

Contents

1	Introduction	1
1.1	Aim, Context and Guiding Questions	1
1.2	Structure of the Dissertation	3
1.3	Methodological Approaches	5
2	Background Information – Nature and Society	7
2.1	The Natural Environment of the North Sea Coastal Zones	7
2.1.1	Basic Information	7
2.1.2	Landscapes and Important Areas	9
2.2	Sea Level Curves and the Flood-prone Areas	21
2.2.1	Sea Level Curves	21
2.2.2	Today's Flood-prone Areas	22
2.3	Service for Society: Coastal Protection	24
2.3.1	Retrospective – Coastal Protection until Yesterday	24
2.3.2	The Consequences of the Storm Surges in 1953 and in 1962	26
2.4	Protection Against Flooding – Today's Concept	29
2.4.1	Lower Saxony	29
2.4.2	The Netherlands	33
2.4.3	Outlook	34
3	New Insights – Varying Circumstances and New Frameworks	37
3.1	Climate Change and Consequences	37
3.1.1	IPCC – Fourth Assessment Report (AR4)	38
3.1.2	The European Dimension	40
3.1.3	Possible Effects of Climate Change in Germany	42
3.1.4	Regional Vulnerability and Sectoral Perspectives	48
3.2	Sustainable Development and Integrated Management	50
3.2.1	The International Perspective	52
3.2.2	The European Perspective	53
3.2.3	National Strategy on ICZM in Germany	56
3.3	Addressing (Flood) Risk Management	57
3.3.1	Risk, Uncertainty and Vulnerability	57

3.3.2	Risk Perception	62
3.3.3	Risk Communication	63
3.3.4	Integrated Risk Management Approach	66
3.4	New Safety Needs – Demands for Action	71
3.4.1	Safety Demands in Germany	71
3.4.2	Safety Demands in The Netherlands	72
3.4.3	Looking Back and Forward	75
4	Anticipating the Future – Available Tools and Instruments	79
4.1	Legal Processes – Consultation and Cooperation	80
4.1.1	Relevant Instruments	80
4.1.2	Potentials and Challenges for Coastal Protection Zones ...	90
4.2	Participatory Action – Involving the Coastal Society	95
4.2.1	Participation Approaches – Retrospective	95
4.2.2	Barriers to Participation	98
4.3	Assessing the Future – Scenarios and Evaluation	104
4.3.1	Scenarios	104
4.3.2	Assessment Frameworks	107
4.3.3	Outranking of Scenarios – Background	112
4.4	Cooperation for the Future – Participatory Integrated Assessment	117
4.4.1	Framework for Implementation	119
5	Sound Options – Multifunctional Coastal Protection Zones	123
5.1	Spatial Coastal Protection Concept	123
5.1.1	Definition of Coastal Protection Zones	123
5.1.2	Proposed Solutions of the ComCoast Project	128
5.2	Results of the Case Study Nessmersiel – Achieving Multifunctionality	129
5.2.1	Identification of Sites	129
5.2.2	Description of the Site	132
5.2.3	Design of the Participation Process	134
5.2.4	Design Elements, Geographic Information System and Scoring Matrix	137
5.2.5	Results of the Process	142
5.2.6	Single and Group Decision-Making Process	153
5.3	Lessons Learned – Participatory Integrated Assessment	158
5.3.1	The Scoring Matrix – Catalyst for a Desired World?	162
5.3.2	A Vision for the Future – What About the Adaptability? ..	163
6	Looking Ahead – A Sustainable Process	165
6.1	Progress Through Adaptation	166
6.2	Practice Integrated Coastal Zone Management	167
6.3	Outcome – Options of Multifunctional Coastal Protection Zones ..	169
6.4	Final Remarks	171

7	Summaries	173
7.1	Summary	173
7.2	Zusammenfassung	175
8	References	187
A	Legal Instruments Related to Multifunctional Coastal Protection	
	Zones	205
A.1	Strategic Environmental Assessment (SEA)	205
A.2	Environmental Impact Assessment (EIA)	206
A.3	Water Framework Directive (WFD)	207
A.4	Flood Risk Management Directive (FRMD)	207
A.5	Birds Directive	209
A.6	Habitats Directive	209
A.7	Law on Water Management of Lower Saxony (NWG)	210
B	European Case Studies	211
B.1	Case Study Abbots Hall (UK)	211
	B.1.1 Description of the Setting and the Process	211
	B.1.2 Results of the Participation Process in Abbots Hall	212
B.2	Case Study Wallasea Wetland Creation (UK)	214
	B.2.1 Steps to Identify a Feasible Site	214
	B.2.2 Wallasea Island Today	216
B.3	Case Study Perkpolder (NL)	217
	B.3.1 Description of the Setting and the Process	217
	B.3.2 Results of the Participation Process	218
	Index	219

<http://www.springer.com/978-3-642-01773-5>

Long-term Perspective in Coastal Zone Development
Multifunctional Coastal Protection Zones

Ahlhorn, F.

2009, XIX, 220 p., Hardcover

ISBN: 978-3-642-01773-5