OSPAR Commission for the Protection of the Marine Environment of the North-East Atlantic

Quality Status Report 2000

Quality Status Report 2000

Published by OSPAR Commission, London 2000 ISBN 0 946956 52 9

Text © OSPAR Commission 2000

Graphics other than those mentioned in the illustration credits and copyrights © OSPAR Commission 2000

Permission may be granted by the publishers for the report to be wholly or partly reproduced in publications provided that the source of the extract is clearly indicated.

Recommended reference format

OSPAR Commission 2000. Quality Status Report 2000. OSPAR Commission, London. 108 + vii~pp.

More information about OSPAR

The Convention for the Protection of the Marine Environment of the North-East Atlantic (the "OSPAR Convention") was opened for signature at the Ministerial Meeting of the former Oslo and Paris Commissions in Paris on 22 September 1992. The Convention entered into force on 25 March 1998. It has been ratified by Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, Netherlands, Norway, Portugal, Sweden, Switzerland and the United Kingdom and approved by the European Union and Spain.

Visit the website at http://www.ospar.org

Illustration credits and copyrights

Many of the figures in this report were provided by the Regional Task Teams and their source references are given in the captions. Credits and copyrights for the additional photographs are as follows:

The photographs on the cover illustrate some of the many different human activities that take place in the five regions of the OSPAR maritime area:

- fishing in Arctic waters © Helge Sunde/Samfoto, Norway.
- shore-based support for the Norwegian offshore industry © Marit Nyborg, Norwegian Pollution Control Authority (SFT, Statens forurensningstilsyn).
- a fishfarm in the north of the British isles © Woodfall, UK.
- Arrábida Marine Protected Area © E. Gameiro ICN, Portugal.
- a diver meets a blue shark *Prionace glauca* by D. Perrine © *imag*DOP, Azores (Portugal).

Photo on page 5 $^{\odot}$ Marit Nyborg, SFT.

Photo on page 15 © Helge Sunde / Samfoto, Norway.

Photo on page 39 © Helge Sunde / Samfoto, Norway.

Photo on page 41 © Marit Nyborg, SFT.

Photo on page 63 © O. Barbaroux of IFREMER, France.

Photo on page 65 by D. Perrine © imagDOP, Azores, Portugal.

Photo on page 83 © Reuters.

Photo on page 85 © V. Chapron of IFREMER, France.

Photo on page 102 © B. J. Bett, Southampton Oceanography Centre.

contents

1	Introd	Introduction				
	1.1	Aim and scope	1			
	1.2	The assessment process	3			
	1.3	Guidance to the reader	3			
2	Geogi	Geography, hydrography and climate				
	2.1	Introduction	5			
	2.2	Definition of the OSPAR Convention area	6			
	2.3	Bottom topography				
	2.4	Geology and sediments				
	2.5	Description of the coastal margin				
	2.6	Estuaries, fjords, rias and wetlands				
	2.7 2.8	Catchment area and freshwater run-off Water masses				
	2.8 2.9	Water masses 9 Circulation and volume transport 10				
	2.10	Waves, tides and storm surges				
	2.10	Waves, tides and storm surges 2.10.1 Waves				
		2.10.2 Tides	11 11			
		2.10.3 Storm surges	12			
	2.11	Transport of solids	12			
	2.12	Meteorology	12			
	2.13	Climate variability and climate change	12			
3	Huma	n activities				
	3.1	Introduction	15			
	3.2	Demography	17			
	3.3	Conservation	17			
		3.3.1 Ecological conservation	17			
		3.3.2 Archaeological conservation	18			
	3.4	Tourism and recreation	18			
	3.5	Fisheries	19			
		3.5.1 Fish 3.5.2 Shellfish (crustaceans and molluscs)	19 21			
		3.5.2 Shellfish (crustaceans and molluscs) 3.5.3 Seaweed	21			
		3.5.4 Fisheries management	22			
		3.5.5 Hunting	24			
	3.6	Mariculture (fish and shellfish farming)	25			
		3.6.1 Fish	25			
		3.6.2 Shellfish	25			
	3.7	Coastal engineering and land reclamation	26			
		3.7.1 Coastal defence	26			
		3.7.2 Land reclamation	26			
		3.7.3 Power generation	27			
	3.8	Sand and gravel extraction	27			
	3.9	Dredging, dumping and sea-based discharges	28			
		3.9.1 Dredged material	28			
		3.9.2 Sewage sludge	28			
		3.9.3 Industrial waste	28			
		3.9.4 Radioactive waste	28			
		3.9.5 Inert materials of natural origin	29			
		3.9.6 Other waste 3.9.7 Discharges from offshore installations	29 29			
		3.9.8 Litter	29			
	3.10	Oil and gas industry	30			
	3.10	Shipping	31			
	3.11	3.11.1 Traffic and cargo	31			
		3.11.2 Accidents	32			
	3.12	Coastal industries	32			
	3.13	Military activities	32			
	3.14	Land-based activities				
	3.15	Land-based activities 34 Agriculture 36				
	3.16	Regulatory measures and future developments	36			

4	Chemistry				
	4.1	Introduction		41	
	4.2	Input of con	ntaminants (in general)	43	
	4.3	Assessment of	<u> </u>	44	
	4.4	Trace metals		45	
		4.4.1 I	Introduction	45	
			nputs	45	
			Concentrations in sea water	48	
			Concentrations in sediments	49	
			Concentrations in biota	51	
	4.5	Organic poll		53	
			Introduction	53	
			Organotin compounds	53	
			Polychlorinated biphenyls	54	
			Dioxins and furans	55	
		4.5.5 H	Hexachlorobenzene	56	
		4.5.6 F	Pesticides	56	
			Polycyclic aromatic hydrocarbons	57	
			Other substances of concern	58	
	4.6	Inputs from		59	
	4.7	Offshore che		59	
	4.8	Oil		59	
	4.9	Radioactivity	V	60	
	1.0	,	Sources and input	60	
			Sea water	61	
			Sediment	61	
			Biota	62	
				62	
	4.9.5 Exposure 4.10 Nutrients and oxygen			62	
			Introduction	62	
			inputs of nutrients	62	
			Concentrations and trends of nutrients	62	
			Oxygen	63	
5	Biology				
	5.1	Introduction			
	5.2	General desc	cription of the biology of the OSPAR area	66	
		5.2.1 N	Microorganisms	66	
		5.2.2 F	Phytoplankton	66	
		5.2.3	Zooplankton	66	
		5.2.4 H	Benthos	66	
		5.2.5 H	Fish and squid	70	
		5.2.6 H	Birds	71	
		5.2.7 N	Marine mammals and turtles	71	
	5.3	Impact of hu	uman activities	72	
		5.3.1 I	mpact of non-indigenous species	72	
			Harmful algae	72	
			mpact of microbiological pollution	73	
		5.3.4 I	mpact of fisheries on ecosystems	74	
			mpact of mariculture	77	
			mpact of eutrophication	78	
			mpact of recreation and tourism	79	
			mpact of sand and gravel extraction	79	
			mpact of dredging and dumping of dredged materials	79	
			mpact of coastal protection and land reclamation	80	
			mpact of offshore activities and		
			ship-generated oil spills	80	
			Impact of contaminants	80	
			mpact of radioactive disposals	82	
			Impact of marine litter	83	
			1		

Contents

0	Overall	assessinein
	6.1	Introduction

	6.1	Introduction		85	
	6.2	Fisheries		86	
		6.2.1	Capture fisheries	86	
		6.2.2	Mariculture	88	
6.3		Land and sea use			
		6.3.1	Use of the coastal zone and continental shelf	88	
		6.3.2	Mineral exploitation	90	
		6.3.3	Dredging and dumping	90	
		6.3.4	Litter	91	
	6.4	Shipping		91	
	6.5	Hazardous substances		92	
		6.5.1	Introduction	92	
		6.5.2	Description of impacts	93	
		6.5.3	Effectiveness of measures	94	
		6.5.4	Limitations in knowledge	96	
		6.5.5	Identification of priorities for action	96	
	6.6	Radioactive substances Offshore oil and gas			
	6.7				
	6.8 Eutrophication 6.9 Climate change and climate variability		tion	98	
				100	
6.10		Other issues		101	
		6.10.1	Microbiological contamination	101	
		6.10.2	Dumped ammunition	101	
(6.11	Conclusion	1	101	
Species				103	
Abbreviations				104	
Glossary					
References					