

## Delaware

### Specific Regional Priorities

The Delaware region is the most populous region with [over 5.5 million \(43% of Pennsylvania's population\) people calling it home and](#) contains the only estuary in the state, which runs alongside Philadelphia. The large and growing population is going to require holistic coordination between all users to ensure the availability and quality of water as well as addressing stormwater and flooding. These varying and complex needs are partly addressed by entities like the Delaware River Basin Commission and the National Estuaries program but a unified approach to land use and water management is a critical piece of the puzzle.

### Strengthen the Link Between Land Use and Water Resources Management

Linking land use decisions and water resources management to sustain and enhance the quality of life in the Delaware River basin is a top priority of the committee. The development and distribution of water resource information and data will help strengthen the link between land use, soil, and water resources management among multiple stakeholders. Implementation of comprehensive educational initiatives would improve how water resources management, soil and vegetation conservation, flood controls, stormwater management, and sewage management relate to land use decisions, infrastructure funding, construction decisions, and grant decisions. The goal of these efforts is to preserve, protect, restore, and enhance the quality, quantity, and availability of clean, sustainable water supplies for the people, businesses, and ecological needs of the commonwealth.

### Regional Planning and Land Use Coordination and Collaboration

*"Think regionally and act locally"* is a priority for the committee. The committee's solutions to the region's water issues focus on developing regional coordination and planning to address stormwater management, climate change, water quality, water availability, water diversion, aquifers, healthy soils and vegetation, protecting fish and wildlife habitats, and protecting recreation areas. Solutions are developed through regional planning efforts, education and outreach with policy makers and the community, along with adequate funding. Water planning should be considered on a holistic watershed basis considering both droughts and floods. A One Water concept can further educate the community and increase collaboration among stakeholders for integrated water resources planning. Growth in rural, urban, and suburban areas continues to place stress on water infrastructure; replacement and retrofitting of existing infrastructure and development of new infrastructure can be a challenge in both urban and suburban communities. Larger scale coordination efforts between local, state, and federal entities can help ensure more of the region's needs are being accounted for during the planning phase and available resources can be maximized.

### Region's Uniqueness

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

- This is the most populated region in the commonwealth and features a diverse population living in urban, suburban, and rural locations.

- The Delaware region has a large amount of impervious surfaces, leading to both water quality and quantity problems including reduced groundwater recharge and excess runoff which can pollute waterways and cause excess flooding.
- The region boasts abundant and varied natural and recreational resources.
- The main stem of the Delaware River remains undammed.
- The tidal Delaware region is the second largest in the country in terms of power production.<sup>1</sup>
- The Delaware basin discharges into the Atlantic Ocean via the Delaware Estuary, which is comprised of a unique ecosystem and a variety of stakeholders, including federal programs like the National Estuary Program, water suppliers, and industrial users. This also means that tidal influences are a consideration in planning efforts for the basin.
- The basin is challenged by the demands of four states and multiple jurisdictions. In 1954, the United States Supreme Court entered a Decree that established certain rights and obligations for New York City and New Jersey concerning diversions of water out of the Delaware River Basin. Delaware, New Jersey, New York, Pennsylvania and New York City are all parties to the Decree.
- The Delaware River Basin Commission plays a significant role in the management of water resources in the basin.
- County planning commissions play a significant role in land use and should be part of the linkage between land use and water resources.
- Philadelphia's port complex is one of the largest freshwater port and is an economic hub of great value to the region.

## Stormwater and Flood Management

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

- Increased flooding can occur when floodplains are saturated by repeated storms, as well as during acute high intensity events.
- Stormwater management infrastructure often lacks proper maintenance, especially aging infrastructure.
- Strengthen local efforts, regional planning, and watershed-scale planning of water resources to support and enhance recommendations and requirements laid out in the latest Department of Environmental Protection's Stormwater Best Management Practices Manual [including an emphasis on nature-based stormwater control measures](#).
- State authorities should ensure adequate funding for Act 167 plans.
- Regional authorities should ensure that Act 167 plans and resulting model ordinances do not propose to alleviate flooding on tributaries at the expense of main-stem flooding in accordance with [the act's provisions](#).
- Legacy combined sewer overflows (CSOs) remain a significant stormwater issue primarily in the tidal urban portions of the Delaware region.

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<sup>1</sup> Projections of power generation sector water withdrawals in the Delaware River Basin, DRBC ([https://www.nj.gov/drbc/library/documents/WMAC/031621/thompson\\_DRB\\_PGprojections.pdf](https://www.nj.gov/drbc/library/documents/WMAC/031621/thompson_DRB_PGprojections.pdf))

- Stakeholders should continue to actively support source water projects that minimize impacts downstream. It's vital that the connection between potential sources for pollution upstream and resultant water quality downstream are understood by the public.
- Water should be considered from a holistic perspective as with the "One Water" movement.
- Storm surge may become an issue in the lower Delaware River as winds and long fetches draw higher waters upstream into the Delaware Estuary Coastal Zone.
- Schuylkill headwaters have coal mine refuse piles that need to be properly managed or removed to minimize the potential for coal tailings runoff into the system.
- Encourage projects that enhance stormwater management on previously developed land.
- Educate the public about stormwater impacts, including the difference between localized flooding versus regional flooding.

### 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?

- Encourage regional authorities to assess the ability of aging infrastructure to handle high-intensity storm events, which are increasingly likely to occur in face of a changing climate, and implement infrastructure maintenance, as necessary, to mitigate flooding impacts.
- There is an increased risk that changing rainfall patterns and increasing temperature will likely lower the water table; as a result, we must continue to promote healthy soil and groundwater infiltration to maintain aquifers and manage reservoir systems to abate these potential effects on water quality and quantity. Healthy soils absorb more water and are critical to reducing runoff and mitigating the effects of drought.
- Encourage stakeholders to mitigate impacts of sea-level rise, including the impact on port facilities' economic benefit provided to the region, and protect drinking water sources and infrastructure from salt front intrusion in the Delaware Estuary.
- Encourage development of additional scenario models so municipalities can proactively plan for potential outcomes of climate change, which is resulting in significant amounts of riverine and localized flooding. Promote data showing changes in rain frequency and intensity and focus on climate resiliency. Recognize that the increased precipitation and storm frequency will have effects on land use planning.
- Stakeholders should make use of all potential bodies of research and resources such as the DRBC Advisory Committee on Climate Change, which recently formed to develop ideas and tools.
- Climate change can have a number of water quality impacts including thermal impacts affecting dissolved oxygen and water use designations, an increase in both terrestrial and aquatic invasive species, increased erosion due to higher intensity storms resulting in higher turbidity, and changes in vegetation types affecting stream buffers.