Big Creek Water Quality Monitoring and Control: 1969 - Present

Thursday, September 27, 2012
Reinberger Education Center
Cleveland Metroparks Zoo
WATERSHEDS

What is a watershed?

Why watershed-based planning and organizing?
Big Creek is the 3rd largest and northernmost tributary of the Cuyahoga River.

Big Creek drains nearly 38 square miles from 8 communities:

- Cleveland
- Brooklyn
- Linndale
- Parma
- Parma Heights
- Brook Park
- North Royalton
• Heavily urbanized, with almost 40% impervious surfaces. Sub-watersheds range from 23% to 48% imperviousness.

• Susceptible to severe flooding, erosion and degraded water quality as a result of urban runoff, alteration and encroachment on the stream.
IMPACTS OF URBANIZATION

- Altering stream channels by straightening, lining, or placement in culverts.

- Enlargement of the channel through incision and widening processes.

- Reducing riparian corridor width through floodplain encroachments.

- Greater and more frequent peak storm flows, and longer duration of stream flows capable of altering channel beds and banks.

- Increasing sediment yield.

- Increasing pollutant loading.

- Increased stream temperatures and higher nutrient loading.

- Displacing native riparian plant communities by invasive non-natives.

- Reduction of native wildlife species.
Brooklyn Township
-Hopkins 1914
CONDITIONS: Channelization

Big Creek along I-71
CONDITIONS: Results \(\Rightarrow\) downstream

Big Creek Reservation
GOAL:

Arrest degradation and enhance ecological functions, increase local property values and quality of life

ACTIONS:

• Land acquisition and conservation easements for buffers that will provide long-term protection to high-quality habitats and water resources.

• Construction of retrofits for stormwater management to reduce hydrologic and geomorphic impacts, improve water quality, and protect fish and wildlife habitat.

• Restoration activities with regard to geomorphology, vegetation, and fish and wildlife habitat.

• Zoning regulations and management practices aimed at reducing identifiable impacts from urbanization activities.

• Education