

Ohio

Specific Regional Priorities

The Ohio region is geologically distinct from the other water planning regions. It is marked by varied elevations, cliffs, landslides, and high-relief areas. This watershed contributes to the larger Mississippi basin and, as such, requires the involvement of several stakeholders in order to maintain water quantity and quality.

Interagency Water Resource Planning

The committee supports a holistic approach to water quality, quantity, and availability. They believe watershed implementation plans (WIPs) and interagency water resources planning can address many water priorities. Organizations that should be involved in interagency water planning include federal, interstate, and state agencies, local municipalities, conservation districts, watershed districts, watershed authorities, nonprofit environmental organizations, and the U.S. Army Corp of Engineers. Plans should identify water resources needed to promote and facilitate economic development including source water protection while maintaining watershed integrity and recreation benefits. They should also evaluate impacts of resource extraction from the Marcellus Shale on water quality, emerging contaminants in water systems, reclaiming of water resources impaired by abandoned mines, and inter-basin transfers of water. Act 167 stormwater planning at the county level is an initial step toward interagency water resource planning.

Water Quality and Quantity

Regional solutions depend upon an integrated approach to water quality and quantity challenges. Water quantity can be defined as a spectrum from too much to too little. Quantity can also vary over time and location. There are critical area resource plans for two watersheds (Back Creek and Laurel Hill Creek) within the region approaching final recommendation in their process. Quality, which is defined by water usage, can be impacted by quantity - either too high or too low. Increased data collection can inform community input and watershed planning. Planning will help to prioritize natural systems, man-made infrastructure, and water treatment to include creative, diverse, and strategic solutions that can maximize water supply and the quality of our drinking water.

Hazards to communities in the watershed originate from multiple sources:

Excessive amounts of stormwater runoff can cause flooding and damage the quality of the waterways through agricultural runoff, combined sewer overflows (CSOs), sanitary sewer overflows (SSOs), and Municipal Separate Storm Sewer System (MS4) overflows. Stormwater is significantly impacted by climate change and aging infrastructure. Priority should be given to multi-municipal planning and funding projects that include best management practices referenced in the Pennsylvania Stormwater Best Management Practices Manual, and updates thereto, that use integrated approaches to maximize pollution reduction and mitigate flooding.

Additionally, legacy issues can produce significant contaminants. These issues include the historical coal mining and oil and gas extraction industries that played a key role in the region's development. Abandoned mine lands and drainage can dramatically change the ecology and dynamics of the stream, causing it to not meet its designated uses, harm drinking water and well water systems, and can destroy the economic vitality of the waterways. Orphaned wells that go unplugged cause long-term seeps of

petroleum byproducts into the region's river systems, that cause additional ecological degradation. As well as the above issues, byproducts of prior industrial development can include but are not limited to brownfields, PFAS, PFOS, and slag from steel and glass production. Land use plans that address these unique contaminants should be developed for these sites so they do not impact water resources and the land can be restored and gainfully reused.

Farms are vital to the region. The Ohio River valley is home to significant agricultural activities that sustain communities and provide food to the region. However, some agricultural activities come with environmental impacts, therefore conservation measures should be prioritized in a farm plan and through state regulations. Stakeholders within the region are working hard to promote conservation approaches which work alongside agricultural practitioners to create sustainable farming and a sustainable food cycle. The committee encourages the implementation of such practices.

In addition to stormwater management, legacy, and agricultural issues, planning efforts need to address, inter-basin transfers, unsustainable forest management, and the introduction of larger-scale industrial water users, all of which have implications on both quality and quantity.

Region's Uniqueness

What are the Ohio region's unique characteristics that are important considerations in the state's water planning?

- The basin contains the headwaters of the Ohio River, having an impact on 1,000 miles of river downstream through multiple states. Water drains north from West Virginia and south through Ohio and New York before contributing to the larger Ohio River basin.
- The Ohio River basin contains organizations that are unique to the region with a focus on water quality: [The Ohio River Basin Alliance \(ORBA\)](#) and [The Ohio River Valley Water Sanitation Commission \(ORSANCO\)](#).
- Universities, colleges, municipalities, and local foundations within the basin often work together towards solutions to water resource related issues.
- Industry has played a significant economic role throughout the region including steel, coal, and glass and was a nationally significant source for all three resources, especially in the early 1900s¹.
- The Ohio region's French Creek plays host to the most diverse mussel population in the state.
- Clean water is vital for recreational activities in many watersheds of the basin² and are major economic drivers.
- The Ohio River basin is a municipally dense region which can lead to difficulties in coordinating zoning and planning activities.
- The region contains the tribal lands of the Seneca Nation of Indians.

¹ A Very Short History of Pittsburgh <https://pittsburghquarterly.com/articles/a-very-brief-history-of-pittsburgh/> and The Glass City: Pittsburgh's History as the Center of the U.S. Glass Business <https://www.wesa.fm/arts-sports-culture/2013-07-16/the-glass-city-pittsburghs-history-as-the-center-of-the-u-s-glass-business>

² Freshwater Mussels <https://www.frenchcreekconservancy.org/freshwater-mussels/#:~:text=The%20French%20Creek%20Watershed%20contains,and%20east%20in%20the%20nation>

- [The Allegheny National Forest](#) is located in the basin; these protected lands provide conservation and recreation.
- There are many locks and dams within the region including 16 multipurpose flood control dams and 23 navigable locks and dams.
- Rivers are extensively used for transportation with inland ports for sand, gravel, coal, and other commodities. The Port of Pittsburgh is the fourth largest inland port in the United States.
- The region is geographically distinct from the rest of the state due to the Appalachian Mountains. Geologically the Appalachian Mountains are an incised plateau which leads to the appearance of synclines and anticlines from glacial activities. Varying elevations, such as cliffs and high-relief areas, can be prone to landslides. This necessitates different planning and treatment requirements based on location.
- Hydraulic fracking and coal-fired power plants in the region create additional water demands.

Stormwater and Flood Management

What are the region's concerns and recommendations for stormwater and flood management to preserve water quality?

- Stormwater management infrastructure often lacks proper maintenance, partly due to confusion about ownership and the associated responsible parties. Some agreements have been in place since the 1960s, but these can be difficult to enforce, especially as facilities change ownership, leaving some older facilities without maintenance for decades.
- Education and outreach are needed to tie the concept of stormwater management more closely to flooding, as poor stormwater management can lead to downstream flooding.
- Aging stormwater infrastructure should be assessed by regional authorities for high-frequency, as opposed to high-intensity storm events. Retrofitting aging best management practices and providing groundwater recharge areas for large impervious areas such as parking lots from vacant shopping malls would be beneficial.
- Contaminants from large impervious areas can be transported by stormwater, which can contribute to water quality issues.
- Planning should be completed on a watershed basis and priority should be given to planning upstream and/or at the headwaters.
- [CSOs are common in the Ohio River basin](#) and their removals are ongoing. Impacts occur only during rain events, which makes CSOs both a stormwater concern and a water quality problem.
- Rivers, with their proximity to raw materials (lumber, coal, etc.) and easy transportation served as an ideal location for development. This not only obstructed the floodplain but constrained the gradual geomorphic development of the waterway. Therefore, the redevelopment of older structures on floodplains, which were built prior to local ordinances that would have prevented their original construction, are a concern for the region.
- State guidance on floodplain development is released whenever a new Flood Insurance Rate Map (FIRM) is provided by the Federal Emergency Management Agency (FEMA). FIRMs are then enacted via municipalities (through floodplain ordinances and collaboration with neighboring communities) and could benefit from regional planning.

Climate Change Adaptation for Water Resources

How are water resources within the region being impacted by climate change and what could we do to adapt?

- Flooding due to large amounts of impervious surfaces will continue to cause problems as precipitation intensity increases.
- Stakeholders should investigate climate change implications on water supply vulnerability, availability, and reliability.
- Climate change will likely increase the intensity of storms in Pennsylvania but could also extend dry periods. Stakeholders should investigate the implications of flash flooding and potential decreased groundwater recharge.
- Capturing water during high-intensity storm events and continuing to promote ground water recharge will help reduce drought events. Regional authorities should provide incentives for homeowners to utilize rain barrels or route downspouts to swales.
- The U.S. Army Corps of Engineers owns and operates locks and dams within the region which may help with resiliency, provided they are properly maintained. This will require additional infrastructure planning to enhance resiliency.
- There is a need to maintain riparian buffers, particularly in communities at the headwaters of the basin.