

ASSESSING BACTERIAL LEVELS IN **CHARLESTON HARBOR**

The University of South Carolina, the University of Maryland Center for Environmental Science, and the Southeast Coastal Ocean Observing Regional Association, have fostered a partnership with Charleston Waterkeeper in an effort to increase public awareness of safety risks from bacteria present in recreational waters in Charleston Harbor. This project will generate improved predictions of bacteria levels and present the results on the existing website, howsthebeach.org. The website will be redesigned to make this information more accessible to the public. The next phase of the project is to also include predictions for bacteria related to shellfish harvesting sites in the harbor.



WHAT CONTRIBUTES TO BACTERIAL LEVELS IN SHEM CREEK?

Bacteria levels in Charleston Harbor vary by location and are dependent upon a handful of factors, including rainfall, temperature, and inputs from the land and other activities. The map and illustrations below describe how some of these inputs influence bacteria in Shem Creek, which is a very popular area for activities such as stand-up paddle-boarding, kayaking, swimming, fishing, and crabbing.



Wetland wildlife

Animals that inhabit the wetlands around Charleston contribute bacteria through their waste. Birds and raccoons in particular can be major contributors. Species of birds found around, and in, this system include various gulls, ducks, herons, shorebirds, cormorants, and smaller wetland songbirds.



Commercial and residential activity on Shem Creek

Housing and commercial activities, including marinas, can also be sources of bacteria if waste disposal practices are poor. Many homes on Shem Creek have septic tanks, and it is suspected that some boats have poor wastewater disposal practices.



Recreational boating

Boating in Charleston Harbor is very popular, but can be a source of bacteria if waste is not handled correctly. As boating activities have increased in Charleston Harbor over the last decade, so have bacteria levels in tidal creeks.

Land-based pollutants

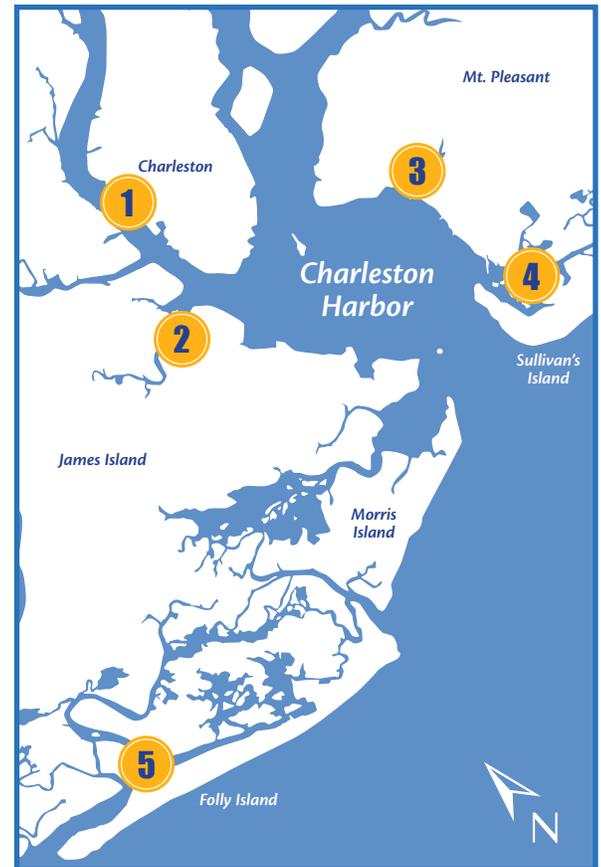
As the Charleston area continues to grow, more of the land surface is covered with hard surfaces, which leads to higher runoff amounts when it rains. This storm-water runoff can cause sewer overflows, and can transport animal wastes and other pollutants into tidal creeks.



WHERE DO WE GO FROM HERE?

Scientists at University of South Carolina are working to revise current models used to predict bacteria levels in recreational waterways. The existing website will also be redesigned to make results more accessible to the public. Future projects will apply this model to shellfish harvesting areas in the Charleston area to inform shellfish harvesters about safe times for oyster collection. Revisions to the existing model will likely occur in summer 2017, expansion of the model to include shellfish harvesting sites will occur in fall 2017, and redesigning the website will begin in winter 2017.

The map to the right highlights the five sites of interest in Charleston Harbor: 1. Brittlebank Park, 2. James Island, 3. Shem Creek, 4. Fort Moultrie Dock, and 5. Folly River Landing. These sites are important areas for recreational activities, some of which often have bacteria levels above the recommended safe concentrations.



Summer 2017

Revise model



Add shellfish harvesting sites

Fall 2017



Winter 2017

Redesign website



Share new website

Spring 2018



Acknowledgments

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Cover photo: Arthur Ravenel Jr. Bridge, Charleston, SC. Photo credit: Judith O'Neil, UMCES.



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