Building Strong Collaborative Relationships for a Sustainable Water Resources Future:

STATE OF DELAWARE

SUMMARY OF STATE WATER PLANNING

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December 2009

The findings contained in this report are based on the information collected from the literature search and interviews for this initiative and should not be construed as an official Department of the Army position, policy or decision unless so designated by other official documentation.

STATE OF DELAWARE

1. STATE/REGIONAL WATER PLANNING STATUS

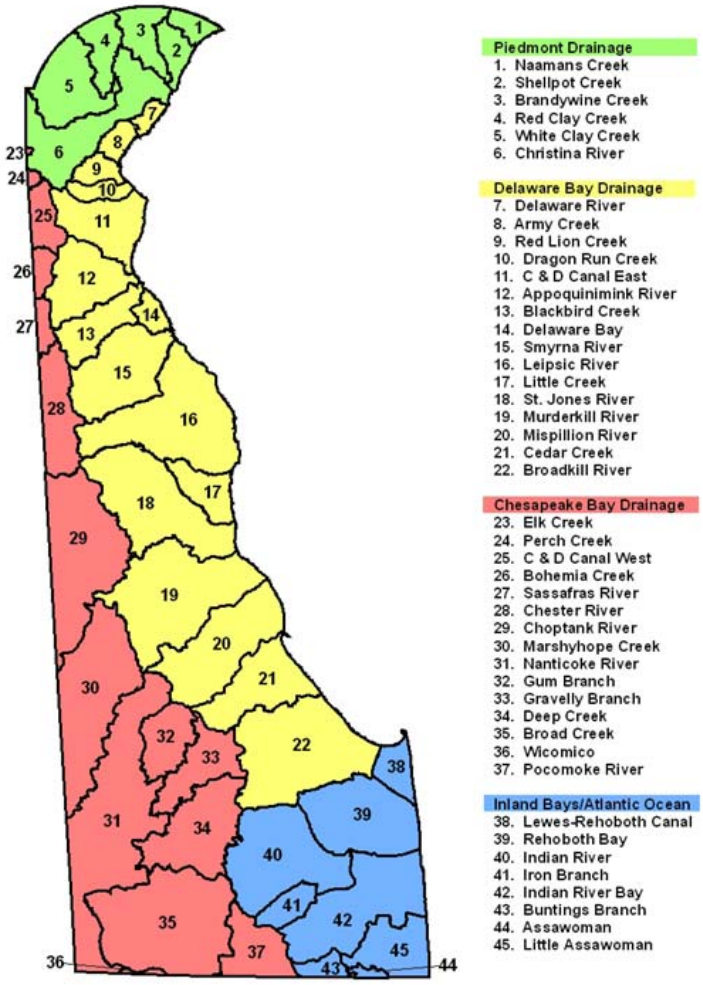
The State of Delaware has not developed a single comprehensive water management plan, but has initiated statewide efforts aimed at two principal issues; water supply and water quality. Additionally, the State is an active participant in the planning activities of the Delaware River Basin Commission (DRBC), which does have a comprehensive water management plan, and whose purview covers half of the state's land area.

There are separate organized efforts at the state level that focus on the issues of water supply, including surface and ground water, and water quality/watershed assessment. Efforts targeted at water supply management are documented in a series of progress reports in response to initiatives taken by the Governor's office in response to major droughts. The water quality efforts have been more focused on assessing the current conditions of the state's four major watersheds, with the intention of developing pollution control plans. Over the past decade, the state has made great strides in solving its water supply issues, as well as improving the quality of its surface waters. Statewide water planning is not currently a priority in Delaware, as the success of their recent efforts to improve water resource management within their state has largely been the result of cooperation between state and local agencies to achieve simple goals that address specific problems facing this small coastal state.

The Governor's Water Supply Task Force was created in response to the drought of 1999, which seriously threatened the public water supply in northern New Castle County. The Task Force was composed of state, regional, and county agencies, and public and investor-owned water suppliers in Northern New Castle County. Their Final Report was released December 2, 1999 which included an analysis of supply and demand and future water supply options for drought conditions. The purpose of the report was to "facilitate discussion and provide the basis for informed decision-making regarding water supplies in Northern New Castle County in particular and Delaware in general" (Source [2]). Also in response to the 1999 drought, the state passed two bills defining roles in water supply planning: HB 549 appointed a Water Coordinator and Water Supply Coordinating Council (WSCC) to secure new water supplies to meet peak demands during drought conditions in Northern New Castle County; SB 370 transferred jurisdiction for water supply service areas from the Delaware Department of Natural Resources and Environmental Control (DNREC) to the Public Service Commission (Source [3]). The WSCC is responsible for the periodic release of progress reports on the status of the implementations of the recommendations in the 1999 Water Supply Task Force Report. On July 6, 2009 Governor Jack Markell signed into law SB 72. It extends the life of the WSCC until 2016. This will allow the WSCC to complete its two remaining tasks, which are to complete water supply plans for Kent County and Sussex County.

State water planning done by the Water Coordinator, WSCC, and DNREC is heavily focused on providing adequate water supply to Delaware residents, industry, and agriculture. Recently, a significant trend affecting the management of water resources in the state has been an increase in development in the coastal region. Most of the state's water supply comes from its abundant groundwater. In order to provide water to the growing population in the coastal region, the state has had to focus more on constructing the infrastructure to purvey the water than developing new sources.

The WRA was also involved in the Delaware River Basin Commission's (DRBC) State of the Basin Report, which was released in December 2008 and tracks the progress of the Delaware River Basin Plan – the DRBC's comprehensive watershed planning and management document. About 1,000 square miles of the Delaware River Basin lies within the State of Delaware, accounting for slightly more than half of the total land area of the state (Source [7] [8]). Approximately 34 percent of the land area of the state is part of the Chesapeake Bay watershed. Figure 1 shows the DNREC state watershed delineations; the green and yellow areas are part of the larger Delaware River watershed, the pink area is part of the larger Chesapeake Bay watershed, and the blue area is the drainage area for Delaware's southern inland bays and the Atlantic Ocean.



The DNREC has implemented a program called "Whole Basin Management" to assess, manage and protect Delaware's natural resources (Source [6]). The approach, as described by DNREC, "encourage the various programs from throughout the Department to work in an integrated manner to assess the different geographic areas of the state defined on the basis of drainage patterns" (Source [6]). The state has been divided into four areas based on drainage basins, and an assessment report has been completed for each area that includes comprehensive information about the status of each watershed. The assessment reports do not lay out planning or management initiatives for the basins, rather they present a wealth of data collected in order to evaluate the current conditions of the basins.

Figure 1. DNREC State Watershed Delineations (Source [6])

2. RESPONSIBLE STATE AGENCIES/REGIONAL ENTITIES

As a result of the 1999 drought and subsequent legislation (HB 459), the Delaware State Water Coordinator and Water Coordinating Council (WSCC) were assigned responsibility for the coordination of water supply planning. The WSCC must document the progress being made toward the objectives set forth in the 1999 Water Supply Task Force Final Report in progress reports periodically submitted to the

Governor of Delaware. The Delaware Department of Natural Resources and Environmental Control (DNREC) is responsible for implementing the federally mandated water quality regulations, as well as developing an overall pollution control strategy for the state, which is in preliminary stages. Individual watersheds subject to TMDLs are in varying stages of pollution control strategy development to implement those TMDLs.

The following descriptions of the various water management and planning roles within the state were taken from the Delaware Governor's 2003 Summary Progress Report, which updated the public on the status of the water supply goals set forth in the 1999 Water Supply Task Force Final Report (Source [3]):

Governor's Office
In addition to being responsible for the executive level of State government, under State law, the Governor has the authority to declare a state of emergency and manage control of water supply and demand during the emergency.

State Water Coordinator
University of Delaware, Institute for Public Administration, Water Resources Agency (WRA)– Provides regional water supply and quality planning assistance to governments in Delaware and the Delaware Valley through the public service, education and research role at the University of Delaware and works cooperatively with the water purveyors to ensure that new supplies are developed on schedule.

Advisory Agencies to the State Water Coordinator
Delaware Department of Natural Resources & Environmental Control (DNREC) – DNREC is custodian of Delaware's water resources and is responsible for regulatory matters pertaining to well drilling, surface-water quality standards, , standards attainment, TMDL development and implementation, fish tissue surveys, biological and wetland surveys, and water allocation. In addition, the Department monitors surface waters for swimmer safety programs during the swimming season under the Beach Act and other programs.

Delaware Geological Survey (DGS)
The DGS conducts geologic and hydrologic research and exploration, and disseminates information through publications and public service. Significant effort is placed on investigation of surface water, ground water, and mineral resources.

Delaware Water Supply Coordinating Council (WSCC)
The Council is comprised of the Governor's Office, several state agencies, municipalities, private companies, and non-governmental organizations. The Council implements new water supplies in northern New Castle County to meet peak demands. It works cooperatively in a public private effort between government and water suppliers to manage water supplies more efficiently in Delaware.

Governor's Drought Advisory Committee (DAC)
The DAC recommends drought policy to the Governor, setting the provisions for declaring a drought warning or drought emergency in Delaware.

The points of contact are listed below along with their respective roles and organizations.

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(Source [1])

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(Source [5])

3. WATER MANAGEMENT VISION AND GOALS

The Water Resources Agency (WRA) at the University of Delaware, who is charged with the role of Water Coordinator for the state, has a published mission as follows (Source [1]):

> *Our mission is to provide technical assistance for water resources and watershed policy and to governments in Delaware and the Delaware Valley through the University's public service, education, and research role. Our program is funded by four governments - the State of Delaware, New Castle County, City of Newark, and City of Wilmington along with grants from public and private sources.*

The DNREC, who is an advisor on water supply issues in the state, and has initiated the watershed assessment programs, has the following published mission statement:

> *The mission of the Department of Natural Resources and Environmental Control is to ensure the wise management, conservation, and enhancement of the State's natural resources, protect public health and the environment, provide quality outdoor recreation, improve the quality of life and educate the public on historic, cultural, and natural resource use, requirements and issues.*

Further, the DNREC has published the following vision statement:

> *The Department envisions a Delaware that offers a healthy environment where people embrace a commitment to the protection, enhancement and enjoyment of the environment in their daily lives; where Delawareans' stewardship of natural resources ensures the sustainability of these resources for the appreciation and enjoyment of future generations; and where people recognize that a healthy environment and a strong economy support one another.*

The Division of Water Resources has developed the following mission statement:

> *The Division of Water Resources manages and protects water resources through various programs by providing technical assistance, laboratory services, regulatory guidance and implementation, educational services; performing applied research; and helping finance water pollution control measures. Our staff serves through the protection of water resources for Delaware's visitors and residents.* [Source: (6)]

The DGS, who is also an advisor to the WRA, cites their mission as follows:

> *The Delaware Geological Survey's mission is, by statute, geologic and hydrologic research and exploration, and dissemination of information through publication and public service.*
>
> *The goal of the Delaware Geological Survey is to provide objective scientific geologic and hydrologic information, advice, and service to our stakeholders. This goal is accomplished by conducting geologic, hydrologic, and geologic hazard investigations and services and by continuing development of our infrastructure through basic data collection and computer-based data management and dissemination programs. The scientific information is used to advise, inform, and educate our stakeholders about the important roles that the earth sciences play in issues regarding water resources, public health, agriculture, economic development, land-use planning, environmental protection, geologic hazards, energy and mineral resources, and recreation.* [Source: (5)]

Collectively, along with the Office of the Governor and the other agencies and organizations that comprise the WSCC, the overarching mission of the water management and planning entities in Delaware is to ensure adequate water supplies to all state water users in times of surplus and drought. Preliminary efforts towards the goal of comprehensive watershed planning are evident; however efforts are currently at the stage of data collection and watershed assessment.

4. SCOPE OF WATER RESOURCES PLANNING AND MANAGEMENT

This section will cover the water supply and water quality/watershed assessment planning activities happening in the State of Delaware. While there is no single, comprehensive plan that documents the strategies used by the state to manage their water resources, the WSCC and DNREC are keeping track of the progress being made toward the planning and management goals that have been set.

Water Supply Planning

The document that initially outlines the current water supply planning and management process in Delaware is the Governor's Water Supply Task Force Final Report released on December 2, 1999 (Source [2]). The Task Force conducted a supply and demand analysis using drought conditions and various assumptions regarding instream flow rules, and published 1998 maximum monthly demand data (Source [2], [11]). The results forecasted supply deficits from 5 to 17 million gallons per day during drought periods when instream flow standards are in effect by the year 2020 (Source [2]), and this conclusion framed the planning and management initiatives recommended by the Task Force in their Final Report.

The proposed strategy for closing the projected gap in supply and demand for the state was a list of future water supply options categorized by implementation timeframe, environmental/ technical cost, and community/policy support. The Task Force also recommended the appointment of the Water Coordinator, which was later determined by the governor to be the WRA at the University of Delaware. The Task Force Final report is essentially an analysis of existing conditions and future shortfalls in Delaware's water supply system accompanied by a list of recommended planning and management initiatives and responsibilities.

The Governor of Delaware endorsed the Water Supply Task Force's Final Report, and as a result the recommendations were implemented. Ten semi-annual reports have been issued by the WSCC from May 2000 to April 2008 that detail the progress made on the recommendations of the Final Report, and provide plans for the future progress of the projects proposed to secure additional water supplies for the state.

In addition to the specific water supply projects, the following objectives were presented in the first progress report, accompanied by a schedule for the implementation of specific projects and initiatives intended to accomplish these objectives.

- *Conduct tests to optimize and expand the interconnections to convey water from suppliers with excess capacity to suppliers in need of additional water to meet peak demands.*
- *Encourage the water providers that currently do not have them to adopt inclining block rates (the more water used, the more one pays) or seasonal water conservation rates as demand side management measures in a manner that does not hinder economic development.*
- *Work with the water purveyors to develop cooperative cost and capacity interconnection agreements.*
- *Advise the DNREC and provide technical input to the recently authorized U.S. Army Corps of Engineers Groundwater Availability Study for Northern New Castle County.*
- *Develop a water quality survey for Hoopes Reservoir.*
- *Develop a chloride-monitoring plan for the tidal White Clay Creek and Christina River to ensure withdrawal of fresh water at the United Water Delaware Stanton Intake during drought.*
- *Develop legislation which would transfer the responsibility for awarding water supply franchise areas from the Delaware DNREC to the Public Service Commission* (Source [4]).

The subsequent progress reports are not state water planning documents, rather they are updates on the progress that the state is making toward achieving the water supply objectives set forth in the 1999 Task Force Report. However, there are several planning initiatives presented in the form of recommendations, all surrounding water supply, including water conservation objectives and detailed drought management planning. The reports do not have a set structure, and there does not appear to be a comprehensive listing of the status of the specific water supply planning goals.

Water Quality Planning and Watershed Assessment

The primary agency responsible for planning and implementing measures to meet water quality regulations is the DNREC. They have divided the state in to four regions, based on major watersheds, and completed watershed assessment reports for each of the four regions (Source [6], Whole Basin Management Program). DNREC has been implementing its most recent version of the Continuing Planning Process for Water Quality Management (1998) since 1998. The driving factor behind developing pollution control strategies is the implementation of TMDLs promulgated under a 1997 consent agreement. The pollutants of concern in the state have been identified as bacteria, nutrients and fish toxins, with an emphasis put on nonpoint sources. The DNREC Division of Water Resources is in the process of developing formal pollution control strategies for each of the four regions, using Tributary Action Teams (voluntary groups of citizens dedicated to helping develop the strategies) to gather data and call on public input and support (Source [6], Division of Water Resources). Examples of pollution reduction methods are given, and the role of each Tributary Action Team is to decide "which approaches would be most effective in its watershed, based on extensive study, comments at citizen forums, advice from experts and discussions at public team meetings" (Source [6], Division of Water Resources). Various subbasins within the state's four watersheds depicted in Figure 1 have adopted pollution control strategies aimed at implementing TMDLs and meeting water quality standards set for local waters.

5. PARTNERSHIPS, STAKEHOLDER, AND PUBLIC INVOLVEMENT

The key partners in the water supply planning process are the Water Resources Agency at the University of Delaware, the Delaware Department of Natural Resources and Environmental Control, the Delaware Geological Survey, and the Office of the Governor of Delaware. The Water Supply Coordinating Council is made up of a large number of various stakeholders, listed below (Source [1]):

- Office of the Governor
- Secretary of the Delaware Department of Natural Resources & Environmental Control (Chair)
- Secretary of the Department of Public Safety
- Secretary of the Delaware Department of Agriculture
- Executive Director of the Public Service Commission
- Director of the Delaware Emergency Management Agency
- Director of the Delaware Geological Survey
- Director of the Delaware Division of Public Health
- Public Advocate
- Executive Director of the Delaware River Basin Commission
- New Castle County Executive
- Artesian Water Company

- City of Newark
- City of Wilmington
- New Castle Municipal Services Commission
- Tidewater Utilities, Inc.
- United Water Delaware
- New Castle County Chamber of Commerce
- Delaware State Chamber of Commerce
- Delaware Nursery and Landscape Association
- Delaware Professional Grounds Management Society
- Delaware State Golf Association
- Delaware Nature Society
- Coalition for Natural Stream Valleys
- New Castle County Civic League
- University of Delaware, Institute for Public Administration - Water Resources Agency
- Kent County
- Sussex County
- Public Water Supply Utility in Sussex County Association of Towns (SCAT)
- Public Water Supply Utility in League of Local Governments, Kent County
- Delaware Rural Water Association
- National Association of Water Companies, Delaware Chapter (not already represented in NCC)
- Local Chamber of Commerce in New Castle County
- Local Chamber of Commerce in Kent County
- Local Chamber of Commerce in Sussex County
- Delaware Farm Bureau
- Center for Inland Bays
- State Fire Marshal

The WSCC, or its subcommittees, has met several times per year since its inception in 2000 and contributes to the periodic progress reports submitted to the Governor of Delaware.

The State Water Coordinator (WRA at the University of Delaware) also contributed a great deal to the State of the Delaware River Basin report released in December 2008. This report supports the Delaware River Basin Commission's Water Resources Plan by providing a comprehensive assessment of the Basin and tracking the progress made toward reaching the goals and objectives set forth by the Plan. While it does not fall into the realm of statewide water planning, Delaware has active participants in the DRBC's planning efforts that provide significant management and oversight to a watershed that covers half of the state's land area.

6. PLAN IMPLEMENTATION STRATEGY

Apart from the responsibility delegated to the State Water Coordinator to facilitate action among associated agencies and water purveyors, there is no formal plan implementation strategy stated in the published WSCC documents on water supply planning and management. Periodic updates and assessments come in the form of the progress reports issued semi-annually by the WSCC to the Governor's office. However, there is no comprehensive listing of the status of the water supply

planning objectives originally set forth by the first progress report in 2000. DNREC is still in the early stages of developing pollution control strategies for the four major basins within Delaware, thus there is no state-wide implementation strategy for water quality improvement planning.

7. OUTCOMES ASSESSMENT PROCESS

As made evident by the WSCC progress reports, Delaware has made a great deal of progress in implementing water management initiatives over the past 10 years, however, there is no defined outcomes assessment process in the state water planning efforts at this time.

8. NEEDS, CHALLENGES AND CRITICAL PRIORITIES - INTERVIEW INSIGHTS

The development and population growth along the Delaware coast was identified as a water resource "hot spot." There has been an increased demand for infrastructure to deliver water and carry wastewater. From a water quality standpoint, the quality of Delaware's surface water is a continuing challenge, as there are still water bodies behind on use attainment.

Climate change is not at the forefront of consideration when the state plans for and manages its water resources. Delaware feels it has more immediately pressing issues to deal with at this time than climate change, such as flooding and water supply.

There is a need for staff and funding at the state level in order for Delaware to adequately manage its water resources. More specifically, they would like to significantly expand their groundwater monitoring network, as groundwater is the primary source of supply for much of the state. Delaware is collaborating with neighboring states and the DRBC in order to achieve water quality goals for the Delaware River. Different water quality standards for states in the region that share watersheds have been a point of contention in the past.

Delaware has prepared and implemented many different watershed, water quality, and water supply plans. However, Delaware is focused on direct approaches to solving problems within its continuing planning process as opposed to formulating more committees, reports and plans. The state does not intend to formulate an integrated water plan to address water resources issues as a whole at this time.

9. REFERENCES

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