

Review: Sea Level Rise: A Slow Tsunami on America's Shores

By Orrin H. Pilkey and Keith C. Pilkey

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Pilkey, O.H. and Pilkey, K. C. *Sea Level Rise: A Slow Tsunami on America's Shores*. Durham, NC: Duke University Press, 2019. 199pp. + xv. ISBN: 9781478005124, paperback, alkaline paper, US\$24.95. Also available in hardback and electronic formats.

Sea Level Rise, by Orrin Pilkey and Keith Pilkey, focuses on the effects of sea level rise and their impacts on American shores by 2100. From climate refugees to public health impacts, flooded coastal towns, ports and military bases, and the National Flood Insurance Program, each chapter introduces an effect and discusses its impact on vulnerable areas identified by the authors. For example, as the shorelines recede, millions of people ("climate refugees") in affected coastal cities (e.g. Miami, New Orleans) will be forced to relocate inland. Not everyone will want to move, however, and this will present a whole set of new challenges for local leaders.

Barrier islands, low-lying islands found especially along the U.S. Atlantic coast, have long been summer playgrounds for city dwellers. Presently, barrier islands are experiencing sunny day floods more frequently due to development (less permeable land for water infiltration). This flooding trend will continue, and these floods may be larger in the future.

As the climate continues to warm, certain health concerns cannot be ignored: the discovery of active viruses (e.g. Spanish flu) in melting permafrost, mosquito borne diseases, dirty flood waters, mental health impacts due to chronic flooding and limited access to even emergency medical care during floods. U.S. military databases, naval and commercial ports in coastal areas are very vulnerable to sea level rise and will need to be reconstructed to remain operational. As sea level rises, the loss of agricultural land on coastal plains due to salt build up in the soil and the intrusion of saltwater into aquifers are both issues that will need to be addressed.

Land subsidence is already a problem in some areas that are vulnerable to increasing sea levels. According to the authors, Norfolk, Virginia, and parts of the Mississippi Delta region are already experiencing problems with land subsidence that, when combined with rising sea levels, will seem to speed up sea level rise in those areas. Many of the

structures used to shore-up coasts, e.g., seawalls and groins, are very costly and effective only in the short-term. Placement of these structures can result in erosion and the loss of the beach. Dredging sand from offshore can be used to replenish such beaches, but it is very harmful to marine life in the dredging zone and provides only a temporary fix as erosion will continue.

Throughout the book, the authors acknowledge the importance of the seashore to many people. They also make the point that by 2100, however, U.S. coasts will have receded no matter what defenses are put in place. As the authors say "...Nature bats last at the shoreline." (p. 60) The final chapter reiterates the "truth of the sea" and provides readers with suggestions on how to manage their relationship with the ever-changing seashore.

This book is recommended for anyone interested in the impacts of sea level rise. It is well-grounded in research and well written and will appeal to readers from the general public through the academic community. It is recommended for public, community college and university libraries.

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