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Tuesday, April 21, 2015 11:00 a.m.

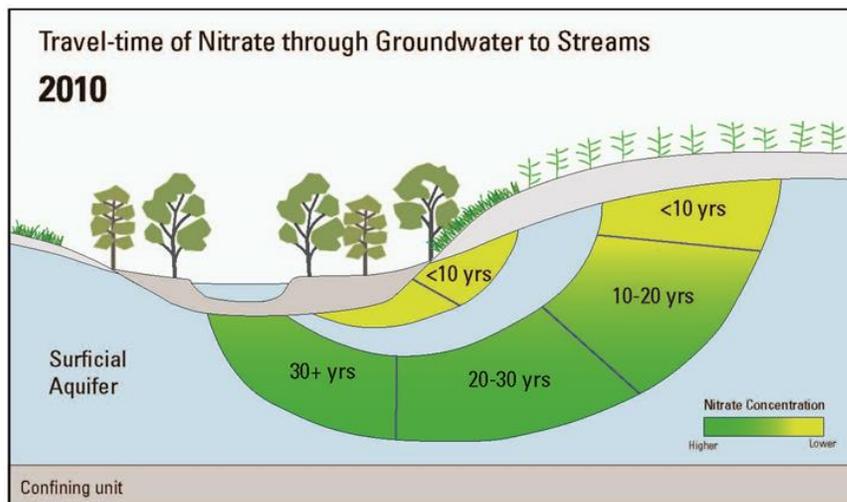
Monitoring the water-quality response to conservation practices in two small agricultural watersheds on the Delmarva Peninsula

Judy Denver, Hydrologist, U.S. Geological Survey



Intensive groundwater flow-path studies are currently being conducted at two sites on the Delmarva Peninsula to evaluate the effectiveness of a selected agricultural conservation practices on groundwater quality and to provide a better understanding of the transport and fate of nitrate from groundwater to surface water. Agriculture is recognized as a major source of nitrogen in waters of the Chesapeake Bay region. Previous research in this area has related increases in nitrate in groundwater to increases in the use of nitrogen fertilizers and manure. Recently, there has been widespread implementation of conservation management practices in to help better utilize nutrients applied to fields and thereby reduce nitrogen entering the bay from agricultural sources. There is a need to better document the effects of these

practices on water-quality. As most nitrogen entering the streams and rivers of the bay watershed comes from discharging groundwater, changes in water quality associated with conservation practices will be seen first in shallow groundwater directly beneath fields. Monitoring along groundwater flowpaths at the study sites will provide a better understanding of the water-quality response of recent (<20 years) conservation efforts and the lag time between changes in shallow groundwater quality and the expression of those changes in stream quality.



Judy Denver has been a hydrologist with the MD-DE-DC Water Science Center of the U.S. Geological Survey located in Dover, DE for over 30 years. Much of her work has been focused on understanding the effects of agricultural practices on water chemistry, and the transport of nutrients from natural and anthropogenic sources into groundwater and through groundwater into surface water in different hydrogeologic settings of the Coastal Plain. Her educational background includes a B.S. in geology and M.S. in Marine Studies.

This presentation will also be available remotely via Webex: <https://usgs.webex.com/>

For directions to the USGS MD-DE-DC WSC: <http://md.water.usgs.gov/directions/baltimore.html>.