, WA 98070
Phone: (206) 463-2596
E-Mail: Bruce.Cleland@tetratech.com

Great Lakes Legacy Act
The Ottawa River
Cleanup Project

December 9, 2010

A Partnership between:
The Ottawa River Group and the U.S. EPA

Project Area



Pre Dredge Sample Results

- Reach 1/Downstream end of Reach 2:
  - Low to moderate contaminant levels
    - PCBs: ND to 2 ppm
    - PAHs: ND to 35 ppm
    - Pb: ND to 220 ppm
- Reach 2 SADZ
  - Moderate to high contaminant levels
    - PCBs: ND to 91 ppm
    - PAHs: ND to 220 ppm
    - Pb: ND to 500 ppm
- Reach 3:
  - Moderate to Very High contaminant levels
    - PCBs: ND to 1,142 ppm
    - PAHs: ND to 8,000 ppm
    - Pb: ND to 700 ppm
- Reach 4
  - Low to Moderately High contaminant levels
    - PCBs: ND to 10 ppm
    - PAHs: ND to 370 ppm
    - Pb: ND to 600 ppm

Remedial Objectives

- SHORT TERM GOALS
  - PCBs: 1.5 ppm
  - PAHs: 30 ppm
  - Pb: 180 ppm

* All based on Surface Weighted Average concentrations (SWACs)

- LONG TERM GOALS
  - PCBs: 0.22 ppm
  - PAHs: 22.8 ppm
  - Pb: 128 ppm

- Achieved over 10 years through natural sedimentation

SWAC Results

	Lead	Total PCBs	Total PAHs
Reach 2			
$SWAC_{estimate}$ (mg/kg)	93.75	0.76	3.84
Reach 3			
$SWAC_{estimate}$ (mg/kg)	100.36	1.06	4.48
Reach 4			
$SWAC_{estimate}$ (mg/kg)	65.80	0.51	5.95
Short Term Goals (Immediate Post Dredge)	180	1.5	30
Long term Goals (10 years)	128	.22	22.8

Process Flow

Process Flow (con't)

Transport Pipeline and Booster Pumps

Process Flow (con't)

Polymer Addition

Process Flow (con't)

Non-TSCA Pad

TSCA Pad and Water Treatment Area

Project Statistics

- 9,569 cubic yards of Sibley Creek sediments removed (12/2009-3/2010)
- 146 Dredge operating days (05/03/2010-10/21/2010)
- 241,671 cubic yards dredged

	TSCA	Non TSCA
• Reach 2	5,361	156,234
• Reach 3	7,890	55,360
• Reach 4	2,476	14,350

- Over 1,655 cubic yards per day dredged
- 509,000,000 gallons of water successfully treated and discharged to the River
- 152,500 manhours expended to date (no lost time accidents)
- Total project uptime >95%

Great Lakes Legacy Act:

Proposed
Maumee River AOC Site Characterizations

Project Leads:

Mark Loomis
U.S. EPA - GLNPO
P: 312-886-0406
loomis.mark@epa.gov

Sara Goehl
U.S. EPA - GLNPO
P: 312-886-0270
goehl.sara@epa.gov

Proposed
Maumee River AOC Site Characterization

100% Federally funded

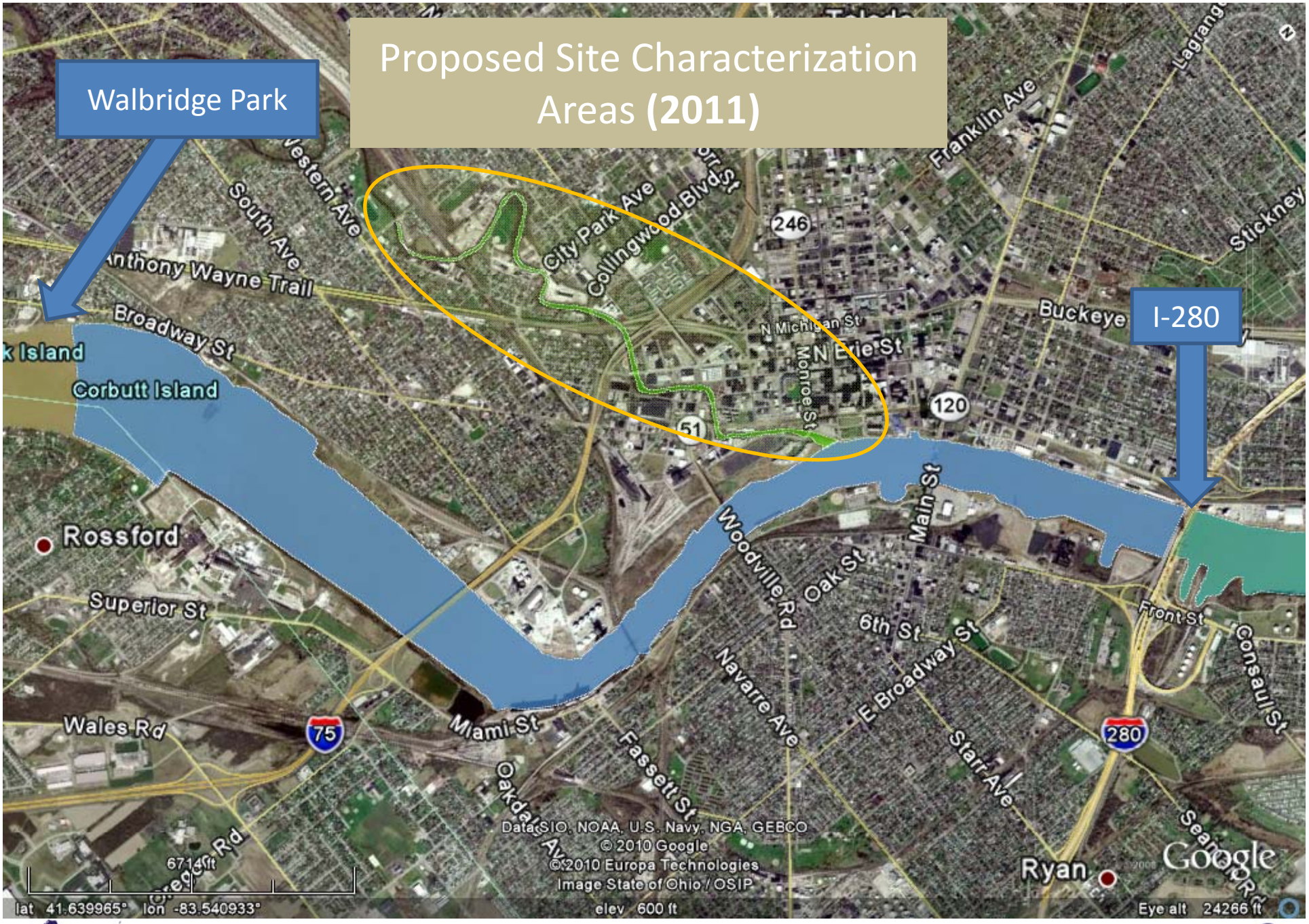
Characterizing 3 sites over the next 2 years

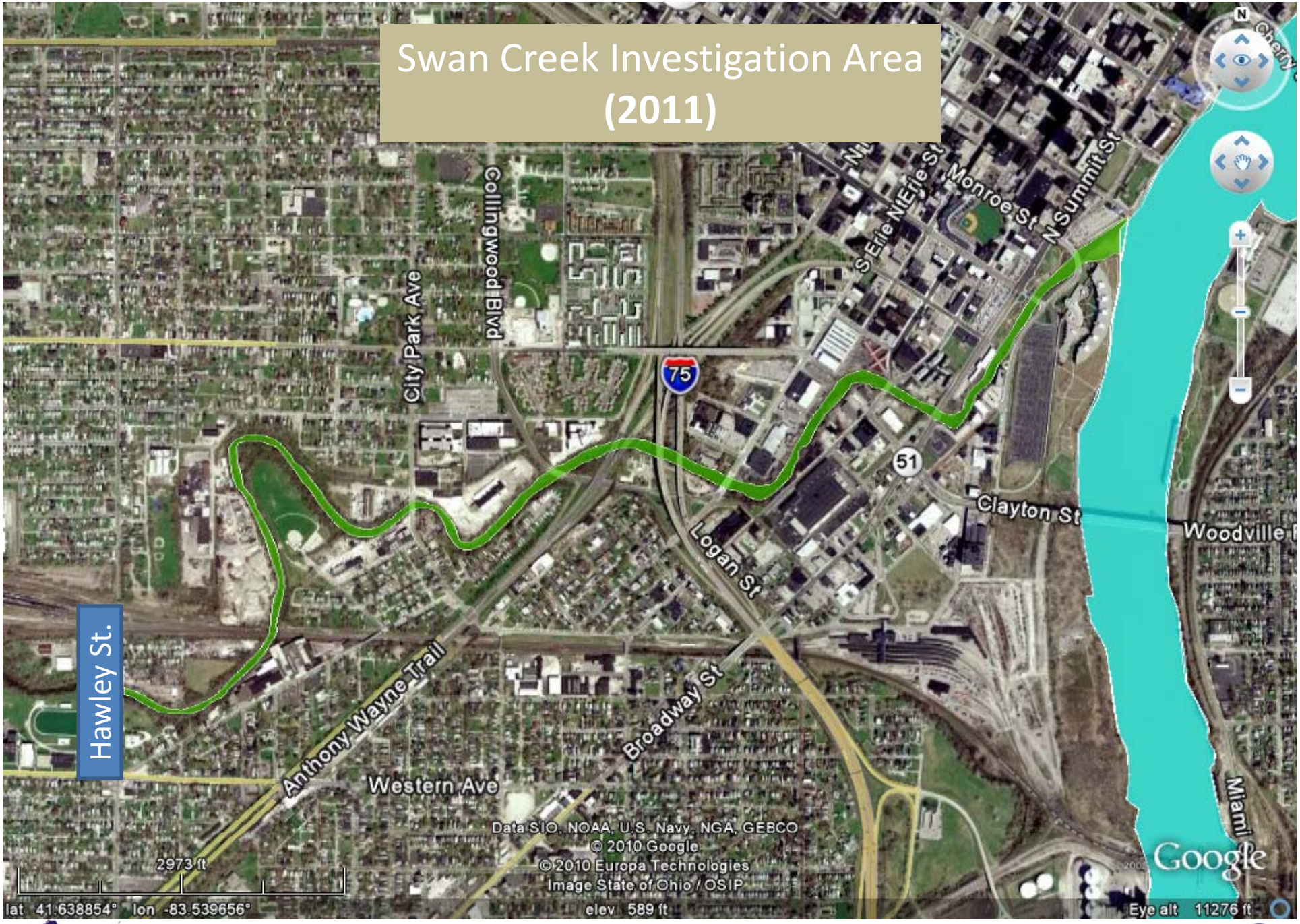
- **2011 Field Season**
  - Swan Creek – lower portion to confluence
  - Maumee River – lower reaches upstream from I-280 to Walbridge Park/ Clark Island
- **2012 Field Season**
  - Maumee River – lower reach downstream from I-280 to harbor mouth


Proposed Site Characterization Areas
Walbridge Park
Cullen Park
I-280
Toledo
Rossford
Corbutt Island
Ryan
Oregon
Harbor View
Presque Isle
Anthony Wayne Trail
Monroe St
Oak St
Miami St
Superior St
Dorr St
S Dixie Hwy
Alexis Rd
475
75
246
25
120
280
Image USDA Farm Service Agency
© 2010 Google
© 2010 Europa Technologies
Image State of Ohio / OSIP
2.89 mi
lat 41.714337° lon -83.540342°
elev 596 ft
Eye alt 10.20 mi
Google

Proposed Details/Specifics – Nothing finalized yet

- Characterizations will examine chemical contamination, toxicity and physical characteristics of sediments along the river/stream bottoms.
- Excludes areas of active navigational dredging
- Could lead to development of GLLA remediation projects through downtown Toledo
- Allows for identification of habitat restoration in conjunction with GLLA remedies.


Proposed Site Characterization Areas **(2011)**
Walbridge Park
I-280
Rossford
Corbutt Island
Broadway St
South Ave
Western Ave
Anthony Wayne Trail
City Park Ave
Collingwood Blvd
246
51
120
N Michigan St
N Erie St
Monroe St
Buckeye
Franklin Ave
Stickney
Woodville Rd
Oak St
Main St
6th St
E Broadway St
Front St
Consaul St
Navarre Ave
Starr Ave
Superior St
Wales Rd
75
280
Miami St
Fassett St
Oakdale Ave
Ryan
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2010 Google
©2010 Europa Technologies
Image State of Ohio / OSIP
lat 41.639965° lon -83.540933°
elev 600 ft
Eye alt 24266 ft
Google


Swan Creek Investigation Area
(2011)
Hawley St.
Collingwood Blvd
City Park Ave
S Erie St
N Erie St
Monroe St
N Summit St
75
51
Clayton St
Logan St
Broadway St
Anthony Wayne Trail
Western Ave
Woodville
Miami
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2010 Google
© 2010 Europa Technologies
Image State of Ohio / OSIP
2973 ft
lat 41.638854° lon -83.539656°
elev 589 ft
Eye alt 11276 ft
Google

Proposed Site Characterization Areas **(2012)**

Questions?