

May 5, 2006

For Immediate Release:

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New Report Answers Questions about Seacoast Water Quality

The New Hampshire Estuaries Project (NHEP) has released a comprehensive water quality report that analyzes data from a wide range of sources on key indicators of water quality such as toxic contaminants, bacteria concentrations, and nitrogen loading for New Hampshire's estuaries.

NHEP Coastal Scientist Phil Trowbridge developed the report that was peer reviewed by a team of water quality experts. Trowbridge reports that "the overall condition of the water in the State's estuaries is generally good compared to estuaries across the country; however, conditions are changing. Some of the changes are for the better, but more are troubling."

Toxic contaminants, such as lead, zinc, DDT and PCBs, are a constant concern; however, the several indicators included in the report suggest that concentrations of these harmful substances are on the decline. Monitoring efforts have shown that shellfish tissue samples (mussels, clams, oysters) have toxic contaminant concentrations below national guidance values. Since shellfish collect toxic contaminants in their flesh when they feed, low levels of contaminants in these creatures suggest the ambient toxic contaminant levels are relatively low. Data from the past eleven years suggest that toxic contamination levels are decreasing.

In addition to shellfish tissue assessments, estuarine sediments also are analyzed for contaminant levels. Trowbridge says the data reveal few areas of contaminated sediments, which may be a surprise to some. "Given the industrial history of the area, many people believe that all of New Hampshire's estuaries are contaminated. This is not true." Sediment contamination is most significant in tidal rivers, most notably in the Cocheco River, near historically industrial areas.

Bacteria concentrations are a bit of a different story. Dry-weather bacteria concentrations in the estuary have decreased over the past 17 years. However, the concentrations have remained relatively constant for the past decade. The report also notes that shellfish harvesting opportunities are still restricted in some areas due to bacteria concentrations in tidal waters, particularly after rain storms.

A trend that does concern Trowbridge is the increase in the number of advisories issued at tidal beaches in the coastal watershed due to elevated bacteria levels. “This may be a result of a change in sampling protocols or the number of beaches being monitored or we could be seeing a real lowering of water quality due to local bacterial sources. Regardless, the fact that before 2003 we never had advisories, and now we do, is troubling.”

Dissolved inorganic nitrogen is another environmental indicator that, when found at elevated levels, can cause profound effects on the estuaries. The report analyzes historical nitrogen data and reveals that dissolved inorganic nitrogen concentrations have increased in Great Bay by 59 percent in the past 25 years. Trowbridge explains. “Excess nitrogen can cause algae blooms, low dissolved oxygen levels and other conditions that lower water quality.” So far, these effects have not been observed in Great Bay. Trowbridge notes that, “We do not see massive algal blooms or low levels of dissolved oxygen in Great Bay but we are seeing changes and we should be watchful because Great Bay is unique and may respond differently to excess nitrogen than other estuaries.”

The report includes an estimate of the entire amount of nitrogen that entered the Great Bay/Upper Piscataqua Estuary in 2002. Of the estimated 1,005 tons of nitrogen that entered the estuary that year, wastewater treatment plants contributed 28 percent of the total amount. The rest mostly came from nonpoint sources, such as lawn fertilizers, septic systems, and animal wastes, which are washed into rivers and streams that flow into the Bay. “The updated nitrogen budget brings home the fact that how and where we choose to live in the watershed has a major impact on water quality the Great Bay”, Trowbridge concludes.

To read the water quality report and two other recently issued environmental indicator reports on shellfish and critical habitats and species, go to the NHEP website at www.nhep.unh.edu.

The NHEP is funded in part by a grant from the U.S. Environmental Protection Agency’s National Estuary Program. For details go to www.nhep.unh.edu.
