What is a headwater stream?

A river is often shown as a meandering blue line on a map. It has a starting point and an ending point. In reality, a river system is a network of fine lines that join each other in covering a large area of land, a watershed. These smaller streams combine to form the rivers that we recognize as landmarks.

The Ohio Environmental Protection Agency defines a headwater stream as a stream that drains less than 20 square miles. A stream with a watershed of less then 1 square mile (640 acres), is a primary headwater stream. A healthy, natural river system has hundreds of primary headwater streams branching out over the landscape. A river is the sum of its parts.

Small streams flowing through yards, shopping centers, farms, and forests combine to form the rivers that shape our landscape. Each stream contributes its share of water, carrying other substances it gathers along the way.

Often, headwater streams are overlooked, or mistaken for ditches or 'low spots'. Since they are small, many people think they are insignificant to the river system. But how we treat each headwater stream affects the quality of the river it flows into. Just as the flavor of a gourmet meal is affected by the quality of the ingredients, the water quality of a river depends upon the water quality of the streams flowing into it.

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NEO PIPE
WORKGROUP BY:

NEO PIPE
YOUR REGIONAL STORM WATER RESOURCE
North East Ohio Public Involvement Public Education

The Northeast Ohio Public Involvement/Public Education Work Group, called NEO PIPE, is a cooperative effort of a variety of Soil and Water Conservation Districts and other agencies that seek to increase public awareness of storm water issues in Northeast Ohio and to provide the public with opportunities to help better mange storm water runoff. Participation is open to anybody who shares the same interest. For more information visit: **www.noaca.org/neopipe.html**.

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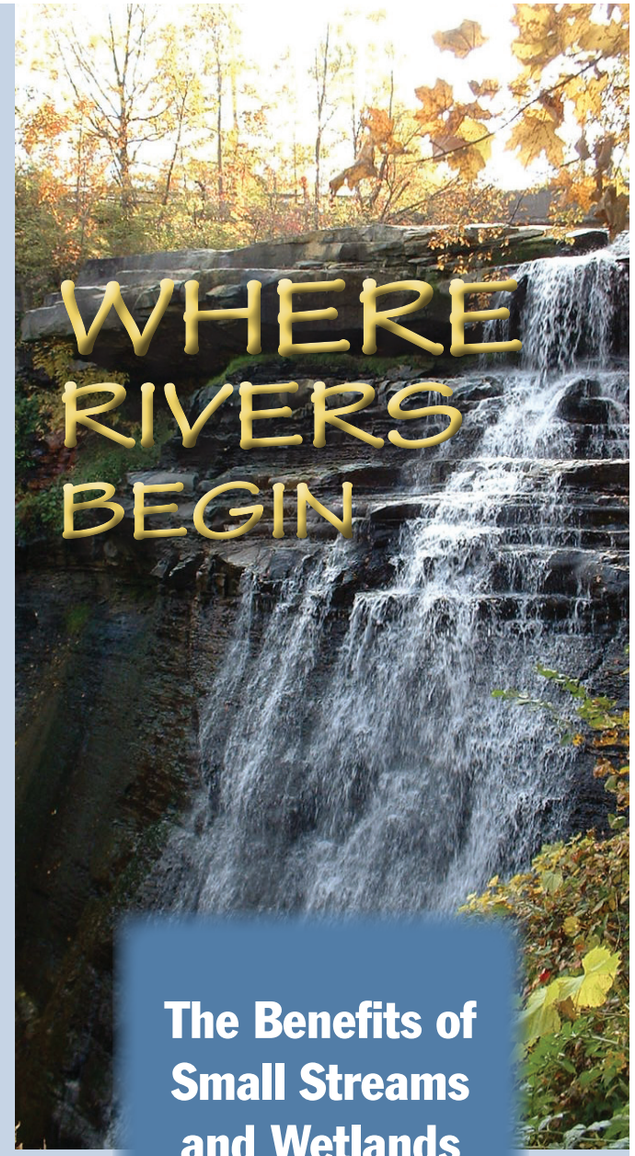

The Benefits of Small Streams and Wetlands

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How Small Streams and Wetlands Benefit the Environment

Protect Water Quality

Many materials wash into our streams, including leaves, dead insects and polluted runoff from agricultural lands and our urban communities. Stream networks and wetlands can filter, process, store and modify some pollutants, protecting downstream water quality.

Maintain Water Supplies

Protecting headwater streams, wetlands, and their surrounding vegetation, or riparian buffers helps maintain water quality and water levels in wells and streams. Unaltered headwater streams and wetlands replenish groundwater.

Human modification to small streams, wetlands, and their riparian buffers disrupts the natural movement of surface water to groundwater storage, reducing both water quantity and quality in a stream and river system.

Provide Natural Flood Control

In their natural state, small streams and wetlands absorb significant amounts of rainwater, runoff and snowmelt. As regions become more urbanized, humans intentionally alter many natural stream channels by replacing them with storm sewers, ditches, and other artificial waterways. When man-made structures replace natural stream channels and floodplains, floods increase in frequency and size.

Trap Sediment

Intact headwater streams and wetlands can trap and retain sediment generated by naturally-occurring erosion, reducing the volume transported to downstream ecosystems.

Land disturbances such as urban construction can double the amount of sediment entering headwater streams. Increased sediment raises water purification costs for municipal and industrial users and requires extensive dredging to maintain navigational channels. Sedimentation also degrades aquatic habitats, killing plants and animals.

Sustain Downstream Ecosystems

Ecological processes that recycle organic carbon are essential to every food web on the planet. In freshwater ecosystems, much of the nutrient recycling occurs in small streams and wetlands. Microorganisms transform organic matter, such as leaf litter, fallen logs and other decaying matter, into food for other organisms in the aquatic food web. Excess nutrients such as nitrogen and phosphorus cantained in fertilizer can be harmful to ecosystems. If all organic material received by headwater streams and wetlands washed directly downstream, the surplus of decomposing material could deplete oxygen in downstream rivers, thereby damaging and even killing fish and other aquatic life.

Maintain Biological Diversity

Headwater stream systems provide diverse habitats for plants and animals. Many aquatic and streamside species can live only in headwater ecosystems. Even fish commonly found in large rivers rely on small streams for critical parts of their life cycles and as a refuge from environmental extremes. Wetlands add habitat diversity to headwater systems and increase the variety of species a headwater system may support. The natural processes that occur in small streams and wetlands provide a host of benefits. Scientific research shows that healthy headwater systems are critical to the proper functioning of larger streams, rivers, lakes and estuaries downstream. The goals of protecting water quality, maintaining healthy plant and animal populations, navigable waterways, and other downstream resources are not achievable without careful protection of headwater stream systems.

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