

Contents

1 Introduction	1
Daniel E. Lane	
References	4
2 The Vulnerability of Coastal Zones Towards Climate Change and Sea Level Rise	7
2.1 Sea Level Rise—Causes and Future Outlook	7
2.1.1 What Causes Sea Levels Rise?	7
2.1.2 How Far Will Sea Levels Rise in the Future?	9
2.1.3 Is Sea Level Rise Uniform?	12
2.1.4 Sea Level Rise Gulf of St. Lawrence and Coast of New Brunswick	13
2.2 Increase in Extreme Weather Events and Changes in Winter Conditions	14
2.2.1 Increase in Storm Frequency and Intensity	14
2.3 Changes in Winter Conditions	16
2.4 Ocean Warming and Acidification	17
2.5 Coastal Erosion and Its Impact on Infrastructure	19
2.5.1 Erosion as an Accelerated Natural Process	19
2.5.2 Coast Type and Rate of Coastal Retreat	20
2.5.3 Coastal Retreat in New-Brunswick	23
2.5.4 Impact of Coastal Erosion on Buildings and Infrastructures	25
2.5.5 Impact of Climate Change and Coastal Erosion on Tourism	26
2.6 Conclusion	27
References	27

3	Adaptation Tools and Strategies	33
3.1	Vulnerability, Adaptation and Resilience—Three Tightly Linked Concepts	33
3.1.1	Definitions of Vulnerability, Adaptation and Resilience	33
3.1.2	Mainstreaming	36
3.1.3	How to Measure Vulnerability, Adaptation and Resilience?	37
3.1.4	Adaptation and Development	38
3.1.5	Gender Specific Vulnerability	39
3.2	Adaptation Techniques and Strategies	39
3.2.1	Adaptation Strategies	40
3.2.2	Adaptation Tools	44
3.3	Conclusion	61
	References	62
4	Case Studies in Collaborative Action-Research Projects on Climate Adaptation in New Brunswick	69
4.1	The Coasts of New Brunswick	69
4.1.1	Physical Description	69
4.1.2	Socio-economic Description	70
4.1.3	Governance	72
4.2	Case Studies	73
4.2.1	Bathurst	73
4.2.2	Shippagan	77
4.2.3	Le Goulet	80
4.2.4	Cocagne and Grande-Digue	82
4.2.5	Pointe-Du-Chêne	86
4.3	The Importance of Community Participation in the Elaboration of Adaptation Strategies	88
4.3.1	The Participatory Process and Locally Tailored Solutions	89
4.3.2	A Changing Representation of the Coastal Zone	91
4.3.3	Community Cohesion—First, Second and Third Generation Residents	91
4.3.4	Community Empowerment—Strengthening of Local Governance and Negotiation Power Through the Appropriation of Knowledge and Science	92
4.3.5	The Importance of Local Knowledge	93
4.3.6	The Importance of Local Governance	95
4.3.7	The Importance of Associations	96
4.4	Conclusion	96
	References	98



<http://www.springer.com/978-94-017-9887-7>

Adaptation to Climate Change and Sea Level Rise
The Case Study of Coastal Communities in New
Brunswick, Canada

Weissenberger, S.; Chouinard, O.

2015, VI, 100 p. 49 illus., 47 illus. in color., Softcover

ISBN: 978-94-017-9887-7