



# DELAWARE BASIN WATER POLICY REVIEW

Final Report | Draft February 2017



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River Network would like to thank the individuals on our Advisory Group for their time and commitment to the project: Tracy Carluccio (Delaware Riverkeeper Network), Carol Collier (Academy of Natural Sciences at Drexel University), Liz Deardorf (American Rivers), Brenna Goggin (Delaware Nature Society), Jeff Skelding (Friends of the Upper Delaware River), Kim Biedler and Maddy Urbish (Delaware River Basin Coalition), and Dan Van Abs (Rutgers University).

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We would like to thank the following individuals for providing information that contributed to this report. We hope that we can work together in the near future to build on this research:

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River Network empowers and unites people and communities to protect and restore rivers and other waters that sustain all life. We envision a future of clean and ample water for people and nature, where local caretakers are well equipped, effective and courageous champions for our rivers. Our three strategies for focused investment are strong champions, clean water, and ample water.



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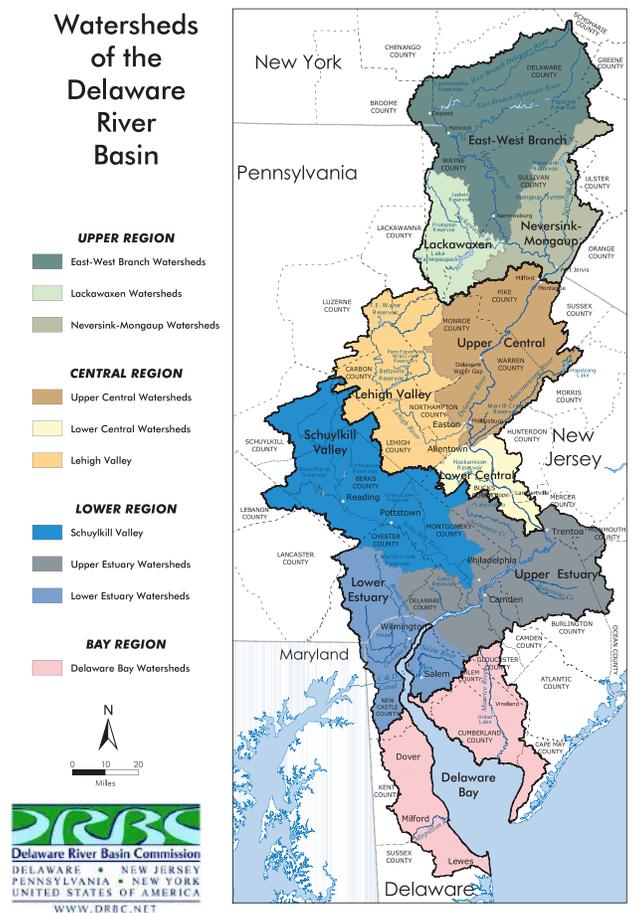
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# EXECUTIVE SUMMARY

With support from the William Penn Foundation, River Network performed a basinwide comparative analysis of a number of Clean Water Act and Safe Drinking Water Act tools, policies and programs in New York (NY), Pennsylvania (PA), New Jersey (NJ), and Delaware (DE), specifically as they relate to the Delaware River Basin. Our charge was to identify gaps and opportunities for stronger and more effective water programs. We have also examined related programs implemented by the Delaware River Basin Commission.

Due to the limited project period, this examination was, by design, a shallow dive into topics that had basinwide relevance. There is much more to be learned in all of these areas. It is River Network's intention that this project will catalyze discussion, increase coordination and lead to seized opportunities that can improve basinwide health.

Because the Delaware River flows through four states before reaching the Atlantic Ocean, the water policies developed by each of those states, as well as by the Delaware River Basin Commission (DRBC), have an impact on the river's health and its ability to support sensitive uses in each and every downstream town and city. The cumulative impacts of different land uses that cause nonpoint source pollution, wastewater and stormwater pollution, and loss of wetlands, riparian habitat and buffers are evident in the degraded health of the river and its inhabitants. Better implementation of and increased public involvement in existing water programs can address these impacts.



## METHODOLOGY

River Network reached out to numerous groups and individuals involved in policy work in the basin including nonprofits, government agencies, and academics. Through that process we learned a great deal about the basin: the treasures, the pressures and stressors, different organizations' policy priorities and a bit about the politics around resource management and regulation. We invited individuals from different parts of the Basin who were interested and could be helpful in the development of our research agenda and its application to be part of our advisory group to help guide our prioritization and analysis.

We selected the following Delaware River Basinwide topics for our research agenda:

1. Improve public engagement
2. Protect high quality
3. Protect drinking water uses
4. Prevent thermal impacts
5. Protect wetlands and riparian areas

For each topic, River Network and its contractors started with online research of statutes, regulations and policies. Based on what we could determine from information that is available online, we developed additional research questions and identified appropriate agency staff for phone research. From those phone conversations, we worked to fill gaps and synthesize the findings below.

River Network has begun to reach out to additional policy groups, agencies and academics working within the basin to discuss the research and findings, solicit ideas about application and invite them to be involved in the next phase of the work. This phase will include application of the findings and identification of other areas that warrant similar research and basinwide conversations.

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<sup>1</sup>Phone interview, John Yagacic, Delaware River Basin Commission, September 28, 2016.

## HIGHLIGHTS FROM FINDINGS

The results of the research reveal increased awareness of the Delaware River (significantly due to the focused investment by the William Penn Foundation) and critical needs that include improvement to basinwide coordination, data availability, public involvement, assessment and compliance monitoring.

Many of the programs that we examined are not set up for easy review at a watershed scale, making analysis challenging. The program areas that report (or collect) information by watershed are water quality standards, impaired waters, and sourcewater protection. On the other hand, the databases of discharge permits, wetland dredge and fill permits, and even the total maximum daily load (TMDL) summaries are more often available only by state. It was therefore difficult to collect information about the effectiveness of the programs in the Delaware River Basin portions of the states or to assess the interaction of the same programs across the states. Where necessary, we compiled the information on a statewide level because it was readily available in that form. This research has identified ways that watershed-based data collection could improve awareness, coordination, and program implementation that would greatly benefit the basin. Each research topic presented some unique opportunities for near-term deeper analysis as well as additional research. There were several opportunities that were similar across the research topic (see sidebar).

### Opportunities:

- Improve collection of and access to basin-specific data and information
- Coordinate public information, engagement, and comment for standards and permit changes and basinwide project applications (i.e., pipeline crossings)
- Communicate and/or coordinate across jurisdictions regarding changes to standards and permits
- Increase role of EPA regions 2 and 3 in the above
- Increase DRBC's role in the above
- Explore development of DRB-focused virtual law clinic across law schools

The following highlights and opportunities correspond to the five topics of our research agenda:

## 1. IMPROVE PUBLIC ENGAGEMENT

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Every Clean Water Act program requires or allows for public input and comment. As we considered analysis of policy tools across the basin, it became apparent that it would be equally important to find out how each state and the DRBC are soliciting, receiving and responding to comments from the public. Additionally, we wanted to know which groups are participating in those public comment opportunities so that we would know who is likely to be interested in the development of proposals for improvement in coordination among jurisdictions, sharing of basinwide information, development of consistent standards and increased basinwide programmatic implementation.

The water programs reviewed, state agency staff consulted and database information analyzed all indicated a low level of involvement by individuals and organizations in the available public comment processes. The high-level review of public involvement identified only a handful of active organizations, often strong, established basinwide or statewide organizations. River Network knows that there are groups throughout the basin engaging in policy advocacy at local levels, and perhaps informally at the state level as well. We hope to identify and work with as many of these groups as possible in the coming year.

Our research found little to no coordination among states and the DRBC on public input and comment opportunities related to (a) setting or changing water quality standards through the Triennial Review or (b) assessing use support and impairment for the Integrated Report. Though the Triennial Review and the compilation of the Integrated Report provide regular opportunities for public involvement, participation across the basin has not been particularly robust—either from individuals or from environmental organizations. Review of and changes to DRBC’s water quality standards do not occur on a similar regular schedule. The DRBC has a Water Quality Advisory Committee that meets periodically, is open to the public and reviews proposed changes to standards. States and the public are invited to comment on any proposed changes to DRBC water quality standards during the rulemaking process.<sup>1</sup>

The National Pollutant Discharge Elimination System (NPDES) program in the Delaware River Basin has matured to the point where most of the permits, besides stormwater permits, are renewals for existing permittees. Because most renewals do not include substantial changes to the facility or the discharge, they do not typically generate much public interest. Staff at the state agencies noted that most of the public activity around new permits is for small wastewater facilities and municipal stormwater permits.

## Opportunities: Public Engagement

- Improve access to basinwide data
- Coordinate public review of changes to water quality standards
- Fund increased DRBC coordinating role
- Develop education/training on public involvement in water programs

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<sup>1</sup>Phone interview, John Yagacic, Delaware River Basin Commission, September 28, 2016.

## 2. PROTECT HIGH QUALITY

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The Clean Water Act requires that each state develop its own water quality standards. In doing so, the state must develop an antidegradation policy and implementation procedures to protect existing uses, high quality and outstanding waters.

The DRBC developed a Special Protection Waters (SPW) program to protect the high water quality of the Delaware River from degradation. The entire non-tidal mainstem has been designated either Outstanding Basin Waters or Significant Resource Waters.

All four basin states also have a process for designating the most outstanding waters in their state. Delaware is the only state that has not exercised that process. The states vary in their requirements for designation, but general categories include waters with specifically defined high quality, waters of ecological or recreational significance, waters in the federal or state wild and scenic program, and waters in state or national parks. The states also vary in their levels of protection once waters are designated as high quality, exceptional or outstanding. These protections are technically supposed to be triggered when a new or increased discharge is proposed that has the potential to degrade designated or qualifying waters. Practically, if it happens, antidegradation is triggered when a permit is sought. In all state and DRBC procedures, there is supposed to be an assessment of necessity of the activity in the proposed location (in the form of an alternatives analysis) as well as an evaluation of the social and economic importance of the activity.

River Network found that the antidegradation process has not been consistently implemented across the states, leaving the Delaware River vulnerable to degradation. Indeed, it does not appear to be implemented in New York at all and in Delaware more than a few times in almost three decades.<sup>2</sup> Coordination of the implementation of the discharge permit programs between the states and DRBC has increased and improved across the basin as administrative agreements have been developed. While all discharges in the mainstem have to meet the requirements of SPW, DRBC does not get involved in the implementation of state antidegradation procedures..<sup>3</sup> New Jersey and New York are piloting a “One Permit” combined discharge permit process with DRBC that may result in greater sharing of data and consultation about preventing degradation.

### Opportunities: High Quality

- Increase communication and coordination about protection across jurisdictions
- Standardize high quality and exceptional/outstanding designations
- Develop education/training on SPW and antidegradation

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<sup>2</sup>Phone interview, John Defriesce, Delaware Department of Natural Resources and Environmental Control, February 25, 2016.

<sup>3</sup>Phone interview, Dave Kovachs, Delaware River Basin Commission, January 11, 2017.

### 3. PROTECT DRINKING WATER

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More than 15 million people rely on the Delaware River Basin for drinking water. There are 38 large public water supply systems in the basin, which represent 80% of the total public water supply withdrawals. The combination of home domestic wells (114 million gallons per day (MGD)) and surface and groundwater public supply withdrawals (863 MGD) result in 13% of total daily water use in the Delaware River Basin.<sup>4</sup>

Because of this dependence on the watershed for one of the most sensitive uses, River Network decided to examine how well states document and make available delineated sourcewater areas, wellhead recharge and protection areas, and drinking water intakes and whether, and to what extent, drinking water uses are considered in regulatory decisions.

River Network examined sourcewater protection across the four basin states. Each state provides GIS layers, however, New Jersey and Delaware make the best mapping of sourcewater and wellhead protection areas available to the public.

Each state as well as the DRBC has developed at least one use category intended to protect the quality needed for potable water uses. All jurisdictions appear to apply the potable water use category widely, if not to almost all waters in the state.

DRBC does not have a source water protection program, however, they are responsible for preventing salt water intrusion into the Philadelphia-area drinking water intakes by requiring sufficient flow at Trenton. In addition, water supply is one of the stated criteria for assigning a Special Protection Waters designation. Recently, the Commission has been asked to get more involved in basinwide sourcewater protection.<sup>5</sup>

The Clean Water Act is not considered as the primary tool for protection of drinking water resources, however, the Clean Water Act requires designation of uses of surface waters, including public water supplies and other potable uses, and those uses must be (a) protected by water quality criteria and NPDES permit limits, (b) included in the Integrated Report which tracks use support and impairments and included in considerations when Total Maximum Daily Loads are written and implemented.

#### Opportunities: Drinking Water

- Map sourcewater areas across basin
- Track water supply impairments basinwide
- Coordinate protection of vulnerable areas
- Develop education/training on CWA tools to protect drinking water

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<sup>4</sup>Sayers, D.A., T.K. Barr. "Chapter2 – Water Quantity" in the Technical Report for the Delaware Estuary and Basin. Partnership for the Delaware Estuary. PDE Report No. 12-01. June 2012. Pp. 48-62, <http://www.state.nj.us/drbc/library/documents/TREB-PDE2012/Ch2-water-quantity.pdf>

<sup>5</sup>Phone interview, Bill Muszynski, Delaware River Basin Commission, May 22, 2016.

## 4. PREVENT THERMAL IMPACTS

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Throughout the basin, there are uses that are directly sensitive to higher temperatures (e.g., aquatic life) or indirectly to the impacts of higher temperatures such as bacteria or algal growth (e.g., public water supplies, recreation). The need to protect these uses provides a good reason to set protective standards, monitor status and trends, and incorporate standards into permits and restoration plans.

The cold water in the Upper Delaware, below the drinking water reservoirs for New York City, for example, supports a blue-ribbon trout fishery that draws scores of sport fishing enthusiasts each year who spend \$21 million annually in Pennsylvania, New Jersey, and New York.<sup>6</sup>

River Network examined the state and DRBC temperature standards to compare how desired instream temperatures are defined. Awareness of human-related thermal contributions to the Basin will be an increasingly important component of improving resiliency to climate change.

River Network found that neighboring states along the same stretch of river have different standards, and that each state defines impairment differently. For all states, however, impairment always requires more than one exceedance. DRBC is currently in the process of updating its temperature criteria.<sup>7</sup>

This review did not include a detailed look at how the states address temperature in individual NPDES permits. From what we found, temperature effluent limitations are not common in the Delaware Basin. Further, because it appears that there are no TMDLs that explicitly address temperature in the basin, it was difficult to identify, not to mention compare, the regulatory approaches to temperature impairments across the basin.

### Opportunities: Thermal Impacts

- Examine different temperature criteria
- Map temperature impairments
- Summarize existing temperature monitoring
- Improve basinwide understanding of thermal impacts

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<sup>6</sup>[TU.org](http://TU.org)

<sup>7</sup>Phone interview, Communication with John Yagecic, Delaware River Basin Commission/DRBC, September 28, 2016.

## 5. PROTECT WETLANDS AND RIPARIAN AREAS

The Clean Water Act, Section 404 and the Rivers and Harbors Act, Section 10, require permits for activities that involve dredging or filling and putting structures in wetlands or anywhere in waters of the U.S. The authority for these permits is primarily with the U.S. Army Corps of Engineers (Corps), however, the state of New Jersey has assumed authority for most of the 404 program within its boundaries from the Corps. The other basin states have also developed their own programs to protect wetlands and limit activities that alter streams below the threshold for the Clean Water Act permits, however, Delaware's program only applies to tidal wetlands.

The Philadelphia District of the Corps lists all individual permits on their website. These permits have included utility projects (including pipelines), maintenance dredging, marinas and docks. Staff noted that they only occasionally get requests for a public hearing during the permit review process, and most permits do not attract many comments. Larger projects and Nationwide Permits (general permits drafted once every five years at the national level), tend to attract comments, particularly from groups like the Delaware Riverkeeper Network.<sup>8</sup> The New York District retains permit information on its website for two years. In 2012, the most recent information available, there were no individual permits issued in their part of the Delaware basin.<sup>9</sup>

Because of the varying approaches to wetland and aquatic resource management in each state and the involvement of two districts of the US Army Corps of Engineers (USACE) and two regions of the Environmental Protection Agency, it is difficult to track how management decisions are made in the basin and to compare management approaches across governmental agencies. This management matrix makes it difficult to assess cumulative impacts of the various permitting processes that affect wetlands and other aquatic resources in the basin.

Another section of the Clean Water Act, Section 401, provides states and tribes with an opportunity to review and certify federal permits issued within their jurisdiction. A federal agency cannot issue a permit or license for an activity that may result in a discharge (such as the section 404 and 10 permits) until the state or tribe reviews whether the activity will violate its water quality standards (or waives its right to review). The state or tribe can grant certification, grant certification with conditions, deny certification, or waive the need for certification.

None of the states have wetland-specific water quality standards or designated uses. Pennsylvania's antidegradation requirements allow for the designation of wetlands as Exceptional Value Waters<sup>10</sup> and wetlands have been so designated.

From the review conducted, it does not appear that the four states in the basin take full advantage of the Section 401 certification process to protect water quality. Resource constraints are often the primary reason stated for the minimal use of the 401 review. The public can only comment on the state water quality certifications that the state completes. Therefore, if the state does not perform the review, there isn't anything for the public to comment on.

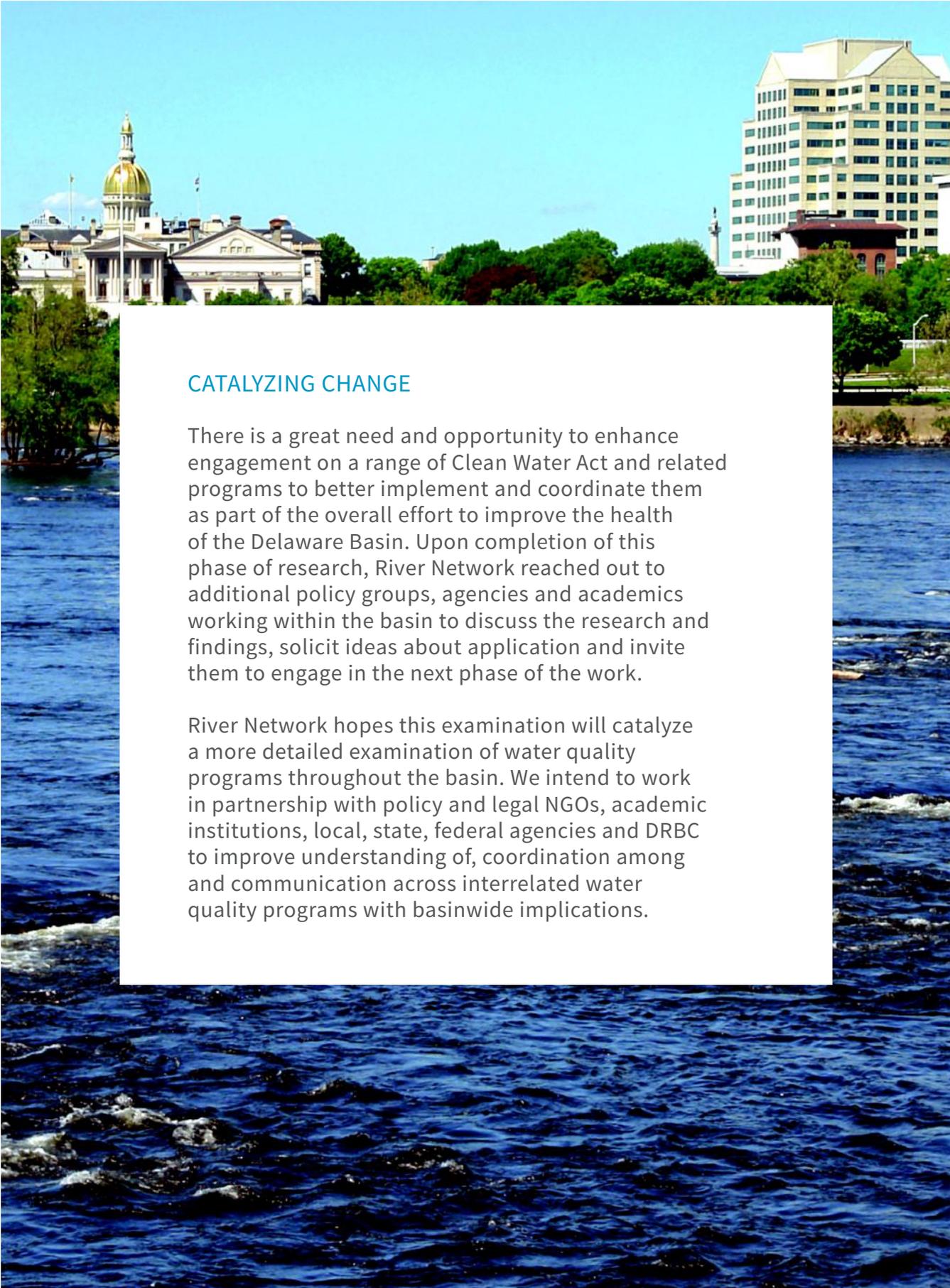
### Opportunities: Wetlands/Riparian Areas

- Examine impacts of the most-used NWP in the basin
- Promote wetland-specific water quality standards
- Improve public understanding and involvement
- Examine patterns of 401 waivers
- Develop education/training on 404/401 review

<sup>8</sup>Communication—Philly Corps person...

<sup>9</sup>See USACE New York District website at <http://www.nan.usace.army.mil/Missions/Regulatory/Permit-Decisions/>.

<sup>10</sup>PA Water Quality Standards, Chapter 93.



## CATALYZING CHANGE

There is a great need and opportunity to enhance engagement on a range of Clean Water Act and related programs to better implement and coordinate them as part of the overall effort to improve the health of the Delaware Basin. Upon completion of this phase of research, River Network reached out to additional policy groups, agencies and academics working within the basin to discuss the research and findings, solicit ideas about application and invite them to engage in the next phase of the work.

River Network hopes this examination will catalyze a more detailed examination of water quality programs throughout the basin. We intend to work in partnership with policy and legal NGOs, academic institutions, local, state, federal agencies and DRBC to improve understanding of, coordination among and communication across interrelated water quality programs with basinwide implications.



# INTRODUCTION

With support from the William Penn Foundation, River Network performed a basinwide comparative analysis of a number of Clean Water Act and Safe Drinking Water Act tools, policies and programs in New York (NY), Pennsylvania (PA), New Jersey (NJ), and Delaware (DE), specifically as they relate to the Delaware River Basin. Our charge was to identify gaps and opportunities for stronger and more effective water programs. We have also examined related programs implemented by the Delaware River Basin Commission (DRBC).

The Delaware River is the longest free-flowing river east of the Mississippi. It spans 330 miles from the confluence of its East and West branches at Hancock, N.Y. to the mouth of the Delaware Bay where it meets the Atlantic Ocean. The basin drains 13,539 square miles; the greatest area drains from Pennsylvania, then New Jersey, New York, and Delaware.<sup>11</sup> This information is relevant when considering the relative regulatory roles of each state. Nearly 150 miles of the basin (3/4 of the non-tidal Delaware River), including three sections of the mainstem and 28 miles of selected tributaries is now included in the National Wild and Scenic Rivers System.<sup>12</sup>

The river supports an incredible diversity of mammals, birds, fish and plants. Uses range from the blue ribbon cold water fishery below the dams in New York and Pennsylvania to drinking water for Trenton and Philadelphia, to the largest freshwater port in the world in the Delaware estuary.

Because the Delaware River flows through four states before reaching the Atlantic Ocean, the water policies developed by each one of those states, as well as by the Delaware River Basin Commission (DRBC), have an impact on the river's health and its ability to support sensitive uses in each and every downstream town and city. The cumulative impacts of different land uses that cause nonpoint source pollution, wastewater and stormwater pollution, and loss of wetlands, riparian habitat and buffers are evident in the degraded health of the river and its inhabitants.

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<sup>11</sup>DRBC website, <http://www.state.nj.us/drbc/basin/>.

<sup>12</sup>DRBC website, Ibid.

There are many large river basins, lakes or bays in the country that similarly drain multiple states. The best known are the Mississippi River, the Chesapeake Bay, the Great Lakes, the Columbia River and the Colorado River. While each of these basins and many more face similar challenges in setting complementary and coordinated standards and managing regulatory programs that affect the same waters, only a handful of basinwide authorities such as the Delaware River Basin Commission have been established to address water quality and quantity issues. Examples of other basins with such authorities include the Ohio River Valley Sanitation Commission (ORSANCO), Great Lakes, Potomac River, Connecticut River, Colorado River, Susquahanna River, Alabama-Coosa River system, and the Appalachian-Chaata-Flint River system. Authorities and regulations were set up to guide development and/or activities in ways that are protective of the health of the waterway. In different ways, these compacts all attempt to coordinate across jurisdictions, assess conditions, regulate activities and enforce requirements.

**TABLE 1: INTERSTATE RIVER BASIN COMPACTS IN THE UNITED STATES<sup>13</sup>**  
(ICWP 2002, Cech 2005, USFWS 2005, GAO 2007, and Abdalla 2010)

ADOPTED	RIVER	STATES	PURPOSE
1783	DELAWARE	NJ, PA	NAVIGATION
1783	POTOMAC	MD, VA	NAVIGATION/FISHING
1922	COLORADO	WY, CO, UT, NM, AZ, NV, CA	WATER QUANTITY
1923	SOUTH PLATTE	NE, CO	WATER QUANTITY
1939	RIO GRANDE	CO, NM, TX	WATER QUANTITY
1940	POTOMAC	MD, PA, VA, DC	WATER QUALITY
1948	OHIO	IL, IN, KY, OH, NY, PA, VA, WV	WATER QUALITY
1949	CONNECTICUT	CT, MA, NH, VT	FLOOD CONTROL
1961	DELAWARE	DE, NJ, NY, PA	WATER DEVELOPMENT
1970	SUSQUEHANNA	MD, NY, PA	QUANTITY/FLOODING
1999	ALABAMA-COOSA	AL, FL, GA	WATER QUANTITY
2008	GREAT LAKES	IL, IN, MI, MN, NY, OH, PA, WI, OT	WATER QUALITY
2013	APALACHICOLA-CHAATA-FLINT	AL, FL, GA	WATER QUANTITY

<sup>13</sup>Kaufman, Gerald, J., Jr. Governance, Policy and Economics of Clean Water in the Delaware River, 2014, p.32.

The creation of the Delaware River Basin Commission (DRBC) in 1961 was indeed a “breakthrough in water resources management,”<sup>14</sup> however, the subsequent passage of current Clean Water Act (1972, 1977, 1981, 1987) and Safe Drinking Water Act (1974, 1986, 1996) statutes and adoption of implementing regulations have resulted in dramatically different requirements across the basin.

The Delaware River Compact and the Flexible Flow Management Program (water supply agreement among the basin states and New York City) instigated and have perpetuated a significant level of communication and coordination among the basin states, the federal government and New York City that is enviable by other medium and large multi-state basins. Nevertheless, a focused mission and limited resources prevent DRBC from playing a stronger standard-setting, permitting, public involvement and compliance role in the basin. Greater awareness of implementation and enforcement differences across the state and federal authorities, can result in stronger advocacy for parity, ideally lifting the bar across the basin regarding consistent protective standards, programs and practices.

This research identifies opportunities within the Delaware River Basin that could have relevance for management of any waterbody that flows between and through multiple jurisdictions.

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<sup>14</sup>DRBC website, <http://www.nj.gov/drbc/about/>



# RESEARCH TOPICS

River Network reached out to numerous groups and individuals involved in policy work in the basin including nonprofits, government agencies, and academics. Through that process we learned a great deal about the basin: the treasures, the pressures and stressors, different organizations' policy priorities and a bit about the politics around resource management and regulation.

We invited individuals from different parts of the basin who were interested in and could be helpful in the development of our research agenda and its application to be part of our advisory group. That advisory group helped guide our prioritization and analysis, and it included: Tracy Carluccio (Delaware Riverkeeper Network), Carol Collier (Academy of Natural Sciences at Drexel University), Liz Deardorf (American Rivers), Brenna Goggin (Delaware Nature Society), Jeff Skelding (Friends of the Upper Delaware River), Kim Biedler and Maddy Urbish (Delaware River Basin Coalition) and Dan Van Abs (Rutgers University).

As River Network reached out across the basin, we asked each person where basinwide water policy coordination was needed most. These conversations help to build and confirm the list of criteria for selection of the project's research topics.

Based on the criteria, see sidebar, River Network focused our basinwide analysis on the following areas and research questions. For each topic, River Network and its contractors started with online research of statutes, regulations and policies. Based on what we could determine from information that is available online, we developed additional research questions and identified appropriate agency staff for phone research. From those phone conversations, we worked to fill gaps and synthesize the findings in the next section.

## Criteria:

- Has the topic been recommended?
- Does the topic have a basin-wide relevance?
- Is the topic timely and/or ripe?
- Is there a good example—inside or outside the basin—that is worth replicating?
- Is there relevance to the Delaware Watershed Initiative?
- Are the politics supportive and/or ripe for change?
- Would this analysis be duplicative of other efforts?
- Would this analysis be useful to NGOs and/or agencies in their efforts?
- Can the topic be tackled sufficiently during our project period?

## RESEARCH TOPICS

More detail on each topic is provided in the following section on Findings and Opportunities.

### 1. IMPROVE PUBLIC ENGAGEMENT

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Every Clean Water Act program requires or allows for public input and comment. As we considered analysis of policy tools across the basin, it became apparent that it would be equally important to find out how each state and the DRBC are soliciting, receiving and responding to comments from the public. Additionally, we wanted to know which groups are participating in those public comment opportunities so that we would know who is likely to be interested in the development of proposals for improvement in coordination among jurisdictions, sharing of basinwide information, development of consistent standards and increased basinwide programmatic implementation.

The Triennial Review is intended to be a periodic review of all components of water quality standards (designated uses, water quality criteria and the antidegradation policy and procedures), and it is supposed to include a public process. Between Triennial Reviews, citizens can petition for changes to particular elements of the water quality standards. The Integrated Report is a biennial submission due from the states to EPA in April of every even year. This report includes two previously separate reports named for the sections of the Clean Water Act that dictate their contents: 305(b) report of state water quality and the 303(d) list of threatened and impaired waters. The public should be given a chance to contribute to, review and comment on the Integrated Report.

National Pollutant Discharge Elimination System (NPDES) permits are required for all point sources of pollution. There is a distinct difference in the opportunities for public comment between individual and general permits. Individual permits typically allow for a 30-45 day comment period on a specific facility's pollutant limits and required best management practices when the permit is initially developed or reviewed and revised every five years. General permits, on the other hand, allow a review every five years of the programmatic requirements for a particular category of activities. In many cases, such as stormwater, the general permit categories are extremely broad and not particularly well-suited for controlling the discharged pollutants.

### Research Questions:

- What are the meaningful opportunities for public review and comment (and to propose changes) across the fundamental Clean Water Act programs (water quality standards, NPDES permits, impaired waters, TMDLs and dredge and fill permits)?
- Which environmental organizations are taking advantage of those opportunities?
- How are groups and the general public informed and/or trained on Clean Water Act programs?

## 2. PROTECT HIGH QUALITY

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The Clean Water Act requires that each state develop its own water quality standards. In doing so, the state must develop an antidegradation policy and implementation procedures to protect existing uses, high quality and outstanding waters. This policy is primarily implemented (or intended to be) through the NPDES program and state water quality certification, though there are other ways that it can be triggered.

The DRBC developed a Special Protection Waters (SPW) program to protect the high water quality of the Delaware River from degradation. The entire non-tidal mainstem has been designated either Outstanding Basin Waters or Significant Resource Waters. This program is implemented through limits in dockets based on models that examine potential impacts of any discharge at Boundary and Interstate Control points. If the model results show that the discharge will not cause a measurable change at the Control Points, the dockets are generally approved with assumptions that they will not violate the requirements of the Special Protection Waters designation.

### Research Questions:

- How has each state developed the core elements of the antidegradation program?
- How do they differ?
- How does the DRBC implement the Special Protection Waters program across the basin?
- Is there any coordination or conflict?

### 3. PROTECT DRINKING WATER

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More than 15 million people rely on the Delaware River Basin for drinking water. There are 38 large public water supply systems in the basin, which represent 80% of the total public water supply withdrawals. Easton and Philadelphia, PA and Trenton, NJ are the primary cities in the basin that provide surface water to residents. The combination of home domestic wells (114 MGD) and surface and groundwater public supply withdrawals (863 MGD) result in 13% of total daily water use in the Delaware River Basin.<sup>15</sup>

Because of this dependence on the watershed for one of the most sensitive uses, we decided to examine how well states document delineated sourcewater areas, wellhead recharge/protection areas and drinking water intakes and whether, and to what extent, drinking water uses are considered in regulatory decisions.

The Clean Water Act is not considered as the primary tool for protection of drinking water resources since the Safe Drinking Water Act requires monitoring of contaminants of concern, public notification of monitoring results and planning for protection of sourcewaters. However, the Clean Water Act requires designation of uses of all surface waters, including public water supplies and other potable uses. Those uses must be protected by water quality criteria and NPDES permit limits, included in the Integrated Report (which tracks use support and impairments) and included in considerations when Total Maximum Daily Loads are written and implemented.

#### Research Questions:

- How has each state addressed sourcewater protection planning requirements under SDWA?
- Do the states or DRBC maintain GIS layers of sourcewater or wellhead protection areas or water supply intakes?
- If so, are they consulted or employed during regulatory decision making?
- Are public water supply intakes or wellfields considered in the implementation of the Clean Water Act? If so, how?

<sup>15</sup>Sayers, D.A., T.K. Barr. "Chapter2 – Water Quantity" in the Technical Report for the Delaware Estuary and Basin. Partnership for the Delaware Estuary. PDE Report No. 12-01. June 2012. Pp. 48-62, <http://www.state.nj.us/drbc/library/documents/TREB-PDE2012/Ch2-water-quantity.pdf>

## 4. PREVENT THERMAL IMPACTS

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Throughout the basin, there are uses that are directly sensitive to higher temperatures (e.g., aquatic life) or indirectly to the impacts of higher temperatures such as bacteria or algal growth (e.g., public water supplies, recreation). The need to protect these uses provides a good reason to set protective standards, monitor status and trends, and incorporate standards into permits and restoration plans.

The cold water in the Upper Delaware, below the drinking water reservoirs for New York City, for example, supports a blue-ribbon trout fishery that draws scores of sport fishing enthusiasts each year who spend \$21 million annually in Pennsylvania, New Jersey, and New York.<sup>16</sup>

Greater awareness of human-related thermal contributions to the Basin is an important component of improving watershed resiliency to the impacts of climate change.

### Research Questions:

- What are the different state and DRBC water quality standards for temperature?
- How are they used in NPDES permit and docket writing?
- Do the states monitor and report temperature impairments? Does DRBC?
- Have any of the states developed temperature TMDLs? How are temperature impairments addressed?

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<sup>16</sup>Trout Unlimited ([www.tu.org](http://www.tu.org)).

## 5. PROTECT WETLANDS AND RIPARIAN AREAS

Across the basin, wetland acreage has declined substantially. The following historic wetland acreages lost were reported by the Association of State Wetland Managers in 1989:

Delaware	54%	New Jersey	39%
New York	60%	Pennsylvania	56% <sup>17</sup>

Given the role wetlands play including filtering freshwater resources and helping to retain floodwaters, these losses were significant then, and are unfortunately worse today. The Partnership for the Delaware Estuary reported in 2016 on coastal wetland loss of an acre per day. Erosion is a leading symptom of that loss, without sufficient accretion to balance the loss. PDE also reported that the remaining coastal wetlands are moderately to severely stressed due to development and sea level rise, among other factors.<sup>18</sup>

The Clean Water Act, Section 404 and Section 10 of the Rivers and Harbors Act require permits for activities that involve dredging and the discharge of dredged or fill material from wetlands or anywhere else into waters of the U.S.

The majority of Section 404 permits are general permits called Nationwide Permits (NWP). There are currently 48 categories of activities that are included in this program. Similar to the differences mentioned above between general and individual NPDES permits, individual 404 permits are specific to a particular project and allow for a much more thorough public review process, whereas, the Nationwide Permits set requirements for broad categories of activity, and are only open for public review and comment once every five years. State programmatic general permits (SPGP) are another version of general permits that are more specific to the state, but they can suffer from the same general permit shortcomings when it comes to public review and comment.

Another section of the Clean Water Act, Section 401, provides states and tribes with an opportunity to review and certify federal permits issued within their jurisdiction. A federal agency cannot issue a permit or license (such as the permits mentioned above) for an activity that may result in a discharge until the state or tribe reviews (or waives its right to review) whether the activity will violate state water quality standards. The state or tribe can grant certification, grant with conditions, deny certification or waive the right to certify. The states have the privilege every five years to certify, condition or deny each of the Corps' Nationwide Permits. The states also have the right to the same review for every individual 404 permit issued.

### Research Questions:

- How is wetland (dredge and fill) permitting carried out by each state and the Corps?
- Does each state exercise its right to review 404 permits for consistency with their water quality standards?
- What are the public opportunities for review and comment in these programs?

<sup>17</sup>Association of State Wetland Managers, Delaware, New Jersey, New York and Pennsylvania State Wetland Program Summaries, August 31, 2015.

<sup>18</sup>Kreeger, Danielle. "Decade of Research Shines Light on Wetland Loss," Partnership for the Delaware Estuary, Estuary News, Winter 2016, Vol. 26, Issue 2, pp4-5.

# FINDINGS AND OPPORTUNITIES

The results of the research reveal increased interest in the Delaware River Basin as well as significant gaps in data and information availability. There is a critical need for greater public involvement in water programs as well as for improved coordination of monitoring of cumulative impacts of activities in the basin.

Many of the programs that we examined are not set up for easy review at a watershed scale, making analysis challenging. The program areas that are reported (or collected) by watershed are water quality standards, impaired waters, and sourcewater protection. On the other hand, the databases of discharge permits, wetland dredge and fill permits, and even the TMDL summaries are more often available only by state. It was therefore difficult to collect information about the effectiveness of the programs in the Delaware River Basin portions of the states or to assess the interaction of the same programs across the states. Where necessary, we compiled the information on a statewide level because it was readily available in that form. This research has identified ways that watershed-based data collection could improve awareness, coordination, and program implementation that would greatly benefit the basin. Each research topic presented some unique opportunities for near-term deeper analysis as well as additional research. There were several opportunities that were similar across the research topics (see sidebar). More detailed findings within each topic follow.

## Opportunities:

- Improve collection of and access to basin-specific data and information
- Coordinate public information, engagement, and comment for standards and permit changes and basinwide project applications (i.e., pipeline crossings)
- Communicate and/or coordinate across jurisdictions regarding changes to standards and permits
- Increase role of EPA regions 2 and 3 in the above
- Increase DRBC's role in the above
- Explore development of DRB-focused virtual law clinic across law schools

## 1. Improve Public Engagement

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The water programs reviewed, state agency staff consulted and database information analyzed all showed a low level of involvement by individuals and watershed organizations in the available public comment processes. The Delaware River Basin Commission’s website lists more than 100 organizations in the basin. The Delaware River Watershed Initiative includes 37 organizations across eight subwatersheds. Yet, the high-level review of public involvement identified only a handful of active organizations, often strong, established basinwide or statewide organizations, many of which are also local affiliates of national organizations such as the Waterkeeper Alliance, The Nature Conservancy, Trout Unlimited, and the Center for Biological Diversity. (Figure 1) River Network knows that there are groups throughout the basin engaging in policy advocacy at local levels, and perhaps informally at the state level as well. We hope to identify and work with as many of these groups as possible in the coming year. Public review of and comment on water policy programs and tools is critical to ensuring that they are fully protecting the uses of the basin. Public comments serve as a check and balance on the agency efforts.

Because this section presents distinct findings related to different CWA tools, the findings are summarized by program or tool.

### 1.A. TRIENNIAL REVIEW, IMPAIRED WATERS, RESTORATION PLANS

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Our research found little to no coordination among states and the DRBC on public input and comment opportunities related to setting or changing water quality standards through the Triennial Review or assessing use support or impairment for the Integrated Report. Though the Triennial Review, the Integrated Report and the 303d list development provide regular opportunities for public involvement, participation across the basin has not been particularly robust—from individuals or environmental organizations. Some of the departments’ websites give good, clear explanations of how the water quality standards are related to the assessments and how permitting programs are designed to help meet the standards that are found in the assessments. Nonetheless, most organizations and individuals lack the necessary scientific training to comment on whether a particular standard is appropriate or whether an assessment method is valid.

### Clean Water Act: Public Involvement

“Public participation in the development, revision, and enforcement of any regulation, standard, effluent limitation, plan, or program established by the Administrator or any State under this chapter shall be provided for, encouraged, and assisted by the Administrator and the States. The Administrator, in cooperation with the States, shall develop and publish regulations specifying minimum guidelines for public participation in such processes.”

(CWA, section 101(e))

Public comment opportunities:

- **TRIENNIAL REVIEW**—regular review of all aspects of the state’s water quality standards
- **PETITION**—between triennial reviews, the public is entitled to petition for changes to water quality standards.
- **IMPAIRED WATERS LIST (CWA, SECTION 303(D))**—input to biennial listing of impaired water segments.
- **INTEGRATED REPORT**—combines biennial reports for Sections 303(d) and 304(b) (health of all waters)
- **TOTAL MAXIMUM DAILY LOADS (TMDLS)**—restoration plans required for impaired waters

**FIGURE 1: CITIZEN ADVOCACY–TRIENNIAL REVIEW AND INTEGRATED REPORT**

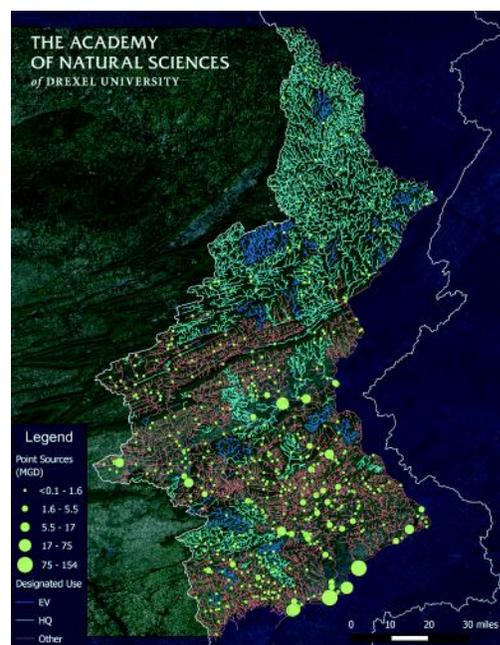
JURISDICTION	TRIENNIAL REVIEW	INTEGRATED REPORT AND 303d LIST			
	DATE OF LAST COMPLETED REVIEW	# OF COMMENTS	CURRENT REPORT	# OF COMMENTS ON METHODS FOR LISTING	# COMMENTS ON REPORT AND LIST
Delaware	2014	0	2014	0	0
New Jersey	2010	N/A	2014	5	Comment period closed march 2016
New York	2008	27	2014	"a couple hundred"	20
Pennsylvania	2013	197	2014	8	6

### 1.B. DISCHARGE PERMITS

For discharges into the Delaware River, states and the DRBC are required to review activities and issue pollution limits for the discharges in National Pollutant Discharge Elimination System (NPDES) permits and dockets, respectively. Based on the Delaware River Basin Compact, administrative agreements were developed between DRBC and each basin state. DRBC reviews projects that are deemed to have a “substantial effect upon water resources of the basin.”<sup>19</sup> There is coordination between states and DRBC in discharge permitting. For example, in the current agreement with Delaware, projects fall in one of six categories that determine who is the lead and how the other jurisdiction offers input.<sup>20</sup> During the last two years, to address the duplication of the state and DRBC permits, New Jersey and New York entered into new agreements with DRBC establishing a “One Permit” pilot process.

Across all four states, staff at the permitting agencies stated that there is not much public involvement in the NPDES permitting process, regardless of the type of facility being permitted. The majority of permits are renewals that have been issued in the past and are now being reviewed and renewed without substantial changes as the five-year permits end. According to agency staff, the most public comment activity around NPDES permitting involves municipal stormwater (MS4) permits and small wastewater treatment facilities.

Across the basin, new communities are being brought into the MS4 permitting process and there has been significant involvement by local watershed organizations in stormwater management. Litigation in Pennsylvania has resulted in the PA Department of Environmental Protection revisiting how it is managing its MS4 program. Several states are developing or have recently adopted



<sup>19</sup>Compact

<sup>20</sup>DE agreement

new general permits for stormwater. Because stormwater is widely seen as one of the most important vectors for pollutants entering rivers and streams, these processes potentially provide important opportunities for implementing standards that will improve water quality across the basin. However, most new MS4 permits are general permits for communities under 100,000 in population, and the public review is only of the overarching requirements for all the MS4s in that category.

Delaware and New Jersey were able to share lists of NPDES permits by watershed, though New Jersey does not provide that on their website. Both New York and Pennsylvania list permits by county and facility on the web. DRBC provides an interactive map of the location and types of the docket that are active or under review. They also provide a list of the Notices of Applications Received (NAR) as well as the dockets themselves through an interactive map on their website.<sup>21</sup> None of the states provide the full permits via the web; they can be obtained through visits to the agency or records request of varying formality.

### 1.C. LAW SCHOOLS IN BASIN

The above high-level review of selected Clean Water Act programs reveals that, in general, there has not been robust engagement in the available public participation processes much beyond a handful of established organizations. There could be several reasons for this lack of participation, including a lack of training about these processes and how to participate effectively, as well as a lack of capacity to participate in these processes on a regular basis. One resource that could help address both of these potential deficiencies is the law school community in the basin. Our discussions with law school professors uncovered a strong interest in providing law students with a wide variety of experiences in how to use their legal skills beyond litigation that could help strengthen watershed organizations in the Delaware River basin.

One overriding theme from the interviews with the law professors was the continued and increased focus on practical course offerings. Another theme was the interest in providing more interdisciplinary opportunities for the law students. Experiential education that includes interdisciplinary opportunities will likely broaden the employment prospects for law graduates while also giving them a more complete understanding of the complexity of many environmental issues. Finally, the professors have engaged in discussions in the past about collaborating across the law schools to provide more clinical opportunities for students interested in environmental and natural resources law, and they appear interested in revisiting those discussions.

## Clean Water Act: Discharge Permits

National Pollutant Discharge Elimination Permits are required for any point source discharges.

40CFR122.1(b)(1)

Opportunities for public input include:

- Before the permit is drafted
- While the permit is being drafted
- After the draft permit is released (typical comment period is 30-45 days)
- Appeal of permit (administratively or in court, depending on state)
- Modification of permit (change in standard or TMDL)

<sup>21</sup>Link to map

## Opportunities: Public Engagement

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- **IMPROVE ACCESS TO BASINWIDE DATA**

Improvement of web-available data at a basin scale could improve citizen involvement and program implementation.

- **COORDINATE PUBLIC REVIEW OF CHANGES TO WATER QUALITY STANDARDS**

Coordinating public review of changes to water quality standards by synchronizing Triennial Review or updates to specific standards and clearly communicating how they will affect activities upstream and downstream on the Delaware River would require the agencies and the Commission to communicate more at the staff level.

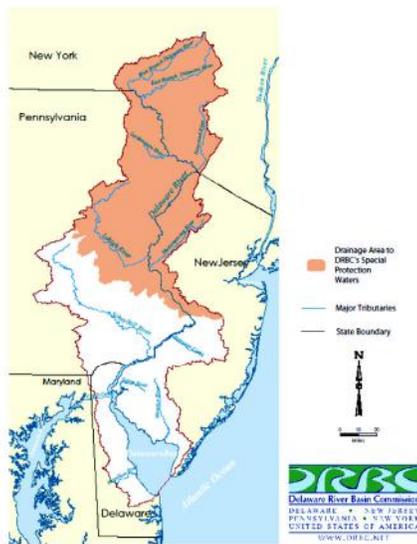
- **FUND INCREASED DRBC COORDINATING ROLE**

The DRBC is designed for basin focus. If the One Permit process can be tested, improved, and replicated, it is likely to provide the platform for greater state and DRBC coordination of standards and assessment as well, since those areas must be reflected in NPDES permits and dockets.

- **DEVELOP EDUCATION/TRAINING ON PUBLIC ENGAGEMENT IN WATER PROGRAMS**

There is a great opportunity for education and training of individuals and organizations regarding civic engagement opportunities as part of Clean Water Act programs across the states and the DRBC programs. We examined the role that the law schools and clinics in the basin could play.

## 2. Protect High Quality



All four basin states have a process for designating the most outstanding waters in their state. Delaware is the only state that has not exercised that process. The states vary in their requirements for designation, but general categories include waters with specifically defined high quality, waters of ecological or recreational significance, waters in the federal or state wild and scenic program, and waters in state or national parks. The DRBC, New Jersey and Pennsylvania also call out water supply as a reason for designating a high quality, outstanding or Special Protection Water. The states also vary in their levels of protection once waters are designated as high quality, exceptional or outstanding. These protections are technically supposed to be triggered when a new or expanded activity is proposed that has the potential to degrade designated or qualifying waters. Practically, if it happens, antidegradation or SPW is triggered when a permit/docket is sought for a new or increased discharge. In all state and DRBC procedures, there is supposed to be an assessment of necessity of the activity in the proposed location, which is in the form of an alternatives analysis, as well as an evaluation of the social and economic importance of the activity.

River Network found that the antidegradation process has not been consistently implemented across the states, leaving the Delaware River vulnerable to degradation. Implementation is almost non-existent in New York and Delaware; in New Jersey and Pennsylvania it varies depending on activities, and it is mostly focused on wastewater discharge.

In New Jersey, once designated ONRW, nondegradation waters shall not be subject to any manmade wastewater discharges and the Department shall not approve any activity that might cause

### Clean Water Act: Antidegradation Policy

The Antidegradation Policy is part of every state's water quality standards, along with designated uses and water quality criteria.

Three levels or "tiers" of protection:

1. Protect existing uses—any uses on or after 11/28/75
2. Maintain "High Quality Waters"—meet or exceed criteria
3. Protect "Outstanding National Resource Waters"—ecological and recreational significance  
40CFR131.12

a lowering of existing surface water quality. In Pennsylvania, all proposed new or expanding discharges into designated Exceptional Value waters (their ONRW category), as well as High Quality waters, must perform the alternatives analysis and choose the non-discharge alternative if one exists. If not, in the High Quality waters, but not in the EV waters, a socioeconomic test can justify the discharge. This protection should have implications for both NPDES and 404 wetland permitting processes. With DRBC, no measurable change is allowed in the SPW-designated area, with some caveats including allowed mixing zones. Direct discharges are, however, discouraged.

There is no indication of any antidegradation coordination across state lines. Between states and DRBC, coordination appears to be focused on proposed permits and dockets. Approval of any docket requires at least three out of five votes (four basin states and Corps). The approval process therefore does result in sharing of information on discharges. Because the SPW-designated area does not include the state of Delaware, and Delaware hasn't designated outstanding waters, there is not the same need for coordination between DRBC Special Protection Waters and Delaware antidegradation procedures unless activities docketed upstream will potentially lead to degradation of higher quality conditions of the estuary. In reality, any upstream activity can have an impact on the estuary.

**FIGURE 2: ANTIDegradation AND SPECIAL PROTECTION WATERS PROGRAMS**

JURISDICTION	NOTABLE FINDING	HIGHEST CATEGORY	PUBLIC NOMINATION	LEVEL OF PROTECTION	EXPLICIT DE MINIMIS	TRIGGER	IMPLEMENTATION
Delaware	Came up 1–2 times in 28 yrs	ONRW (none designated); Exc. Rec/Eco Significance (ERES)		May not lower existing quality	5%	New or increased permanent discharge	Tier 2–alternatives analysis & SEJ discussed; trading allowed
New Jersey	Tier 1–existing quality can be lowered w/alt analysis and SEJ	Freshwater1 (FW1), Pinelands (PL); can be due to exceptional water supply	Yes for Tier 2 (C1, Exc. ecology, supply, rec, fisheries)	No manmade discharges or activities that lower existing quality	No	New or increased discharge	Tier 2 (C1)–alt analysis and SEJ;
Pennsylvania	Applies to water withdrawal–must maintain existing uses and/or quality depending on the applicable designation	Exceptional Value	Yes, changing use	No lowering of existing quality	No, 2- part test: pollutant & other factors to determine impact	New or increased discharge	Special modules for EV/HQ; Tier 2 (HQ)–alt analysis, non-degrading must be chosen, if none–only then SEJ
New York	No tiers established	ONRW					Upgrading uses, WQBELs, SEQOR
DRBC	Doesn't address tributaries; grandfathered existing load not dischargers; NPS included	Outstanding Basin Waters	No	No measurable change to existing quality at BCP/ICP	No	New or increased discharge	Driven by BCP and ICP monitoring; treated as required, then dispersed; SRW–mixing zones allowed

## Opportunities: High Quality

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- **INCREASE COMMUNICATION AND COORDINATION ABOUT PROTECTION ACROSS JURISDICTIONS**

Increase coordination among states and DRBC, especially related to cumulative impacts to high quality and outstanding waters. Coordinate alternatives analyses and socio-economic tests across states. Use DRBC monitoring to help states define existing uses, higher quality and outstanding waters. Use state antidegradation procedures to better enforce Special Protection Waters.

- **STANDARDIZE DESIGNATIONS**

Standardize higher quality and outstanding/exceptional waters designations within the basin, if not entirely across the basin states.

- **DEVELOP EDUCATION AND TRAINING ON SPW AND ANTIDEGRADATION**

Inform more groups (and even state agency personnel) in the basin about these programs and their interaction through basinwide training lead by EPA, DBC or a coalition of NGOs.

### 3. Protect Drinking Water

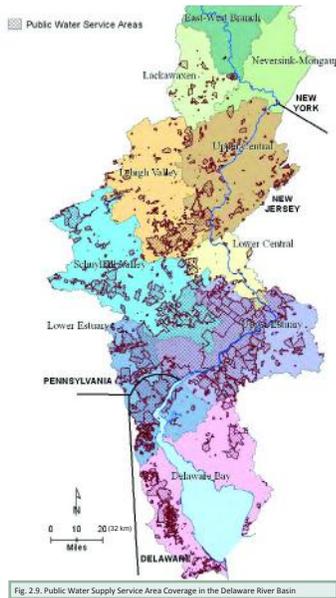


Fig. 2.9. Public Water Supply Service Area Coverage in the Delaware River Basin

River Network examined sourcewater protection across the four basin states. It appears that New Jersey and Delaware have the best mapping of sourcewater areas and wellhead protection areas.

The following websites provide the state GIS sourcewater information: **DELAWARE** <http://delawaresourcewater.org/mapping/>  
**PENNSYLVANIA** <http://www.depgis.state.pa.us/emappa/>  
**NEW JERSEY** <http://njogis.newjersey.opendata.arcgis.com/datasets?q=source%20water%20protection%20areas>  
**NEW YORK** <http://gis.ny.gov/gisdata/>

DRBC does not have a source water protection program, however, they are responsible for preventing salt water intrusion into the Philadelphia-area drinking water intakes by requiring sufficient flow at Trenton. In addition, water supply is one of the stated criteria for assigning a Special Protection Waters designation. Recently, the Commission has been asked to get more involved in basinwide sourcewater protection.<sup>22</sup>

Each state and DRBC has developed at least one use category associated with potable water uses. In the cases of Pennsylvania, New Jersey and DRBC, designations explicitly mention public water supply “after treatment.”<sup>23</sup> That is important because it emphasizes that raw water is not protected by water quality criteria and permit limits for drinking before treatment. Pennsylvania appears to assign public supply designation to all waters except the Delaware Estuary. New Jersey assigns it to all fresh surface waters, and New York assigns it to several classes of surface and ground water,

### Safe Drinking Water Act: Sourcewater Protection

Drinking water standards: US EPA specifies the maximum permissible level of a contaminant in drinking water which is delivered to any user of a public water system (maximum contaminant level or MCL) for pollutants that threaten public water supplies. These levels are supposed to be updated every five years.

Section 1412

Sourcewater Assessments: By 2002, every state had conducted an assessment of its sources of drinking water (rivers, lakes, reservoirs, springs, and ground water wells) to identify significant potential sources of contamination and to determine how susceptible the sources are to these threats. There is no requirement to review and revise these plans regularly, but many states do.

Section 1453

<sup>22</sup>Conversation with Bill Musinsky, 5/x/16.

<sup>23</sup>NJ and DRBC designated uses.

including saline groundwater. DRBC assigns drinking water use to all zones of the mainstem, not just at the point of intake. Many, if not most waters in each state are designated for drinking water uses, however, it is not clear whether those uses are adequately considered when any upstream discharge or dredge and fill permit is evaluated and granted.

New Jersey, Pennsylvania and DRBC all include water supply uses among the reasons for designating outstanding or Special Protection Waters.

River Network examined the Integrated Reports to determine whether water supply uses were described as fully supported in the Delaware River basin. New Jersey lists three sections of the Delaware River mainstem as not supporting water supply use, but the other three states did not summarize use support by basin. Instead, stream miles and lake or reservoir acreage that did not fully support water supply uses were summarized. Many parameters can be associated with the impairments of water supply use, and without the explicit connection, we were unable to determine whether any mainstem sections or tributaries were unable to support water supply uses in the other states. It would take more detailed research into all TMDLs for parameters that can affect drinking water quality to see whether the states explicitly considered water supply in setting the targets for any TMDLs. This analysis did not allow for that level of examination.

## Opportunities: Drinking Water

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- **MAP SOURCEWATER AREAS ACROSS BASIN**

Educate agency staff and public through maps about sourcewater protection areas and wellhead protection/recharge areas.

- **TRACK WATER SUPPLY IMPAIRMENTS BASINWIDE**

Track impairments of potable water supply uses in the Delaware basin within each state and across the states (potentially by DRBC).

- **COORDINATE PROTECTION OF VULNERABLE AREAS**

Coordinate protection of drinking water supplies across the basin. Focus on the most impactful activities and most vulnerable areas (i.e., greatest population dependent on river or connected groundwater)

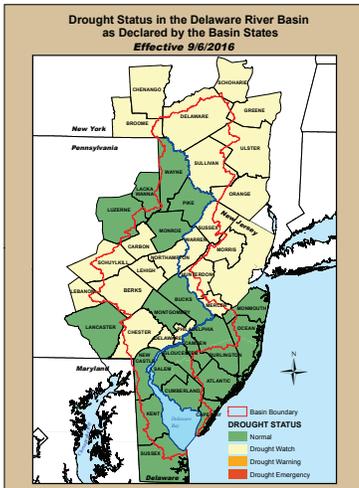
- **DEVELOP EDUCATION/TRAINING ON CWA TOOLS TO PROTECT DRINKING WATER**

Educate/train groups (and agency personnel) on CWA tools that can and should play a stronger role in sourcewater/public water supply protection (e.g., standards, Integrated Report, NPDES program, TMDL).

**FIGURE 3: DRINKING WATER PROTECTIONS**

JURISDICTION	PUBLIC WATER SUPPLY	APPLIES TO	CRITERIA	NPDES	303D LISTING?	TMDLS?
Delaware	Yes	Section 1.2 states, "designated uses for each segment shall be paramount in determining the required stream criteria". The definition of "designated uses" indicates that a use could apply to an entire stream or a segment.	DE standards list acute and chronic concentration limits for freshwater sources. There is also a set of criteria for human health, which is broken down into systemic toxicants and human carcinogens.			
Pennsylvania	Yes, Potable Water Supply, after conventional treatment	To all waters unless listed otherwise in 93.9a-93.9z; deleted from Delaware Estuary	93.6; no toxics in toxic amounts; free froms; bacteria (less protective than for swimming), chloride, color, fluoride, iron, manganese, nitrite, phenolics, sulfate, TDS		2014 statewide #: 71 stream miles; 635 lake acres	2014, p.40, statewide #: 12 stream miles (overlapping, not clear), 10 different sources; 49 stream miles restored (need clarity)
New Jersey	Yes	All fresh surface waters (Gigi); Pinelands and FW2 (why not FW1?)	Health based numerical criteria based on drinking 2L of water/day, post-treatment.	SWQ policy–prohibits discharging certain biochemical pollutants 500 feet upstream or downstream of intake.		
New York	Yes, Potable Waters/Source of water supply	Class A fresh surface waters, Class GA fresh groundwater, Class GSA saline groundwater, AA-Special (AA-S) fresh surface waters, Class A-Special (A-S) fresh surface waters, Class N fresh surface waters, Class AA fresh surface waters.	Health (Water Source) Values; most stringent in sections 702.3 through 702.7			
DRBC	Yes	All zones (1A, 1B, 1C, 1D, 1E, E, W1, W2, N1, N2, C1, C2, C3, C4, C5, C6, C7, and C8) Segments/zones aren't based on drinking water intakes; distinguished by landmarks and river miles.	Water quality criteria is different for each zone. Maximum contaminant levels are applied as human health stream quality standards.			

## 4. Prevent Thermal Impact



River Network examined the state and DRBC temperature standards and Integrated Reports to compare how desired instream temperatures are defined and monitored for compliance, and how problems are addressed.

River Network found that neighboring states along the same stretch of river have different temperature standards, and that each state defines impairment differently. For all states, however, impairment always requires more than one exceedance. For instance,

violations, sometimes up to 10% of the samples, may not trigger the listing of the waterway on the impaired waters list(303d).

Temperature is principally involved in defining whether aquatic life uses are supported. New Jersey requires temperature, dissolved oxygen and biological data to determine whether trout (which are cold water fish) are supported. The state requires only biological data to determine general aquatic life support. Pennsylvania meanwhile links elevated water temperature with viral and bacterial infections in fish populations.

Given the nature of this high-level review, a more detailed look at how the states address temperature in individual NPDES permits was not possible, but from what we found, temperature effluent limitations are not common in the Delaware Basin. Further, because it appears that there are no TMDLs that address temperature for the whole basin, it was difficult to compare the regulatory approaches to solve temperature impairments across the basin.

**FIGURE 4: TEMPERATURE WATER QUALITY CRITERIA AND IMPAIRMENTS**

JURISDICTION	TEMP. MAXIMA	TEMP. IMPAIRED WATERS		TEMP. TMDLS- STATE/DRB
		STATEWIDE	DRB	
Delaware	<5 deg above natural; max mean 82; 88 in freshwater	5	0	1/0
New Jersey	88; 82.4 7-day avg in non-trout waters	53	25	1/0
New York	90 in non-trout waters	1	0	0/0
Pennsylvania	87 in non-trout waters Jul/ Aug	18	2	1/0
DRBC	Trout: <5 deg increase up to 50; <2 deg increase between 50-58; nothing allowed >58 Non-tidal: .5 increase; not >87 Zones 2,3,4: <86 or 5 deg > 24 hr avg 1961-66			

## Clean Water Act: Water Quality Standards

States are required to develop water quality standards. Water quality standards have three components:

- Designated uses
- Water quality criteria
- Antidegradation policy and procedures

Temperature water quality criteria must be developed to protect any designated uses, however they are usually focused on protecting aquatic life uses.

Every two years, states are required to report to Congress on whether designated uses are supported (305(b)) and water quality criteria are being met (303(d)) list. 40CFR130.7(b)

When particular criteria are not being met, discharge permits are not allowed to “cause or contribute” to those impairments. 40CFR122.4(i)

In addition, states are required to develop restoration plans (TMDLs) to address the problems. 40CFR130.7(c)

## Opportunities: Thermal Impacts

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- **EXAMINE DIFFERENT TEMPERATURE CRITERIA**

Examine differences and reasoning between the states in terms of a maximum freshwater temperature; could inconsistencies result in stress on aquatic life? Coordinate standard-setting throughout basin.

- **MAP TEMPERATURE IMPAIRMENTS**

Track impairments of potable water supply uses in the Delaware basin within each state and across the states (potentially by DRBC).

- **SUMMARIZE EXISTING TEMPERATURE MONITORING**

Summarize all the temperature monitoring within the basin including citizen monitoring. Increase cooperation across states and with DRBC. Examine the benefits of having local watershed groups more involved in monitoring temperature.

- **IMPROVE BASINWIDE UNDERSTANDING OF THERMAL IMPACTS**

Improve basinwide understanding of thermal impacts and of the available policy approaches. Connect this awareness to those working on climate change resiliency.

- **APPLY TO THREATS TO RIVER (E.G., PIPELINES)**

Examine temperature standards differences between states where the pipelines cross. Determine whether there will be temperature impacts from the existing/proposed pipelines. Analyze whether the temperatures in those locations currently meet standards and how (if at all) states, DRBC and the Corps are taking that information into account in 404/401 and construction stormwater NPDES permits.

## 5. Protect Wetlands and Riparian Areas

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It is difficult to track how management decisions are made in the basin and to compare management approaches across governmental agencies because of the varying approaches to wetland and riparian area management in each state and the roles of two districts of the US Army Corps of Engineers (Corps) and two regions of the Environmental Protection Agency. This complex management scheme also makes it difficult to encourage meaningful public involvement or to assess cumulative impacts of the various permitting processes that affect wetlands and other aquatic resources in the basin.

### 5.A. DREDGE AND FILL PERMITS (A.K.A. WETLAND PERMITS)

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In the Delaware Basin, the authority for permits authorized under section 404 of the Clean Water Act and section 10 of the Rivers and Harbors Act rests in the Corps and the state of New Jersey, which is one of only two states in the country that has assumed most of the program from the Corps. The other basin states have also developed their own programs to protect different sizes and types of wetlands and riparian areas.

State programmatic general permits are employed in Delaware and Pennsylvania.

The Corps' Philadelphia district boundaries follow the basin boundaries in New Jersey, Pennsylvania, and Delaware. The New York district manages two counties in New York state as well as one county and parts of two others in New Jersey that fall within the Delaware River Basin.

In 2015, the Philadelphia District reports that it issued 50 individual 404 permits for utility projects (including pipelines), maintenance dredging, marinas and docks. These permits are all listed on their website. There was only an occasional request for a public hearing, and there weren't a lot of comments on the projects. The larger projects, including dredging and pipeline projects, attracted the most public interest and comments. In addition, they do get comments on the Nationwide Permits, particularly from groups like the Delaware Riverkeeper.

The New York District retains permit information on its website for two years. In 2012, the most recent information available, there were no individual permits for dredging or discharge of dredge and fill material issued in their part of the Delaware basin.<sup>24</sup>



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<sup>24</sup>See USACE New York District website at <http://www.nan.usace.army.mil/Missions/Regulatory/Permit-Decisions/>.

New Jersey's wetland program is handled through regional offices. In the northern region, where the biggest impacts to wetlands have been from utility gas lines and construction of roads and bridges, NJDEP has received comments on such projects from Delaware Riverkeeper Network (DRN) and Sierra Club. The change in the definition of waters of the U.S. has resulted in more projects in headwaters and isolated wetlands now falling under NJ general permits.<sup>25</sup> In the southwest region, where the impacts are in more industrial and commercial areas, more than 90 percent of the wetland impacts fall under general permits. NJDEP has not received many comments beyond those of DRN, except on large dredging projects.<sup>26</sup> The program requires buffers from 50-300 feet around wetlands. Exceptional resource value wetlands (discharging to trout waters or habitat for endangered species) receive a 150 foot buffer, unless it is also a Category 1 water, which then requires a 300 foot buffer around and upstream within the HUC 14 watershed.<sup>27</sup> Impacts to threatened and endangered species or habitat triggers review by U.S. Fish and Wildlife Service whether the Corps or NJDEP is permitting. NJDEP is now pre-screening those additional reviews due to staff reductions at USFWS.

Delaware's state program requires a permit for activities in tidal wetlands and large freshwater wetlands of 400 acres or more, but it does not cover smaller wetlands. Delaware is the only state without a non-tidal wetland law that protects for smaller wetlands, which arguably suffer most cumulative impacts. Wetlands are delineated by maps that form the basis of all regulatory decisions. Delaware operates under two state programmatic general permits with the Corps, as well as being subject to Nationwide Permits. DNREC staff indicated that most developers design around the need for an individual wetland permit so their activities fall under NWP and that development pressure in the state has increased substantially in the last several years. As a result, the state does not have a good sense of the cumulative impacts from most of this activity.<sup>28</sup>

Wetland and waterways permitting in Pennsylvania is managed through a Corps-issued State Programmatic General Permit to reduce duplication. The joint permitting process requires only one permit application to the state agency for wetland impacts of 1 acre or 250 feet of stream frontage or less. The applications are then reviewed to determine whether the state, or both the state and Corps, review the project.<sup>29</sup> An activity requiring a federal approval may fall under a State Programmatic General Permit issued by the state, with no additional federal review.<sup>30</sup> Staff noted that they are seeing comments on some permit applications.

## Clean Water Act: Wetlands and Riparian Areas

Clean Water Act Section 404 requires a permit to discharge dredged or fill material into waters of the U.S. The process requires:

- Avoid the impact
- Minimize the impact
- Mitigate the impact

No "unacceptable adverse impact" individually or in combination with impacts of other activities is allowed.

40CFR230

Clean Water Act Section 401 allows states to review all Federal licenses and permits for compliance with state water quality standards. States can certify, certify with conditions, deny or waive their right. The right to review is automatically waived if not exercised within a year.

40CFR121.2

<sup>25</sup>Phone interview, Lou Cattuna, New Jersey Department of Environmental Protection, May 2016.

<sup>26</sup>Phone interview, Ryan Anderson, New Jersey Department of Environmental Protection, June 2016.

<sup>27</sup>Association of State Wetland Managers, New Jersey State Wetland Program Summary, August 31, 2015.

<sup>28</sup>Phone interview, Tyler Brown, Delaware Department of Natural Resources and Environmental Control, July 7, 2016.

<sup>29</sup>Association of State Wetland Managers, Pennsylvania State Wetland Program Summary, August 31, 2015.

<sup>30</sup>See also Association of State Wetland Managers, Pennsylvania State Wetland Program Summary, August 31, 2015.

Pennsylvania issues approximately 700 individual permits each year—about 26 percent of which involve wetlands, but the clear majority, about 74 percent involve stream-related activities.<sup>31</sup>

New York’s wetland and aquatic resources are managed through a set of state statutes on freshwater, tidal, and water resource statutes and the state Constitution. Generally, New York has a comprehensive statewide program for all tidal wetlands regardless of size, and freshwater wetlands over 12.4 acres or any smaller wetlands determined to be of unusual local importance.<sup>32</sup> Wetlands are mapped and changes to the maps require an opportunity for landowner review and comment. The Corps regulates additional wetlands, such as those smaller than 12.4 acres.<sup>33</sup> Wetland permitting is handled through regional offices.

**FIGURE 5: STATE WETLAND PROGRAMS & STATE REVIEW OF NATIONWIDE PERMITS**

JURISDICTION	STATE WETLAND PROGRAM	CORPS PERMITS ONLINE	2012 NATIONWIDE PERMITS	401 STATE WATER QUALITY CERTIFICATION
Delaware	Yes, tidal wetlands and large freshwater wetlands (>400 acres)	Phil. District; all individual permits	Certified 401 for most, conditioned some to require individual 401, denied few	Inadequate staff; only review in sensitive areas; not enough info from Corps
New Jersey	Yes, authority for most CWA responsibilities; Freshwater Wetlands Protection Act; defined regional requirements in NJ Pinelands, Hackensack Meadowlands, NJ Highlands 50-300ft buffers	NY District; 2 years available; 2012 most recent	Apply additionally where Corps retains jurisdiction; both programs apply in some places	State surrogate in FWPA; and required where Corps has jurisdiction
New York	Yes, comprehensive statewide program for all tidal wetlands and freshwater wetlands >12.4 acres, or of unusual local importance	Phil. District; All individual permits	Certified 401 for 24, conditioned 9, denied 4	Not that applicable—standards not “habitat-oriented,” wetland program not water quality focused
Pennsylvania	Yes, Dam Safety and Encroachments Act, Clean Streams Law; Corps developed State Programmatic General Permit	NY District; 2 years available; 2012 most recent	SPGP for overlap between Corps and PA jurisdiction; added regional conditions to NWP but not denied any	Included in SPGP, Considers sediment as only pollution threat for these activities

## 5.B. STATE WATER QUALITY CERTIFICATION

Individual permits as well as Nationwide Permits issued by the Corps are subject to state water quality certification under Section 401 of the Clean Water Act. From the initial review conducted, it does not appear that the four states in the basin take full advantage of the Section 401 process to protect water quality. Resource constraints are often the primary reason stated for the minimal use of the 401 review. If the state does not perform the review, there isn’t anything for the public to comment on. The 401 actions are statewide, rather than by watershed, so we are unable to summarize 401 actions in the Delaware Basin specifically.

<sup>31</sup>Environmental Law Institute, State Wetland Protection Status, Trends, & Model Approaches, A 50-state study, Appendix: State Profiles, Pennsylvania, with support from the U.S. Environmental Protection Agency, 2008.

<sup>32</sup>Association of State Wetland Managers, New York State Wetland Program Summary, August 31, 2015.

<sup>33</sup>See NY DEC webpage at <http://www.dec.ny.gov/lands/4937.html>.

New Jersey's dredge and fill permit rules include 401 "surrogate" procedures that are considered to be equivalent to state water quality certification.<sup>34</sup> These rules also provide a process for the review and certification of the small number of Corps permits that are issued when the activities are exempt from state regulation.

Delaware issued 401 certifications for more than half of the 2012 NWP, denied a few and conditioned others to require individual project 401 review where there had been state or federal determination of critical resources that need protection. Similar to all the other states, Delaware has a joint application that combines their state tidal wetlands review and the state water quality certification. In the non-tidal part of the state, the 401 process is the sole way that activities in wetlands less than 400 acres are regulated by the state. Staff in Delaware stated that they do not have the personnel to review all the activities that fall under the Corps' NWP so they only review the activities that impact environmentally sensitive areas. It was also reported that the state does not receive enough information about the impacts of the Corps' Section 404 NWP to have a good sense of their cumulative impacts on wetlands.<sup>35</sup> The Environmental Law Institute reported that the Delaware 401 process needed to compile better information on existing impacts, including flood risk, in order to be effective.<sup>36</sup>

Pennsylvania also includes the state 401 certification review of Corps permits within its state wetland permitting, though a separate certification can be submitted. Pennsylvania has applied regional conditions to some of the Corps' nationwide permits but does not appear to have denied certification on any of them.<sup>37</sup>

New York reportedly conditioned only nine permits and denied eight permits during the 2012 NWP renewal cycle.

None of the states have wetland-specific designated uses or water quality criteria. All of the states default to open water designated uses. In Pennsylvania, the water quality standards implementation statute provides that the functions and values in the Dam Safety and Encroachments Act serve as the narrative water quality standard that must be protected for wetlands.<sup>38</sup> Pennsylvania's antidegradation requirements allow for the designation of wetlands as Exceptional Value Waters,<sup>39</sup> however, and wetlands have been so designated.

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<sup>34</sup>Environmental Law Institute, State Wetland Protection Status, Trends, & Model Approaches, A 50-state study, Appendix: State Profiles, New Jersey, with support from the U.S. Environmental Protection Agency, 2008.

<sup>35</sup>Id. Association of State Wetland Managers, 401 Certification Program Summary, Delaware, July 2011.

<sup>36</sup>Environmental Law Institute, Delaware Wetland Program Review, August 2010 at 22.

<sup>37</sup>Letter dated June 5, 2012, to William Seib, USACE Baltimore District from Kenneth Murin, PA DEP Chief, Wetlands Division, Encroachments and Training.

<sup>38</sup>Environmental Law Institute, Delaware Wetland Program Review, August 2010; available at <http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Documents/ELI%20Delaware%20Wetland%20Review.pdf>.

<sup>39</sup>PA Water Quality Standards, Chapter 93.

## Opportunities: Wetlands/Riparian Areas

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- **EXAMINE IMPACTS OF THE MOST-USED NWPS IN THE BASIN**

Projects that fall under these permits include, but are not limited to, utility projects (including pipelines), road and bridge building, maintenance dredging, residential and commercial development, marinas and docks. By examining the cumulative impacts of the most common NWPs, greater public and agency attention can be focused on them. In the coming year, regional and state conditions could be placed on them as they will be renewed in March 2017.

- **PROMOTE WETLAND-SPECIFIC WATER QUALITY STANDARDS**

Summarize areas around the country that have developed wetland water quality standards. Pennsylvania has applied its antidegradation program to wetlands and that could be a starting point for the basinwide discussions.

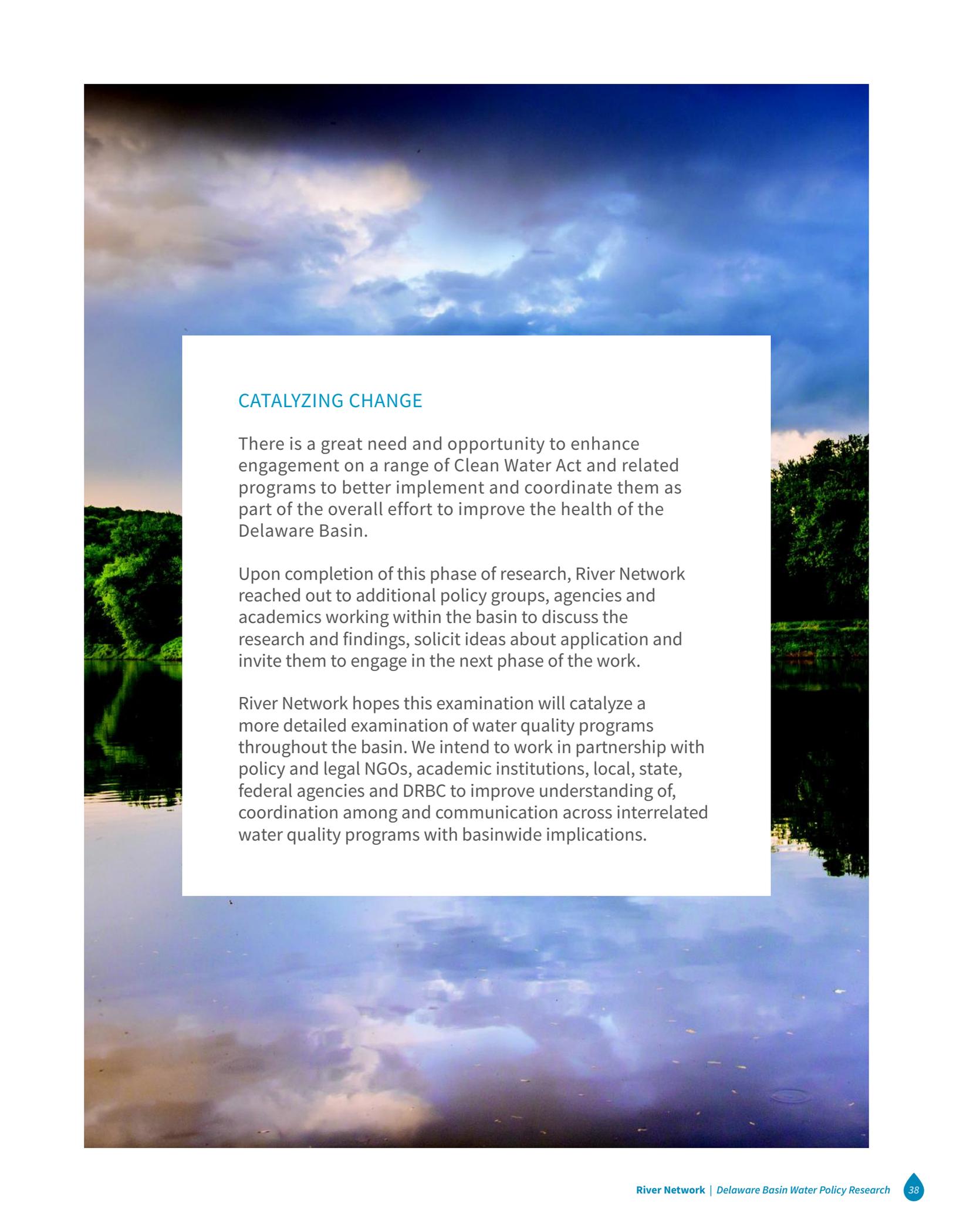
- **IMPROVE PUBLIC UNDERSTANDING AND INVOLVEMENT**

Improve public education and involvement in 404/401 programs at the state level. Train NGOs in basinwide 404 permit review for more coordinated public input around cumulative impacts. (states, NGOs)

- **EXAMINE PATTERNS OF 401 WAIVERS**

Assess consequences of the state waivers of 401 water quality certification of general and individual wetland permits. Further examination can document which states are waiving which NWPs and why. In addition, a closer look at the effectiveness of the NJ equivalent within their permit process would be warranted.

- **DEVELOP EDUCATION/TRAINING ON 404/401 REVIEW**



## CATALYZING CHANGE

There is a great need and opportunity to enhance engagement on a range of Clean Water Act and related programs to better implement and coordinate them as part of the overall effort to improve the health of the Delaware Basin.

Upon completion of this phase of research, River Network reached out to additional policy groups, agencies and academics working within the basin to discuss the research and findings, solicit ideas about application and invite them to engage in the next phase of the work.

River Network hopes this examination will catalyze a more detailed examination of water quality programs throughout the basin. We intend to work in partnership with policy and legal NGOs, academic institutions, local, state, federal agencies and DRBC to improve understanding of, coordination among and communication across interrelated water quality programs with basinwide implications.

## APPENDIX A

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### ACRONYMS AND ABBREVIATIONS

Corps – U.S. Army Corps of Engineers CWA - Clean Water Act

DRB – Delaware River Basin

DRBC - Delaware River Basin Commission

EPA - Environmental Protection Agency

303d list - List of Impaired Waters

MGD - Million Gallons per Day

NPDES - National Pollutant Discharge Elimination System

NWP - Nationwide Permit

ONRW - Outstanding Natural Resource Waters

SPGP – State Programmatic General Permit

SDWA - Safe Drinking Water Act

SEJ - Socioeconomic Justification

SPW - Special Protection Waters

TMDL - Total Maximum Daily Load

### ROLES OF THE PRIMARY AUTHORITIES

#### 1. STATES AND TRIBES

Each state in the basin must develop water quality standards that include designated uses, water quality criteria and antidegradation policies and procedures. In addition, since U.S. Environmental Protection Agency (EPA) has “delegated” the pollutant discharge program authority to each of the basin states, all four of them must also develop and implement discharge permit programs and coordinate with DRBC (check specific requirements for coordination). States must assess and report their impaired waters and develop Total Maximum Daily Loads (restoration plans) for every pollutant/stream segment combination.

Add discussion about tribes in the Delaware basin...  
none have TAS or water quality standards.

New Jersey is one of two states in the nation that has “assumed” the role of permitting for dredge and fill into “waters of the United States.” These permits are commonly known as wetland permits, but in reality, they are more broadly applied to impacts along waterbodies and activities that cross waterbodies as well. The other three basin states generally work with the U.S. Army Corps of Engineers (Corps) in their implementation of this program. New York and Pennsylvania have their own dredge and fill permitting programs as well. These state versions generally address impacts smaller than what triggers the Corps permits. Delaware does not have its own program.

New York, Pennsylvania and Delaware are afforded the “privilege” of reviewing and certifying whether the Corps permits will meet each state’s water quality standards. This privilege is often waived.

#### 2. DELAWARE RIVER BASIN COMMISSION

The Delaware River Basin Commission has a myriad of responsibilities that are outside the scope of this analysis. For our purposes, we focused on the Commission’s development of water quality standards, development and implementation of its project review and permitting/docketing program and coordination with the states on NPDES permitting and development and implementation of the special protection waters program.

As stated on the DRBC website:

The Delaware River Basin Compact (Compact) requires the commission to formulate and adopt a Comprehensive Plan for the immediate and long-range development and uses of the water resources of the basin and a multi-year water resources program consistent with the Comprehensive Plan (Compact, §3.2).<sup>40</sup>

DRBC has recently authorized a voluntary “One Process/One Permit Program” for projects subject to regulatory review by both the DRBC and a basin state. With regard to wastewater discharges, only the states of New Jersey and New York are currently piloting this program.

DRBC has developed a Special Protection Waters program that covers the entire non-tidal Delaware River to prevent degradation in the basin where existing water quality is better than the established water quality standards. The program takes a watershed and cumulative impacts approach and does not allow new or expanded pollutant loadings that will result in any “measurable change in existing water quality... except toward natural conditions.”<sup>41</sup>

### 3. U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

The EPA is charged with reviewing and approving all state water quality standards, developing discharge permit programs (which have been delegated to the four basin states), and working with the U.S. Army Corps of Engineers and the states to review and approve or deny dredge and fill permits.

The EPA is also tasked with interstate oversight. No upstream state is allowed to issue permits that will violate downstream states’ water quality standards.<sup>42</sup>

### 4. U.S. ARMY CORPS OF ENGINEERS (CORPS)

The Corps is the lead agency for the dredge and fill permitting program, and therefore must work with states and EPA to develop and implement the program in New York, Pennsylvania and Delaware. New Jersey has assumed responsibility for the program, and therefore, the Corps plays a lesser supporting role there.

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<sup>40</sup>DRBC Project Review/Permitting website, <http://www.nj.gov/drbc/programs/project/>

<sup>41</sup>DRBC SPW Program website, <http://www.nj.gov/drbc/programs/quality/spw.html>.

<sup>42</sup>Okahoma v. EPA. 908 F.2nd595, 606 (10th Cir.1990). <http://via.library.depaul.edu/cgi/viewcontent.cgi?article=2024&context=law-review>.

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