

# Ecological Economics of the Oceans and Coasts

---

*Edited by*

Murray Patterson

*New Zealand Centre for Ecological Economics  
Massey University, Palmerston North, New Zealand*

and

Bruce Glavovic

*School of People, Environment and Planning  
Massey University, Palmerston North, New Zealand*

**Edward Elgar**

Cheltenham, UK • Northampton, MA, USA

# Contents

---

<i>Contributors</i>	vii
<i>Preface</i>	xi
1. Towards an Ecological Economics of the Oceans and Coasts <i>Murray Patterson</i>	1
PART I: FOUNDATIONAL ECOLOGY, COMPLEXITY AND SCIENCE ISSUES	-
2. Global Ecology of the Oceans and Coasts <i>Ben McNeil</i>	27
3. Biodiversity of the Oceans <i>Murray Patterson, Garry McDonald, Keith Probert and Nicola Smith</i>	51
4. Oceans and Coasts as Complex Adaptive Systems <i>Mark Gibbs and Anthony Cole</i>	74
PART II: ECONOMIC AND OTHER VALUES OF THE MARINE ENVIRONMENT	
5. Neoclassical Frameworks for Optimizing the Value of Marine Resources <i>Basil Sharp and Chris Batstone</i>	95
6. Non-Market Value of Ecosystem Services Provided by Coastal and Nearshore Marine Systems <i>Matthew Wilson and Shuang Liu</i>	119
7. Ecological Shadow Prices and Contributory Value: A Biophysical Approach to Valuing Marine Ecosystems <i>Murray Patterson</i>	140
8. The Open Horizon: Exploring Spiritual and Cultural Values of the Oceans and Coasts <i>Charlotte Sunde</i>	166

PART III: MARINE SUSTAINABILITY: INTEGRATING ECOLOGY, ECONOMICS AND SOCIAL DIMENSIONS	
9. Economic Drivers of Change and their Oceanic–Coastal Ecological Impacts	187
<i>Murray Patterson and Derrylea Hardy</i>	
10. Integrative Economy–Ecology Models for Marine Management	216
<i>Matthias Ruth</i>	
11. Poverty and Inequity at Sea: Challenges for Ecological Economics	244
<i>Bruce Glavovic</i>	
PART IV: IMPLEMENTING AN ECOLOGICAL ECONOMICS OF THE OCEANS AND COASTS	
12. Minimum Information Management: Harvesting the Harvesters' Assessment of Dynamic Fisheries Systems	269
<i>Chris Batstone and Basil Sharp</i>	
13. Designing Property Rights for Achieving Sustainable Development of the Oceans	289
<i>Basil Sharp</i>	
14. Ocean and Coastal Governance for Sustainability: Imperatives for Integrating Ecology and Economics	313
<i>Bruce Glavovic</i>	
15. Summary and Future Challenges for an Ecological Economics of the Oceans and Coasts	343
<i>Murray Patterson and Bruce Glavovic</i>	
<i>Index</i>	357