

On The Move: Watershed Watch

THE QUARTERLY NEWSLETTER OF THE EASTGATE REGIONAL COUNCIL OF GOVERNMENTS



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Watershed Planning Brings Communities Together to Improve Environment

This special edition of On the Move was designed to highlight Eastgate's progress in the development of the Yellow Creek Watershed Action Plan, as well as illustrate the watershed's unique features and characteristics.

A watershed is defined as an area of land that drains into a common water source such as a lake, river, or any point within a river system. Therefore, any activity that occurs on land will have either a positive or negative impact on water quality. The changes made to the watershed's landscape define the pollutant loads and the natural functions of streams. When streams are altered, communities must adjust the way stormwater is maintained. Watershed planning brings communities together for the common good of improving water quality and the overall health of the environment. The diagram below illustrates the flow of water throughout a watershed's drainage basin.

The Eastgate Regional Council of Governments is developing a watershed action plan for the Yellow Creek Watershed. A watershed action plan is a document that describes the watershed's attributes (hydrology, soils, land use), inventories existing environmental issues and water quality impairments, and identifies implementation goals and measures to ensure improvement and protection of the watershed's health. The Yellow Creek plan will serve as a technical and educational document for the watershed's governing agencies, public officials, and citizens. In the end, the plan will recommend goals for education and outreach opportunities, preservation/protection, restoration, and overall water quality improvement measures for the local communities and agencies to implement. A healthy, protected watershed will provide another level of safety for 45,000 residents within Mahoning County that rely on the watershed for their public drinking water source.

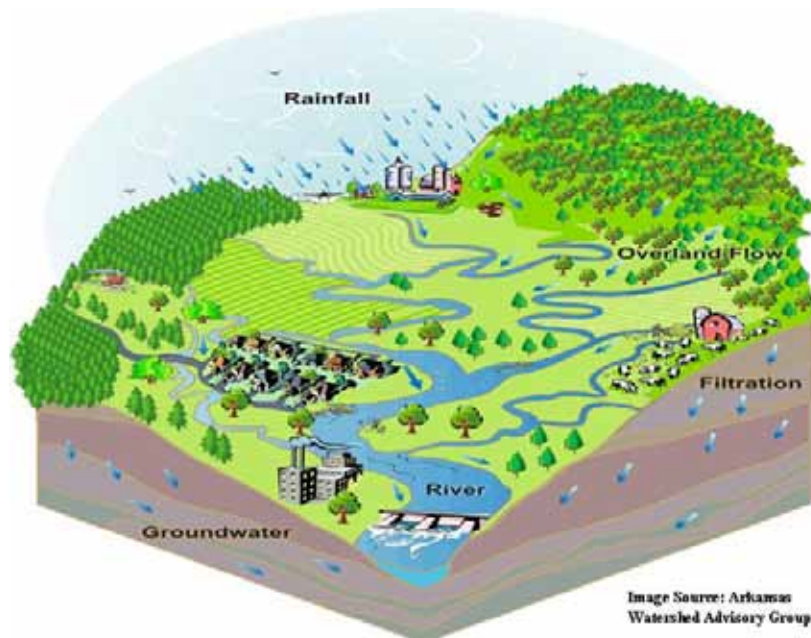


Image Source: Arkansas Watershed Advisory Group

Getting Involved

Stakeholders Strengthen Commitment to Plan

A Watershed Action Plan is only as strong as the commitment made by the stakeholders involved. In February and March 2010, Eastgate hosted introductory meetings for the Yellow Creek Watershed’s governing agencies, public officials, and the general public. The meetings introduced the planning process, discussed how a plan will benefit the communities involved, and provided an initial outlet for those in attendance to voice what they felt were environmental concerns or issues within their communities.

Because one community cannot improve the health of a watershed on its own, each community needs to work together. The Yellow Creek Watershed’s communities gathered together at several stakeholder meetings to begin discussing the goals and action items for the plan. The group identified what is valued in the watershed, the obstacles to planning, and education opportunities:

Areas of Value:

- Drinking Water Source Protection
- Stormwater Control
- Septic System Maintenance

Watershed Planning Obstacles:

- Lack of Zoning
- Public Education
- Enforcement

Outreach Activities:

- Community Meetings
- School Involvement
- Public Event Displays



Residents of the watershed provide input at a public meeting.



Watershed stakeholders.

Flight Takes Watershed Planning to a New Level

Trip Provides Firsthand Look of the Yellow Creek Watershed

The Yellow Creek Watershed Action Plan reached a new height - the altitude of 2,500 feet. Unity Township Trustee and Yellow Creek Watershed Stakeholder, Tim Weigle volunteered his time, airplane, and piloting expertise to provide an aerial view of Yellow Creek to Stephanie Dyer, Eastgate's Environmental Program Manager, and the Ohio EPA's Mark Bergman. Views of the watershed at 2,500 feet provided a firsthand look at the changing landscape and possible areas to concentrate planning efforts. The pictures on the following pages were taken during two different flight events, and were chosen due to their ability to illustrate the research and information included within the watershed plan.



Tim Weigle, watershed stakeholder, and Eastgate's Environmental Program Manager, Stephanie Dyer.

The Yellow Creek watershed is a subwatershed of the greater Mahoning River watershed. It is located in Columbiana and Mahoning counties, and encompasses a total of 39.53 square miles. The Watershed begins in rural, Unity Township in Columbiana County, and transitions to an urban environment as it traverses north towards the Mahoning River within the city of Struthers. The communities located within the watershed include: the city of Columbiana, and Unity and Fairfield townships in Columbiana County; and the city of Struthers, the villages of Poland and New Middletown, and Springfield, Beaver, Boardman, and Poland townships in Mahoning County.



Yellow Creek Headwaters with Beaver Lake, looking north towards Pine Lake.

Some Interesting Facts on the Yellow Creek Watershed

- The Yellow Creek Watershed contains 711.05 acres of protected lands of which 13.39 miles of streams are protected.
- The Watershed contains 72.99 miles of streams with forested riparian buffer, and 23.17 miles of modified streams.
- Only 2.76 square miles of the watershed is occupied by surface water (lakes, ponds).
- Approximately 3.09 miles of streams are culverted within the Yellow Creek Watershed. Eastgate identified 157 culverts, with the average length of the culverts totaling 104 feet.
- According to the Ohio Wetlands Inventory (OWI), 1,119.61 acres of wetlands have been identified. Of those wetlands assessed by the Ohio EPA, many range within the Ohio Rapid Assessment Method (ORAM) score of Category 2 and 3, with Category 3 being the highest quality of wetland.



The natural Poland Woods, pictured in the right foreground, is located within the Boardman-Poland commercial corridor.



A buffered Yellow Creek, located in the center of the picture, approaches the urban and residential corridor of the watershed.

Yellow Creek Watershed Pollutants of Concern

The largest source of water pollution affecting water quality is non-point source pollution. Non-point source pollution originates from many sources and is formed when water collects pollutants such as sediment, fertilizers, and petroleum products from impervious surfaces, lawns, and farm fields, and deposits them into a river or stream. These rivers and streams then serve as express lanes for pollutant transport throughout the watershed.

Sediment is one of the most common nonpoint source pollutants. Whether it's derived from development, farming practices, or natural soil erosion, sediment run off is difficult to control. The top picture, taken shortly after a rain event on April 13th, shows a tributary leading into Evans Lake. Here, a massive plume of sediment is making its way into the drinking water source. Best management practices such as retaining a sizeable vegetated riparian buffer can alleviate the quantity of sediment entering into surface waters.

Soil erosion is no stranger to the agricultural community. Farmers have altered their historic farming practices to prevent fertile soil from being carried away into nearby streams by stormwater. Agricultural best management techniques such as grassed waterways aid farmers in preventing the soil from leaving the fields. The middle picture was taken after the April rain event and shows an erosion rill pattern within an agricultural field. Top soil from this field may end up within a drainage swale or a nearby stream within the watershed.

Impervious surfaces increase the amount of stormwater flowing through a watershed by preventing stormwater from being absorbed into the ground. As a result, stormwater runs off the surface and collects pollutants on its way to a storm sewer. The storm sewer system, in turn deposits unfiltered stormwater directly into a nearby stream. The Yellow Creek Watershed contains 2,065.39 acres of urban land cover. The watershed north of Evans Lake is increasingly urban. South Avenue, State Route 224, and Western Reserve Road are the main commercial corridors in the watershed. This corridor picture to the right, is drained by Drakes Run and other smaller tributaries which flow into the mainstem of Yellow Creek at/or near Poland Woods.



Ohio EPA Summer Sampling Scheduled

The Ohio Environmental Protection Agency (OEPA) is responsible for monitoring our state's water resources to ensure water quality standards are met. Water quality data collected by the OEPA is used to characterize waters, identify trends over time, identify emerging problems, determine whether pollution control programs are working, and help direct pollution control efforts to where they are most needed.

A new water quality report for the Mahoning River Watershed, which includes Yellow Creek, is due in 2013. The last report was issued in 1995. Eastgate petitioned the OEPA to conduct sampling for the Yellow Creek Watershed ahead of schedule so the results could be incorporated into the Watershed Action Plan. As a result, the OEPA will conduct sampling this summer, with assistance from Eastgate and other watershed partners. The results will be available this fall, two years ahead of the previously scheduled release date.

Sampling will take place at six sites in the Yellow Creek Watershed. The sites will be sampled multiple times for fish, bugs, sediment or general water quality. The Sampling Location Map shows which kind of testing will take place at each location. Some key parameters checked during testing include:

Survey Sites and Test Type	
●	Bugs, Fish, Chemistry, Bacteria, Sediment
▲	Bugs, Fish, Chemistry, Bacteria
■	Chemistry, Bacteria

Nutrients

Nutrient sources include wastewater treatment plants, runoff from fertilized lawns and cropland, failing on-site septic systems, runoff from animal manure storage areas, and industrial discharges. Different forms of nitrogen and phosphorous are tested for, and can more specifically indicate the source type. Increased nutrients can cause hypoxia (low levels of dissolved oxygen), algae blooms, and the death of certain fish, invertebrates, and other aquatic animals.

Metals

Toxic metals can be present in industrial, municipal, and urban runoff, which can be harmful to humans and aquatic life. Severe effects include reduced growth and development, cancer, organ damage, nervous system damage, and in extreme cases, death. The type of metal present can indicate the source.

E. coli

E. coli is a species of fecal coliform bacteria specific to fecal material from humans and other warm-blooded animals. Sources of fecal contamination in surface waters include wastewater treatment plants, on-site septic systems, domestic and wild animal manure, and storm runoff.

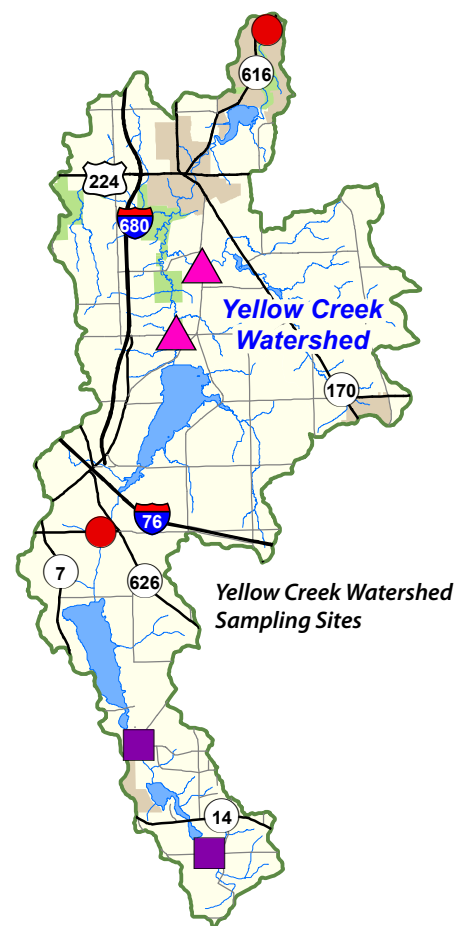
Pesticides

Pesticide residue can be persistent in the environment because of low chemical reactivity, resistance to oxidation, and resistance to other degenerative processes. Pesticides are generally not soluble in water, but can accumulate in the tissues of organisms living in the water.

Volatile and Semivolatile Organic Compounds (VOCs and SVOCs)

VOCs are present in commonly used industrial solvents and degreasers or are components of gasoline. At high levels of exposure, VOCs can cause organ system toxicity, cancer, birth or developmental effects, brain and nervous system problems, reproduction and fertility issues, and immune system dysfunction.

Additional tests to be conducted include pH, acidity, alkalinity, dissolved oxygen, total dissolved solids, suspended solids, temperature, chlorophyll, chloride, sulfate, and more. Test results will provide tangible evidence to help identify healthy areas of the watershed, areas of concern, possible causes of impairment, and possible solutions.



Final Destination: State Endorsement

The final step in writing a watershed action plan is receiving state endorsement by the Ohio EPA and Ohio Department of Natural Resources (ODNR). A good, example of a state endorsed plan is the Mill Creek Watershed Action Plan. The Mill Creek plan was endorsed in 2007 and became the planning region's first state endorsed watershed action plan. After receiving state endorsement, the funding possibilities became endless. The ability to secure Ohio EPA grants, such as the Water Resource Restoration Sponsor Program (WRRSP), Surface Water Improvement Fund (SWIF) and Section 319(h) grants has increased due to receiving state endorsement.

The Mill Creek MetroParks received 100% funding through the WRRSP to acquire 186 acres, as well as restore 45 acres of the former Orvets Sod Farm. This area, located along the mainstem of Mill Creek in Boardman Township, is now known as the Mill Creek Preserve. The location of the preserve is highly visible from Western Reserve Road and is accessible to the public. The Mahoning County Engineers office, on behalf of AWARE, applied for and received a \$5,000 grant from the Ohio EPA's Ohio Environmental Education Fund (OEEF) to establish a stream signage program within the Mill Creek Watershed.

Currently, the Yellow Creek Watershed Action Plan is in draft form and awaiting water quality sampling data from the Ohio EPA. Once the data is finalized, Eastgate will update the plan accordingly and develop, with stakeholder input, goals for education and outreach opportunities, preservation/protection, restoration, and overall water quality improvement measures for the local communities and agencies to implement. Eastgate will submit a final watershed action plan to the Ohio EPA and ODNR for state endorsement in FY2012.





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