

# RUTGERS COOPERATIVE EXTENSION

## Salem County GreenKeepers Plan

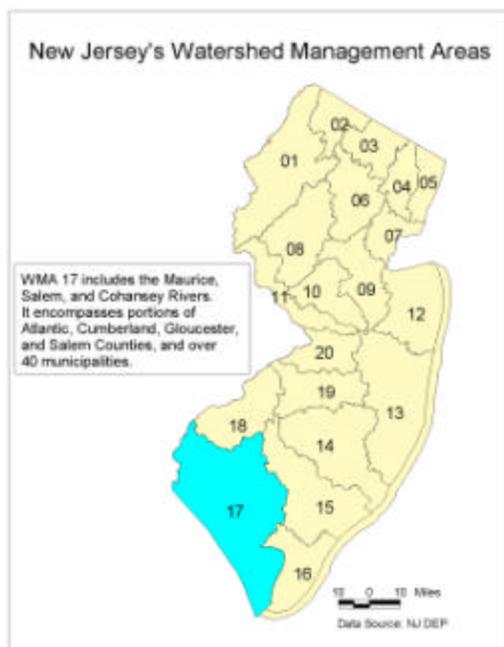
# The Salem River/Delaware Estuary Watersheds

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## What is a Watershed?

A watershed is an area of land that drains into a lake or river. It includes the waterway itself (lakes, rivers, streams, wetlands, estuaries, and groundwater recharge zones), and the entire land area that drains into it. New Jersey is divided into 20 Watershed Management Areas (WMA). Each is divided into smaller sub-watersheds based on the topography of the land.

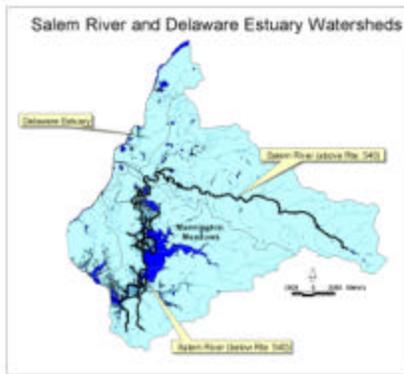


## Why Watersheds?

Watersheds are defined by natural hydrology so they represent a logical basis for managing water resources. Everything we do impacts the quality and quantity of water and other natural resources. Watersheds provide everything from drinking water, irrigation, and industry, to recreational activities such as fishing, boating, swimming and wildlife habitat. Improvements in water quality through watershed management therefore involves the entire community. Watersheds go beyond traditional political, social, and economic boundaries; therefore, greater attention may be placed on solving ecological rather than administrative problems. Watershed management plans may be streamlined in terms of permitting, monitoring, and reporting saving state agencies both time and money. Lastly, community cooperation and collaboration is fostered as emphasis is placed on maintaining a shared natural resource. Once individuals become aware of and interested in the issues in their watershed, they often become more involved in decision-making and in protection and restoration efforts.

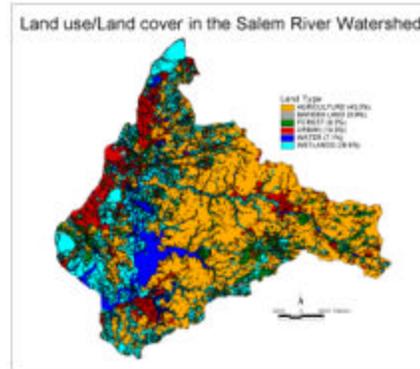
## What is the Salem River/ Delaware Estuary Watershed?

The Salem River Watershed (117 square miles) and the Delaware River Estuary (23 square miles) covers one-third of Salem County, making it the largest watershed within the county and the largest within management area #17. Thirteen of the county's fifteen municipalities are wholly or partially within this watershed. Nearly 54,000 of the County's 67,500 residents live within the watershed on 13% of the land. The largest natural feature is Mannington Meadows (20,020 acres (3.2 square miles)). There are a total of 414 miles of mapped rivers and streams within the watershed.



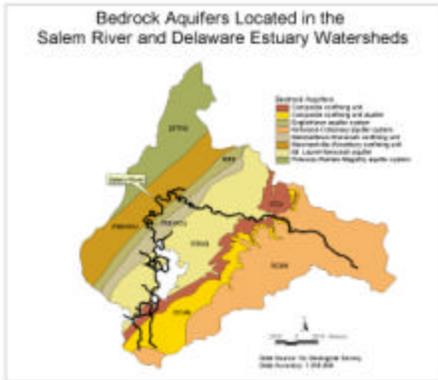
Based on 1995/1997 land use/land cover data (source: NJDEP), 43% (38,590 acres) of the watershed is in agriculture, 9.3% (8,375 acres) is forested, 33.5% (30,100 acres) is water or wetlands and 13.3% (11,900 acres) is urban. From 1986 to 1997 the amount of acres of agricultural and wetland loss to the watershed is 1325 and 260 acres respectively. Urban and developed areas have increased by 990 acres. On a county-wide basis, Salem County has lost approximately 8,300 acres of farmland, 1750 acres of wetlands (coastal and inland) and gained over 9,300 acres of developed land (CRSSA, landscape project) over the same time period. Agriculture still maintains a strong base in the county; however, these changes in land cover/land

use reflect trends seen throughout the state, and affect the overall health of the watershed.



## Why is the Salem River/ Delaware Estuary Watershed Important?

The health of the watershed impacts the vast natural resources of Salem County. This watershed provides critical habitat for many rare, threatened and endangered species. The Nationwide Rivers inventory for the National wild and Scenic Rivers Act lists 17 miles of the Salem River as an example of outstandingly remarkable values with benefits including scenic, recreational, geologic, fish and wildlife habitats. The Eastern half of the Salem River/Delaware Estuary watershed is in the Outer Coastal Plain and overlies the Kirkwood-Cohansey (kcas), the largest underground aquifer in the United States. This aquifer does not have significant outcrop areas. Water quality depends on conditions at the surface. The western half of the watershed is the inner coastal plain and sits over the Potomac Raritan Mahagothy (prma) underground aquifer, a critical water zone. These aquifers are recharged by precipitation on intake areas. Due to heavy development in Camden County, the aquifer is now suffering from salt water intrusion.



## What are some of the problems found in the Salem River/ Delaware Estuary Watershed?

### Point Source Pollution

In the past, water quality improvements have focused on specific identifiable sources of pollution, such as a pipe or a disposal site, sewage discharges, or specific water resources, such as a river segment or wetland. Technical and regulatory methods have been used to detect and control these problems.

### Non-Point Source Pollution

Non-point source pollution (NPS) occurs when water flows over the land or through the ground, picks up pollution and deposits it into rivers, lakes, and estuaries. Factors such as habitat destruction and polluted runoff consisting of both sediment and nutrients are difficult to identify, isolate, measure, and control. These result from a wide range of activities over an area. Sources of NPS pollution in the Salem River/ Delaware Estuary watershed include runoff from a variety of sources including residential lawn maintenance and garden practices, agricultural run-off, fertilizer practices and livestock management, faulty or poorly maintained septic systems, stream bank erosion and illegal dumping, boating practices, and road salting practices.

Segments of the Salem River in 1998 were characterized by the US EPA as “moderately” to “severely” impaired due to impaired biology, and imbalances in the fecal coliform, pH, temperature, and total Phosphorus measured. EPA document 841-F-96-004A published the following in its fact sheet on non-point sources of pollution into waterways:

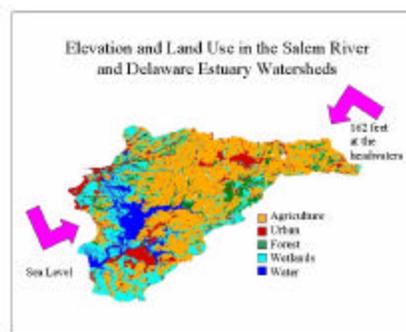
### Three Leading Sources of Water Quality Impairment

(data source: Water National Quality Inventory, 1994)

Rank	Rivers	Lakes	Estuaries
1	Agriculture	Agriculture	Urban Runoff
2	Municipal point sources	Municipal point sources	Municipal point sources
3	Stream/habitat changes	Urban Runoff	Agriculture

(Table Source: US EPA)

With 43% of the watershed in agricultural production, and much of that farmland located in the higher elevations, adopting good farm management practices is necessary and ultimately benefits all those who live, work, and recreate in the watershed.



### For more information....

The Salem County Greenkeepers Plan is a partnership of state and local organizations working to improve the water resources in Salem County. To learn more, please contact Dave Lee, Salem County Agricultural Agent at (856)-769-0090

