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Editors

SeaCities

Urban Tactics for Sea-Level Rise

 Springer

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*This book is dedicated to all the members
of the Griffith SeaCities group for your
contributions to this book and to your family
and friends who supported you in this project.*

Foreword by Prof. Andrew T. Smith

Coastal cities will have to change in the future. The higher the predictions of sea-level rise and its associated impacts, the sooner this change will have to occur. While some see the complexity of cities as a hindrance, we see the opposite: complexity can be helpful in exploring cost-effective opportunities to redesign and rebuild our coastal cities. The book is intended to test this assumption. It is the result of collaboration between like-minded academic and built environment professionals who came together at the first SeaCities Symposium, held at Griffith University's Gold Coast campus from 2–4 March 2020.

We believe the SeaCities initiative provides an excellent platform for urban experiments designed in response to the challenges associated with sea-level rise. As part of the Cities Research Institute, one of the largest groups of urban researchers in Australia, and in partnership with a network of researchers from around the world, including at Columbia and Delft University and with industry

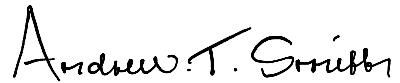


SeaCities Symposium, 2 March 2020, Griffith University

partners like DeFacto, we are well placed to draw on a wide range of practical expertise and critical insight. This enables a truly interdisciplinary approach including the perspectives of architecture, urban planning and governance, systems engineering, as well as cultural ecology, human health, physics, oceanography and indigenous jurisprudence.

This book is a first milestone of the SeaCities research group which we hope will lay the foundation for a continuing critical dialogue about how we might live more securely and sustainably in coastal settings. If you would like to join us in this dialogue, we welcome you contacting any of the authors or editors.

Yours Sincerely

A handwritten signature in black ink that reads "Andrew T. Smith". The signature is written in a cursive style with a large initial 'A'.

Prof. Andrew T. Smith
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Preface

Griffith University was created to be a different kind of university: challenging conventions through interdisciplinary research and teaching to create bold new visions of the future and pioneering solutions to real-world problems. The SeaCities research group is a new example of this pioneering spirit.

According to the World Bank, three billion of the global population live in coastal communities. Over 400 million people around the world, and over one million people in Australia live less than five metres above sea level. With predicted rises in sea level, people living in these coastal settlements will experience many detrimental effects, including loss of land, the impacts of more intense storm surges, deterioration of urban and natural environments, infrastructure vulnerabilities, human health risks, food insecurity and, as a consequence, profound climate-related existential threats.

Developing and applying new digital and physical models in combination with traditional research methods and adaptable design strategies is a key feature of the methodological innovations pioneered by members of the SeaCities group. This holistic research approach—that spans and includes the disciplines of engineering, architecture and urban design, urban and regional planning and other environmental sciences—enables researchers in the group to develop new approaches to building with and for nature, to create ecosystem-based developments on land and sea that respond to the challenges faced by coastal communities in an adaptive and compatible fashion.

The transition from terrestrial to amphibious to aquatic developments creates exciting design opportunities that can relieve land-based population pressures and foster innovative development solutions. Furthermore, it shifts the focus of research and its application from defining and managing increasing risks for coastal communities towards the exploration and development of novel design, engineering and infrastructure solutions. These can seek to blend and merge the sea and land environments in a productive and sustainable fashion.

This book provides a critical overview of different approaches to dealing with the challenges faced by and opportunities available to contemporary coastal cities. Insightful as well as provocative, this book is to be commended to anyone

interested in exploring and developing the idea of SeaCities. As well as reporting on research carried out by members of the SeaCities group, it also includes contributions from some of the leading researchers and practitioners in this field from around the world.

Southport, Australia

Joerg Baumeister
Edoardo Bertone
Paul Burton

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The editors would also like to thank all the chapters reviewers for dedicating their valuable time to improving the quality of this book.

Finally, we would like to thank the City of Gold Coast and Griffith University for their support in helping organise and host the SeaCities Symposium in March 2020 and especially to Diane McDonald of the Cities Research Institute for her patience and logistical expertise. We are also grateful to Professor Carolyn Evans, Vice Chancellor and President of Griffith University; Professor Andrew T. Smith, Pro-Vice Chancellor of Griffith Sciences; and Councillor Tom Tate, Mayor of the Gold Coast for supporting and helping launch the SeaCities Research Initiative and the Symposium which made a significant contribution to the conceptualisation and delivery of this book.

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Editors and Contributors

About the Editors



Prof. Dr.-Ing. Joerg Baumeister has been a practitioner, educator, researcher and consultant for Architecture and Urban Design for more than 20 years throughout Europe, Africa, the Arabian Peninsula, Asia and Australia. As University educator with passion for “his” students, he tries to fuse research, higher education and implementation in order to create feedback loops to evolve the fields of Urban Design and Architecture. Joerg founded in 2019 the “SeaCities” research laboratory (SeaCities.org) at the Cities Research Institute, Griffith University to develop water-adapted cities and floating structures. He is consulting governmental institutions on the federal, state and regional level as well as NGOs and private industry leaders to apply his current research interests which comprise SeaCities, ecological cities, affordable housing in serial building technology and design innovation through creative thinking. He is an award-winning Architect and Urban Designer and continues to be an enthusiastic speaker at international conferences. Joerg is DAAD Ambassador and Scientist for Future.



Dr. Edoardo Bertone is a researcher with a civil engineering background, and he has a current research focus on data-driven modelling, Bayesian network and system dynamics modelling applied to the water resources management, water treatment optimisation, water-energy nexus, sustainable cities, environmental health and climate change adaptation fields. He completed his Ph.D. in water resources engineering in 2015, and he is currently a lecturer at Griffith University. He collaborates with several large Australian water utilities, Government departments and city councils, and he is a member of the SeaCities group under Griffith's Cities Research Institute.



Paul Burton is Professor of Urban Management and Planning and Director of the Cities Research Institute at Griffith University. Having trained and worked in London as a town planner, he joined the School for Advanced Urban Studies at the University of Bristol, UK, to carry out research for his Ph.D. on the redevelopment of London's docklands. Over the next three decades, he led and contributed to research projects on living conditions in European cities, homelessness among young people, the links between housing and labour markets as well as a range of national urban policy evaluations. Since moving to Australia in 2007, Paul's research has focused on multi-level governance in metropolitan settings, new techniques of community engagement and the professional lives of planners. He is the Series Editor for the Springer Cities Series and an active member of the Planning Institute of Australia.

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