

PUBLICATIONS, PRESENTATIONS,
SOURCE WATER ASSESSMENTS,
MAPPING, EVENTS, AND NEWS

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DEFINITIONS

Aquifer: an underground bed or layer of earth, gravel, or porous stone that yields water

Watershed: a ridge of high land dividing two areas that are drained by different river systems

Impervious cover: features that prevent the infiltration of water into the ground (e.g., parking lots and rooftops)



DELAWARE DEPARTMENT OF
NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

89 Kings Highway
Dover, DE 19901

Phone: 302-739-9945
Fax: 302-739-2296
E-mail: dnrec_SWAPP@state.de.us

FAST FACTS

PROTECTING THE SOURCES OF YOUR DRINKING WATER



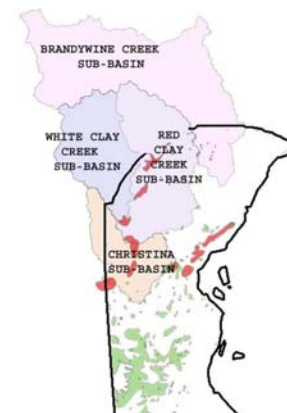
Source Water Program
Division of Water Resources
Delaware Department of Natural Resources
and Environmental Control



DELAWARE'S SOURCE WATER

Our drinking water comes from streams (surface water) and aquifers (ground water).

Seventy-five percent of the drinking water for New Castle County comes from the streams of the Christina River Watershed. Delaware shares this watershed with Pennsylvania and Maryland. The streams Delaware draws water from include the Brandywine Creek, Red Clay Creek, White Clay Creek, and the Christina River.



Ground-water sources supply the remaining twenty-five percent of New Castle County's drinking water. Kent and Sussex Counties rely solely on ground-water for their drinking water supply.

Ground water is drawn up from aquifers by pumping wells to provide drinking water. There are approximately fourteen major aquifers south of the Chesapeake and Delaware (C&D) Canal that provide drinking water to the public. Since ground water originates from rainfall infiltrating through the land surface, land use activities and practices affect the quality of ground water. Public awareness has risen in response to water quality issues leading to coalitions, cooperatives, and civil groups joining in the efforts of governments to protect and improve the quality and quantity of drinking water.

The Delaware Source Water Assessment and Protection Program (SWAPP) formed in 1998 in

response to an amendment to the Federal Safe Drinking Water Act. The program evaluates the susceptibility of public water sources to contamination and promotes the protection of these sources of public water. These actions enhance traditional water treatment.

The Delaware Department of Natural Resources and Environmental Control researches and prepares source water assessment reports for all public drinking water systems. These reports include information about the well, all potential contaminants, and the source water.

The Delaware Division of Public Health, Office of Drinking Water performs the sampling and analysis of drinking water from public drinking water systems. They monitor systems for contaminants to assure that the drinking supply is safe.

Delaware Source Water Protection Law

Title 7 Chapter 60 Subchapter VI, § 6082

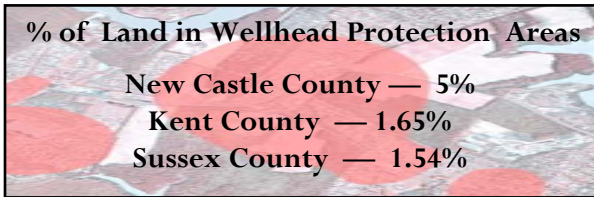
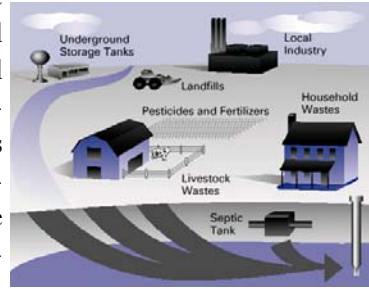
The Delaware legislature enacted the Source Water Protection Law in August 2001. The counties and municipalities with populations of 2,000 persons or more, shall adopt as part of the update and implementation of the 2007 Comprehensive Land Use Plans, the overlay maps delineating, as critical areas, source water assessment, wellhead protection and excellent ground-water recharge potential areas. Furthermore, the counties and municipalities shall adopt, by December 31, 2007, regulations governing the use of land within those critical areas designed to protect those critical areas from activities and substances that may harm water quality and subtract from overall water quantity.

SOURCE WATER PROTECTION AREAS

Source water protection areas include wellhead areas, excellent ground-water recharge potential areas, and surface water supply areas within watersheds. These delineated areas are projected onto aerial images of Delaware for use by municipalities, counties, and DNREC staff in order to protect these critical areas.

WELLHEAD PROTECTION AREAS

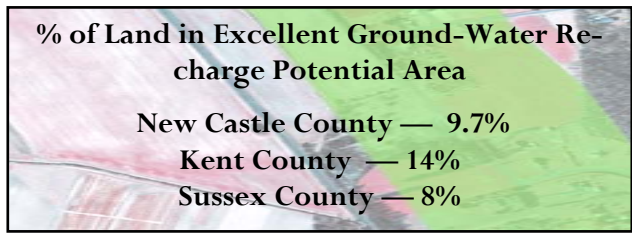
Wellhead protection areas are the surface and below surface areas surrounding a public water supply well where the quantity and quality of ground water moving toward the wells may be contaminated by land use activities or impervious cover.



EXCELLENT GROUND-WATER RECHARGE POTENTIAL AREAS

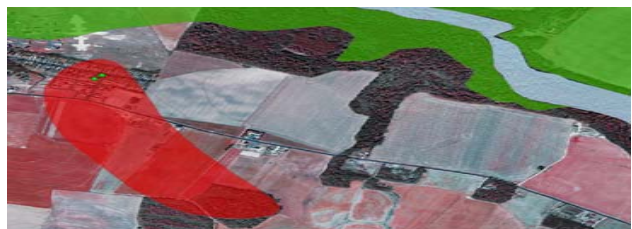
Excellent ground-water recharge potential areas are those areas where the first 20 feet below the land surface is largely composed of sand deposits.

The category of “excellent” is an indicator of how fast contaminants will move and how much water may become contaminated if a contaminant is present. Statewide mapping was completed by the Delaware Geological Survey in the 1990's.



SURFACE WATER

The area within 200 feet of the surface water has the strongest interface with the ground water. This area is ranked as a Level 1 protection area because the potential movement of contaminants from ground water to surface water is very high. Underground tanks, hazardous waste generators (commercial enterprises that generate hazardous waste), and wastewater outfalls provide the greatest sources of point source contaminants in Level 1 areas. The remaining area within the watershed and upstream from the public drinking water system's intake is ranked as a Level 2 protection area.

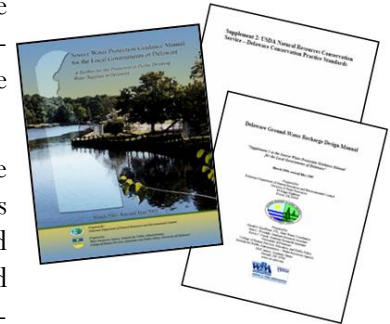


Delineated areas projected onto an aerial image. Wellhead protection areas are shown in red. Excellent ground-water recharge potential areas are green. The green stars are wells.

100% of all fresh water south of the C&D Canal is from rainfall that replenishes the aquifers of Delmarva.

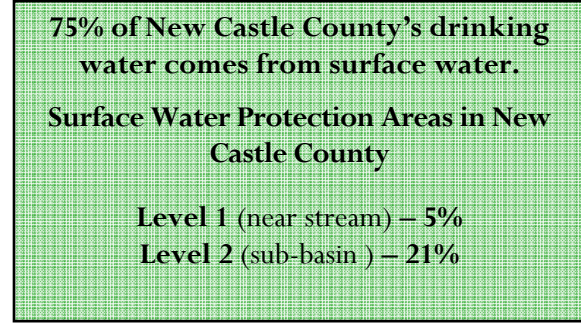
SOURCE WATER PROTECTION GUIDANCE MANUAL FOR LOCAL GOVERNMENTS

DNREC published the Source Water Protection Guidance Manual for the Local Governments of Delaware (2004) as instructed by the legislature.



The Guidance Manual details legislation, and existing and model ordinances. It summarizes source water protection practices and contains strategies for the implementation of source water protection. Supplement 1 is the Delaware Ground-Water Recharge Design Manual and Supplement 2 is entitled, USDA Natural Resources Conservation Service – Delaware Conservation Practice Standards (2005).

Local governments in Delaware are required to adopt ordinances that protect waters in source water protection areas.



In Delaware there are...

- 613 Public Water Systems
- 1,100 Public Supply Wells
- 5 Public Supply Intakes from Surface Water
- 100 New Public Well Permits yearly

DNREC recommendations for source water protection measures:

- 1) Preserve source water protection areas as open space and parks by acquisition or conservation easement.
- 2) Limit impervious cover of new development to 20% within source water protection areas.
- 3) Allow impervious cover of new development to exceed 20% within source water protection areas (but no more than 50% impervious) provided the applicant develops recharge facilities that directly infiltrate rooftop runoff.
- 4) Allow impervious cover of new development to exceed 20% within source water protection areas (but no more than 50% impervious) provided the applicant develops recharge facilities that infiltrate stormwater runoff from forested and/or grassed surfaces with pretreatment.
- 5) Restrict the use, handling, and storage and of hazardous materials in source water protection areas.

