

Pleasant Bay seen at risk

by nitrogen.

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ORLEANS - One cost of development on the Cape is hidden in local bays and estuaries, where nitrogen from septic systems, fertilizers and roadway run-off is changing ecosystems for the worse.

Tonight at 7, residents can hear how much worse when the Massachusetts Estuaries Project presents its report on Pleasant Bay during a public forum at Brewster Town Hall.

Three towns, Harwich, Chatham and Orleans have shorelines on the 14-square-mile bay.

The estuaries project was started in 2001 by the state Department of Environmental Protection and the University of Massachusetts at Dartmouth School of Marine Science and Technology to assess development's effect on the state's fragile coastal waters and to restore water quality.

The state will use the reports to develop nitrogen-loading standards for each Cape town and develop wastewater management programs.

The product of six years of water-quality sampling and analysis by volunteers and scientists, the Pleasant Bay report is the sixth Cape study to be completed. Falmouth, Bourne, Mashpee, Chatham and Barnstable are already done.

The single worst villain for coastal waters is nitrogen, which fertilizes algae that can smother aquatic plants and block sunlight. As dead plants and algae decompose, they use up the oxygen in the water, killing fish and bottom-dwelling animals.

The Pleasant Bay report found that smaller enclosed bays or tidal ponds had degraded water quality, and some had little or no life. Areas with greater tidal flows were able to dilute and flush nitrogen out to sea.

Areys Pond, Paw Wah Pond and upper Muddy Creek, for example, frequently showed no oxygen at all in bottom waters and little bottom life.

Researchers used eelgrass, a vital habitat for many bottom-dwelling species, as an indicator of

State of the bay

The Massachusetts Estuaries Project report on nitrogen loading in Pleasant Bay will be discussed at 7 tonight

at Brewster Town Hall.

View the report at
www.oceanscience.net/estuaries/index.htm

The culprit

■ Nitrogen, mostly from septic systems, promotes algae growth, killing off sunlight-dependent plants. Plant decomposition uses up dissolved oxygen, killing animal life.

The warning signs

■ About 600 of 2,400 acres of eelgrass existing in 1951 are gone.

■ Animal and plant life surveys show little diversity or life in many of the bay's enclosed basins and ponds.

The solution

■ The Massachusetts Estuaries Project report on Pleasant Bay estimates nitrogen needs to be reduced by 36 percent.

water quality for most of the bay. Between 1951 and 2001, eelgrass beds shrunk 24 percent to 1,800 square acres from 2,400 acres.

People who spend a lot of time on the bay have noticed changes, said Carol Ridley, coordinator of the Pleasant Bay Alliance.

"They see fewer types of shellfish, lots of eelgrass loss, and different color and different algae blooming," she said.

The alliance is a governmental body with representatives from Chatham, Orleans and Harwich that developed a management plan for the bay.

The plan's goals, Ridley said, are to restore eelgrass beds - currently averaging a loss of about 11 acres per year - and to improve species diversity.

The way to do that, the estuaries report says, is to reduce the amount of nitrogen going into Pleasant Bay by 36 percent. While the report does not say how, it does indicate that 70 to 80 percent of the nitrogen comes from septic systems.

The methodology used to assess the bay's health and gauge the amount of nitrogen flowing into it can be used by towns developing wastewater plans, Ridley said. It can accurately estimate, she said, the benefit of a specific wastewater treatment before it is implemented.

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(Published: May 25, 2006)

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