Wolf Creek - Berger Ditch
Restoration Plan

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Toledo Metropolitan Area Council of Governments
Bacteria at the Beach

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

Postings due to Bacteria
Maumee Bay State Park Lake Erie Beaches

Average postings: 14 days / year
North Coast Ecotourism

- Coastal wetlands are a critical stopover habitat for migratory songbirds
- Annually 50,000 birders from around the globe for songbird migration

- Among the best birding destinations in the Western Hemisphere
- Tens of millions of ecotourism dollars to northwest Ohio annually
Tonight’s Program

- Beach bacteria overview
- Past work
- Bacteria control alternatives
- Wetlands research at Lake Erie Center
- Wetland system proposal
- Questions and discussion
- Comment cards
Wolf Creek Committee

- Maumee Bay Bacteria Task Force 1995-2008
- Wolf Creek committee appointed by TMACOG 2009
  - **Mission:** Protect and improve water quality, coastal and riparian habitat, and drainage of the watershed; specifically to provide safe water for human use and aquatic life
  - **Goal:** Plan and implement basic scientific research, conduct programs and projects that will reduce, control, or remove pollutants; improve drainage; and restore wetlands and floodplains within the watershed.
  - **Method:** Conduct studies, develop plans to achieve goals

- Wetland system discussed tonight is a draft recommendation to meet these goals
Committee Members

- City of Northwood
- City of Oregon
- Jerusalem Township
- Lucas County Engineer
- Lucas Soil and Water Conservation District
- Ohio DNR, Maumee Bay State Park
- Toledo/Lucas County Health Department
- University of Toledo Lake Erie Center
- Wood County Health Department
- Non-voting: OEPA, USGS, Hull, TMACOG
Other Beach Postings

- Postings for algae
- Cause is phosphorus, not fecal matter
- Wetlands control phosphorus as well as bacteria
Two Beaches

- Inland lake
- Birds
- Harassment
- Don’t feed them
Lake Erie Beaches

- Focus for action
- Multiple sources
- From watershed
Wolf Creek Watershed

Wolf Creek/Berger Ditch Watershed

Legend
- Streams/Ditches
- Wolf Creek/Berger Ditch Watershed
- Maumee Bay State Park

Table:

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<td>Wolf Ditch and Berger Ditch</td>
<td>HUC 14</td>
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<td>Perimeter (Miles)</td>
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<td>Area (Sq Miles)</td>
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<td>Acres</td>
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Past Studies

- Bacteria sources
- Animal or human?
- Bay or creek?
- What projects & controls needed?
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
Berger Ditch sites - 2004

Escherichia coli, in MPN per gram dry

Detection limit

Distance, in meters

Maumee Bay

Maumee Bay State Park

N9 N10 N11 N12 N13 N14 N15 N16 N17 N18 N19

F = Berger Ditch

Water
- 5 - 20
- 21 - 100
- 101 - 200
- 201 - 620

Bed Sediment
- 11 - 30
- 31 - 100
- 101 - 300
- 301 - 800
- 801 - 1800

TMACOG
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
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
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
Treating the Stream Water

**Pollutants to treat**
- Nutrients – especially phosphorus
- Pathogens – especially *E. coli* bacteria
- Sediment

**Treatment Mechanisms**
- Settling – remove bacteria and nutrients attached to soil particles
- Filtration – plants remove bacteria from the water
- Biological – bacteria eaten by aquatic animals & other microbes
- Ultraviolet – sunlight destroys bacteria
Locations & Stream Flows

- Upstream site, Oregon
  - Capture sediment & bacteria
  - Pond / floodplains
  - Voluntary purchase only

- Downstream site, Park
  - Biological treatment
  - Wetlands, habitat
  - Owned by ODNR
Habitat & Ecotourism

- Increasing coastal habitat is an important benefit
- Overall project: 44 acres potential habitat
- 33 acres in park could have public access
Next Speakers

- Dr. Daryl Dwyer, UT Lake Erie Center
  - Wetland and Pathogen Research at Maumee Bay State Park
- Hull & Associates
  - A Wetland System to Control Bacteria
- Questions and Discussion
- Comment cards – comments by 12/5
- Full report:

  TMACOG.ORG Maumee River Wolf Creek Committee

Acknowledgments