

EMERGING ISSUES & CHANGING CONDITIONS

Estuaries are complex and responsive to factors both within, and outside of, our control. By definition, an environmental indicators report is not intended to determine cause and effect. The causes of some environmental changes can be numerous, and directed research is sometimes required to better understand how the estuaries respond to stresses like pollution and losses of key habitats.

This report provides a summary of results from an extensive suite of environmental monitoring data collected and analyzed by PREP and its partner organizations. However, PREP also recognizes that there are emerging issues not fully described in this report or reflected in our current indicators that are likely to impose additional challenges to the health of our estuaries. This section of the report acknowledges some of these pressing emerging issues that are likely to need more research, monitoring, and analysis attention in the near future.

Weather and Climate

The most influential emerging issue is the fact that New England's climate is changing, and the best available scientific information indicates that climate change impacts such as sea level rise, temperature increases, and more frequent severe storm events are highly likely to continue to increase throughout the next century. These major changes to climate and weather events will substantially affect water quality, wildlife habitat, and human communities in unprecedented ways. One of the implications is that more erratic and extreme weather is to be expected and that assessing the health of our estuaries based on assumptions of historical weather and climate patterns can be misleading. Climate change impacts are likely to contribute additional stress to coastal habitats that we are working to conserve and restore. For instance, increased rainfall can transport additional contaminants such as sediments and nutrients into our estuaries. Climate change is also likely to substantially change the temperature, saltiness, and acidity in our estuaries



Autumn Marsh. Photo by C. Keeley

and thereby modify many of the natural chemical and biological processes in the bays. Exactly how these changes will affect coastal habitats, shellfish, water quality, and human health is uncertain – but it is certain that they will have an important influence over the future State of Our Estuaries. To learn more about these issues refer to the 2011 report “Climate Change in the Piscataqua/Great Bay Region: Past, Present, and Future” (www.carbonsolutionsne.org).

Macroalgae

Recent major research efforts have been completed to inventory the types of macroalgae present in the Great Bay estuary, assess their abundance, and map their coverage in the bay. These efforts have led to recognition that a substantial increase in the abundance of nuisance macroalgae is an emerging problem for the bay and that increased monitoring and research effort is needed to better understand this issue.

Aquaculture

There is substantial interest in the region about the potential to responsibly develop shellfish and algae aquaculture within or adjacent to our estuaries as a way to help remove excess nutrients from the water column while also producing valuable commodities. The environmental, social, and economic costs and benefits of aquaculture scenarios is a topic of current and ongoing research interest.

Pharmaceuticals and Personal Care Products

Thousands of chemicals from pharmaceuticals and personal care products used by humans (such as prescription drugs and cosmetics) end up in sewage waste, are insufficiently removed by conventional treatment systems, and inevitably enter our nation's waterways. These chemicals have been documented in many waterways that have been studied, and some research suggests that certain chemicals may cause ecological harm. Potential negative impacts on our region's waterways are largely unknown at this time.



Did You Know

The US Drug Enforcement Administration has hosted five successful National Drug Take-Back

Days over the last two years. The most recent event in September 2012 resulted in 244 tons of prescription medication being safely disposed. Citizens are able to return unused or expired prescription drugs to their local police station or other location to be sure they are disposed of properly keeping them out of our environment.

Visit www.deadiversion.usdoj.gov/drug_disposal/takeback to find out when the next take-back day is scheduled.