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## Bay's nitrogen flows from Jackson

By *KIRK MOORE*  
and *KEITH RUSCITTI*

The course of development in Jackson will determine much more than population and property taxes here. It may seal the fate of Barnegat Bay as well.

Researchers say the Metedeconk and Toms rivers, which flow through Jackson, are the biggest contributors of nearly 1.6 million pounds of excess nitrogen compounds flowing into the bay every year, acting as fertilizer that fuels algae blooms and gradually rearranges the bay's ecology.

It's a trend that has accelerated since the building boom of the 1990s in the bay's 1,000-square-mile watershed, and now "over a third of the watershed is developed or otherwise altered," Rutgers University mapping expert Rick Lathrop said at a conference hosted last week by the Barnegat Bay National Estuary Program.

"I consider land use change as really the driving stressor in this coastal system," said Lathrop, who heads the Center for Remote Sensing and Spatial Analysis at Rutgers. Last year the center reported that an analysis of aerial and satellite imagery showed more than 1,900 acres of previously natural lands along streams had been altered between 1996 and 2006.

On the Metedeconk and the Toms, around 20 percent of what Lathrop defined as ecological riparian zones — transitional woodlands between stream edges and developed areas — are now themselves developed. Keeping natural vegetation intact along the waters' edge is increasingly seen as a critical step toward preserving water quality, said Stan Hales, the estuary program director.

"The answer is not in the estuary. It's in the watershed," said Michael Kennish, a Rutgers research professor who heads the university's science effort on the bay. Unless political leaders and the community act to control growth and repair damage in the watershed, any restoration work in the bay itself will go to waste, he warned.

In recent years, township officials and the state Pinelands Commission moved to double the mandated buffer zones along the upper Toms River, as a part of a rezoning around Route 571 that greatly reduced potential for future development on the western edge of Jackson.

As part of that agreement, stream buffers were widened from the Pinelands standard of 300 feet — already one of the state's strictest wetlands protection rules

— to 600 feet. Part of the rationale was Pinelands officials' wish to maintain wide corridors for Northern pine snakes, Pine Barrens tree frogs and other threatened and endangered species in the Jackson woods.

A concurrent shift downward in zoning density means much less land will be cleared on the Pinelands part of the township in years to come. Longtime resident Philip Petrovsky, 62, who's lived in the Cassville section nearly his entire life, said the most obvious effect of the previous clear-cutting of hundreds of acres of trees for development has been to the water supply.

A large number of residents still rely on well water, and an earlier generation of shallow wells in the upper Cohansey aquifers ran dry — an effect Petrovsky attributes to changes in the local hydrology when native woodlands were cut down.

"The clear-cutting has directly affected the aquifers," said Petrovsky, who was a charter member on the township's Environmental Commission in 1971. "People who depend on driven wells have seen those dry up. Then they have to drill 20 to 30 feet deep."

"The environmental impact from the clear-cutting of all these trees is going to be disastrous, especially about 20 years from now," Petrovsky added. He said numerous studies have found clear-cutting causes an increase of high stream flows during storms, and decreased low flows in the summer, which have a negative effect on the riparian edge and aquatic habitats.

Pinelands jurisdiction covers a swath of land from Route 547 west across Route 571 into the Cassville section. By ecological criteria, even more of Jackson could have been included within the management plan boundaries, said Jeff Tittel, director of the Sierra Club's New Jersey chapter.

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