
Contents

Preface	ix
Acknowledgments	xi
Author Biographies and Organization Presentations	xiii
Chapter 1. Oil Spill Containment in Semi-open Areas: Experiments in French Atlantic and Alpine Waters	1
Frédéric MUTTIN and Rose CAMPBELL	
1.1. Introduction	1
1.2. Rochefort Harbor	2
1.3. Chef-de-Baie Harbor	7
1.4. Maurienne Hermillon Lake.	11
1.5. Discussion	16
1.6. Conclusion	17
1.7. Bibliography	18
Chapter 2. Oil Spill Containment in Open Areas: Four Atlantic and Mediterranean Experiments	19
Frédéric MUTTIN and Rose CAMPBELL	
2.1. Introduction	19
2.2. Falmouth Harbor	21
2.3. Lisbon oil terminal	25
2.4. Galicia Ria de Arousa	29

2.5. Andalucía Palmonés River estuary	34
2.6. Discussion.	39
2.7. Conclusion	41
2.8. Bibliography	42
Chapter 3. Polymetallic Pollution in Sentinel Bivalves Across a Semi-open Area: La Rochelle Harbor, France . . .	45
Marine BREITWIESER, Angélique FONTANAUD and Hélène THOMAS-GUYON	
3.1. Environmental matters of La Rochelle Harbor.	45
3.2. Threats to biodiversity and ecosystem function	47
3.3. Prevention systems of pollution	50
3.3.1. Fairing area	50
3.3.2. New fuel station	50
3.4. Policy regulation and environmental management of La Rochelle Harbor.	51
3.5. Case study in La Rochelle Harbor using three bivalve species.	53
3.5.1. Heavy metal concentrations in sentinel bivalves.	55
3.5.2. Application of biochemical biomarkers in monitoring harbor pollution.	60
3.5.3. Significance and application of biomarkers in monitoring harbor and environmental pollution	63
3.6. Conclusion	65
3.7. Bibliography	66
Chapter 4. Oil Spill Dispersant Use: Toxicity on Marine Teleost Fish	71
Thomas MILINKOVITCH, Stéphane LE FLOCH and Hélène THOMAS-GUYON	
4.1. Introduction	71
4.2. Lethal toxicity of dispersant application on teleost fish	72
4.3. Sub-lethal toxicological effects of dispersant application on teleost fish.	74
4.4. Future research needs.	75
4.5. Conclusion	77
4.6. Bibliography	77

Chapter 5. Extreme Environments: The New Exploration/Production Oil Area Problem.	83
Matthieu DUSSAUZE, Stéphane LE FLOCH and Florian LELCHAT	
5.1. Introduction	83
5.2. Arctic and deep sea: ecosystem specificities	85
5.2.1. Characteristics of marine Arctic areas and related zoocenose	85
5.2.2. Characteristics of deep-sea areas and related zoocenose	86
5.2.3. Impacts of temperature and high pressure on physiology	87
5.3. Oil spill in extreme environments	90
5.3.1. The Arctic marine environment	90
5.3.2. The deep sea	93
5.4. Sensitivity of deep sea and polar ecosystems to oil pollution	95
5.5. Behavior of oil in Arctic and deep-sea areas.	97
5.5.1. Prominence of oil biodegradation for ecosystem recovery.	98
5.5.2. Abiotic factors influencing oil biodegradation . . .	99
5.6. Perspectives in a context of oil spill in polar and deep waters	102
5.7. Bibliography	105
 Chapter 6. Law Review on Accidental Marine Pollution.	123
Yann RABUTEAU and Frédéric MUTTIN	
6.1. Introduction	123
6.2. Injury and compensation	125
6.3. Court decision and case law	127
6.4. Discussion	129
6.5. Conclusion	130
6.6. Bibliography	130
 List of Authors	133
 Index	135