Division of Surface Water
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Headwater Stream Project — Key Findings

Headwater streams are the small swales, creeks and streams that are the origins of rivers and lakes. These streams join together to form larger streams and rivers or run directly into larger streams and lakes.

Small headwater streams

Headwater streams that generally have a watershed of less than one square mile are called primary headwater streams. Field studies by Ohio EPA biologists have indicated that there are three main classes of primary headwater streams. These are illustrated below along with a listing of their main characteristics and importance.

Class III primary headwater habitat streams

Characteristics

- Perennial streams
- Cold water conditions
- Ground water fed
- Contain species of animals that have adapted to year around presence of cool water, such as certain salamander or fish species, and insect larvae such as mayflies, stoneflies and caddisflies
- Demanding habitat requirements

Importance

- Support unique, permanent aquatic communities
- Provide aesthetics and recreational opportunities
- Process nutrient and sediment
- Dissipate energy
- Maintain stream energy dynamics
- Maintain and protect downstream beneficial uses

Class II primary headwater habitat streams

Characteristics

- Perennial or intermittent streams
- Warm water conditions
- Contain species of animals that are adapted to the warm water conditions found in these streams, such as certain amphibian or pioneering fish species, and insect larvae such as dragonflies and damselflies
- Less demanding habitat requirements

Importance

- Support aquatic communities
- Process nutrients and sediment
- Dissipate energy
- Maintain stream energy dynamics
- Maintain and protect downstream uses

Headwater Stream Project — Key Findings

Class I primary headwater habitat streams

Characteristics

- Ephemeral/intermittent streams
- Warm water conditions
- May contain seasonal or ephemeral warm water biological communities
- Often dry for long periods of time with no aquatic species present
- Minimal habitat requirements

Importance

- Process nutrients and sediment
- Dissipate energy
- Maintain stream energy dynamics
- Maintain and protect downstream beneficial uses

Modified primary headwater habitat streams

In addition to natural channels, different classes of headwater streams can also have modified channels. Many primary headwater streams are being modified (examples include channelization and riparian removal) as part of activities related to agricultural activities (e.g., drainage) and urban/suburban development (e.g., flood control and construction). Such modification is the origin of the habitat degradation, pollution, nutrient, siltation and sedimentation problems in smaller streams and a leading source of impairment to the water quality of larger streams into which they flow.

Watercourses not considered primary headwater habitat streams

Ohio EPA does not consider grass waterways or other watercourses without a defined bed and bank primary headwater streams. In addition, streams that have sufficient amounts of water throughout the year to support sufficiently large fish communities are assigned aquatic life uses under current water quality standards regulations for Ohio. Examples of such aquatic life uses include warmwater habitat and coldwater habitat. Steams assigned those uses, although they may look small, are not considered primary headwater streams.

Contact

For more information, visit the Primary Headwater Habitat webpage: ***epa.ohio.gov/dsw/wqs/headwaters/index***.

*A complete set of technical documents can be accessed at the link listed above.