State of Narragansett Bay and Its Watershed
2017 Technical Report

Condition Indicators of Public Health

INTRODUCTION

NARRAGANSETT BAY ESTUARY PROGRAM

Protecting the public from harmful pathogens is a paramount objective of environmental management efforts in the Narragansett Bay Watershed. High pathogen levels in waters used for recreation, including swimming and boating, and shellfishing create unsafe conditions for public health, as people use the Bay and Watershed for these activities. Pathogen contamination includes the presence of *Escherichia coli*, a type of fecal coliform, general fecal coliform, and Enterococci bacteria. These three pathogens are monitored and regulated by federal and state departments of environmental management and health. Unsafe levels of pathogens stem from untreated human and animal feces entering the water from failing septic systems, cesspools, combined sewer overflows (CSOs) and other sources of nonpoint pollution.

Increased pathogen contamination results in beach closures, impairment of waters designated for recreational activities, and acreage reduction of approved shellfishing areas designated for direct human consumption. While wastewater treatment facilities have been successfully reducing or eliminating pathogen loads to receiving waters, especially in the last 15 years, individual failing septic systems and cesspools are considered a major culprit for pathogen contamination. However, little is known about the extent or severity of impacts on freshwaters and estuarine waters from failing septic systems and cesspools. Stressors discussed in other sections of this report can exacerbate pathogen contamination, particularly precipitation and resulting stormwater runoff from impervious cover, agricultural lands and other open fields with wildlife and pet feces, primarily. The greater intensity and volume of precipitation associated with climate change is expected to increase pathogen loading, and warmer water temperatures will encourage more pathogen growth. Efforts to reduce pathogen contamination in the Watershed include engineered retention systems, green infrastructure, pet waste management, and construction of tunnels to store CSO discharges for later treatment. These efforts have resulted in improvements to the overall water quality in the last decade.

The Narragansett Bay Estuary Program uses three indicators to monitor public health conditions in the Bay and Watershed: marine beach closures, shellfishing area closures, and water quality monitoring for recreation. The analysis results reflect the efforts by the state agencies to collect, assess, and determine whether waters are suitable for recreational use or shellfishing. Accordingly, the following chapters discuss status and trends and explore how management actions affect spatial and temporal changes in these indicators that are relevant to the daily lives of the population. This section concludes the report by coming full circle. People are the ultimate driver of water quality conditions. Through understanding how stressors can affect the wellbeing of people in the Bay and Watershed, we can also understand how the Bay and Watershed have been substantially been shaped and resources used by people over thousands of years.

Photo: Bonnet Shores Beach Club, Narragansett, RI (Ayla Fox)