Drinking Water Quality - Nitrate Levels in Cape Cod Public Supply Wells

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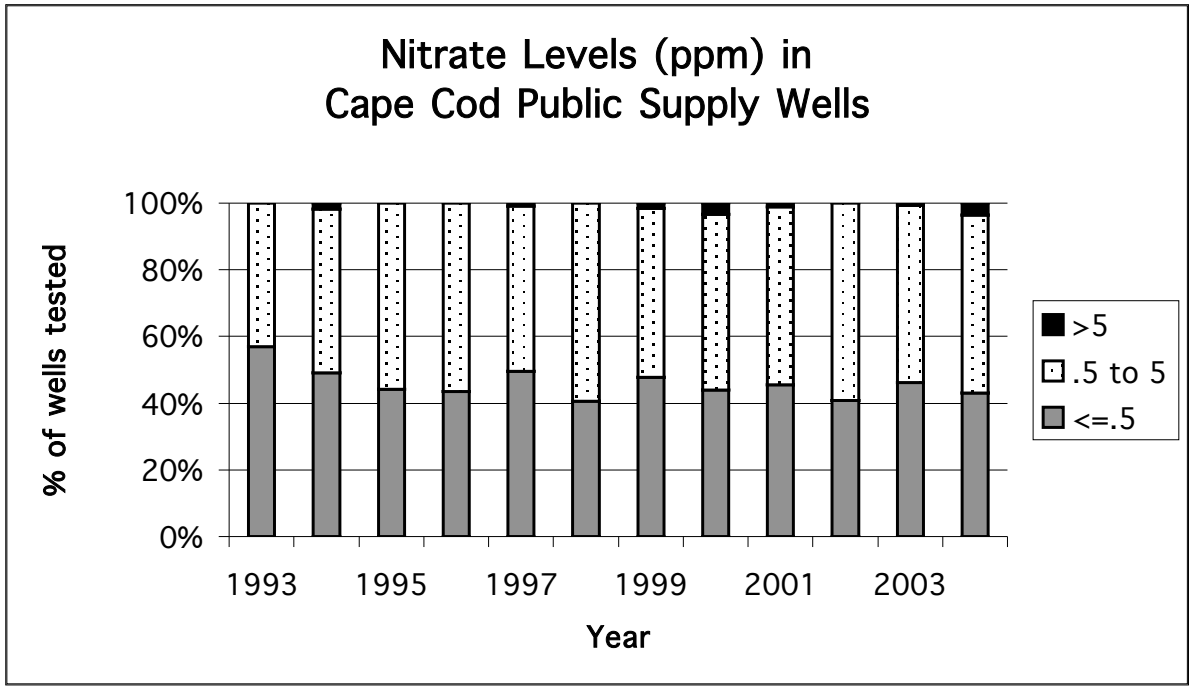

Cape Cod's drinking water quality is generally very good, but there is a trend towards water quality degradation during the past decade. Between 1993 and 2004, the percentage of public water supply wells whose nitrate levels tested at or below .05 ppm (considered very clean) decreased from 57% to 43%. During the same period, the percentage of wells that were between 0.5 and 5-ppm (the nitrogen-loading standard) increased from 43% to 53%. Between 1993 and 2004, between 1% and 4% of these tested wells reached a level above 5-ppm of nitrate. Although the trend indicates higher nitrate concentrations from development, the proportion of "clean" wells is a general reflection of the large amounts of protected undeveloped lands surrounding the public supply wells, and larger residential lots that predominate in wellhead protection areas.

An analysis of drinking water from small-volume non-community supply wells indicate, overall, higher levels of nitrate-nitrogen as compared to public supply wells. Of the 166 small-volume wells tested in 2000, 85% were below 5 ppm and 15% were greater than 5 ppm. Of The 189 small-volume wells tested in 2004, 88% were below 5 ppm and 12% were greater than 5 ppm. Based on this, the overall percentage of contaminated small-volume wells is much greater than that for public water supply wells (4%). These higher levels are indicative of smaller volumes of water pumped, shallower well depths and the close proximity of septic systems to the wellhead.

Water quality data available from coastal embayments, whose ecosystems are more adversely affected by nitrogen than human health is, indicates that many of these systems are severely impacted by nitrogen. Eelgrass has nearly disappeared from most of the embayments along Vineyard and Nantucket Sounds, and some waters are experiencing regular low dissolved oxygen conditions.

Source: Massachusetts Department of Environmental Protection, Drinking Water Program