

Complex Coastal Systems: Transdisciplinary learning on international case studies

Chapter 1: Introduction

Slinger, J (editor) (TU Delft Policy Analysis; Institute for Water Research, Rhodes University)
ORCID 0000-0001-5257-8857

Taljaard, Susan (editor) (Council for Scientific and Industrial Research (CSIR))

d'Hont, Floortje (editor) (TU Delft Policy Analysis) ORCID 0000-0002-6966-023X

<https://repository.tudelft.nl/islandora/object/uuid:2e9a8442-77a3-4f2a-9d87-701273e49e5c>

Abstract

This book captures the learning from a cross-comparison of seven international inlet or estuary mouth management situations. The conceptual framing is provided by a focus on systems knowledge and its development and use within coastal management. Systems and systems knowledge have been described as holistic, embodied ways of conceptualising reality, forming “both a way of inquiry and an object of inquiry” (Nelson, 2008). To date there has been little research focussing on the role of systems approaches in informing coastal management despite the early development of systems thinking (late 1950’s onwards) (Ison et al., 1997), the general acceptance of the adaptive learning cycle of integrated coastal management (Group of Experts on the Scientific Aspects of Marine Environmental Protection [GESAMP], 1996; Olsen et al., 1999), and ongoing engineering infrastructural and urban development along our coasts. Recently, Reis et al. (2014) undertook a study on systems approaches for implementing integrated Introduction 14 Complex coastal systems coastal management principles in Europe, concluding that there is evidence that systems approaches provide a significant step in advancing multidisciplinary sustainability science. Accordingly, this study adopted a systems approach (the way of inquiry) in seeking to learn across a diversity of case studies (the objects of inquiry), each exhibiting complex biogeophysical and social dynamics on multiple, nested spatial scales and time horizons. In particular, an international cross-comparison was undertaken to garner knowledge on the role of system understanding in designing and managing nature-based interventions (Slinger, 2016; Waterman, 2010) in a range of inlet and estuary systems. Here, the interventions are regarded as the product of the involved network of scientists, engineers and other stakeholders within the case studies, and their social dynamics over time. In this sense the interventions are knowledgeable actions (Ison, 2008).