

Foreword

GEOFF SCOTT, PH.D.

University of South Carolina (COHHC²I, Director)

PAUL SANDIFER, PH.D.

College of Charleston (COHHC²I, Deputy Center Director)

The *Journal of South Carolina Water Resources (JSCWR)* is dedicated to scientific research and policy to meet the growing challenge of providing water resources for the sustainable growth of South Carolina's economy while preserving its natural resources. This special issue focuses on Water Quality and Public Health and is sponsored by the federally funded Center for Oceans and Human Health and Climate Change Interactions (COHHC²I) at the University of South Carolina (UofSC). In addition to UofSC researchers, the COHHC²I involves researchers, students, and other participants from Baylor University, The Citadel, College of Charleston, Rutgers University, University of Maryland's Center for Environmental Science, and the Lowcountry Alliance for Model Communities and Interstate Shellfish Sanitation Conference.

Coastal shoreline counties—those that border directly on ocean or Great Lakes waters or are subject to tidal flooding—make up less than 10% of the contiguous US land area (excluding Alaska) but are home to about 40% of the population. When we include the next immediate tier of counties, termed by the National Oceanic and Atmospheric Administration (NOAA) as coastal watershed counties, approximately 53% of the population lives in a narrow band along our Atlantic, Pacific, Gulf of Mexico, Caribbean, and Great Lakes coasts that comprises less than 20% of the US landmass. Not surprisingly, population density is 3 to 4 times higher on the coast than the average in the rest of the country, and the economic and societal values of both natural and built infrastructure and the populations, businesses, tourism, and quality of life they support, are immense. In South Carolina, the coast is the major economic engine of the state, not only from the standpoint of the tourism industry but also as the location of ports essential to our industrial and commercial operations and as an attractant for many new residents. Over many centuries, large concentrations of people have been drawn to coastal areas, resulting in most major cities being located there, and they continue to be “people magnets,” as recent population trends confirm. Yet, these areas are also fragile and subject to various hazards. Along with climate change, which presents truly existential threats, other rapidly intensifying concerns relate to water quality and public health. At dire risk from these threats are high quality potable water essential for human life and safe waters for recreation and the biodiverse ecosystems that define our invaluable coastal quality of life.

Oceans and Human Health (OHH) is now a widely recognized “meta-discipline”; that is, a collection of multi- and inter-disciplinary endeavors that brings together experts from numerous fields to focus on complex societal problems that no one discipline can address effectively. Scientists and practitioners from domains such as oceanography, marine biology, ecology, climatology, biomedical science, environmental health science, medicine, public health, computer science and modeling, communication, psychology, and more pool their expertise to address water quality problems. Such problems include HABs (harmful algae blooms) and their toxins, naturally-occurring *Vibrio* bacteria, the growing problem of plastic pollution, and increasingly significant risks to human health, both singly and in combination and as exacerbated by climate change factors such as rising temperatures and seawater levels, changes in precipitation patterns, and increased coastal flooding. The COHHC²I receives support through a five-year grant from the National Institute of Environmental Health Sciences of the US National Institutes of Health. Tackling these issues requires robust interdisciplinary scientific approaches combined with equally strong engagement with affected communities to increase public environmental health literacy.

The eight articles in this special issue cover a range of topics and include communication of HABs health risks, South Carolina's legacy water contamination with PCBs, significantly polluted coastal urban stormwater hotspots in Charleston, PFAS pollution in drinking water, effective stakeholder-engaged research translation and communication about sea level rise impacts on water-borne health risks, sources and management of fecal bacterial contamination on Edisto Island, the resiliency of SC water utilities, and integration of community and student engagement in non-point source pollution prevention, source water protection and treatment, and innovative stormwater management practices. Students are primary authors for fully half of the articles, highlighting our efforts to develop young scientists. They are leading the development of new technical information and public engagement and translating scientific information into vital products for communities. Their efforts will assist in informing the public and help reduce OHH public health threats associated with climate change. We hope you find this issue stimulating and informative.