

chapter

1

# Introduction

## 1.1 Scope of the QSR

Assessments of the quality of the marine and coastal environment form a basis for measures for its protection. They provide an opportunity to gather together and assess the results of scientific research and monitoring as well as information on the many human activities that can, directly or indirectly, change or damage the natural attributes of the marine environment. In combination, this information can be used to evaluate the causes and implications of change, and to identify impacts that require early attention by policy-makers and environmental managers. Assessments are also used to review the effectiveness of existing measures to prevent degradation of the marine environment, to protect species and communities and, when practicable, to restore previously damaged marine habitats and ecosystems.

The value of environmental assessments depends to a large extent on the availability of reliable and up-to-date information. Thus it is essential that monitoring and other systems of recording marine environmental information are both ongoing and designed to yield high-quality data amenable to interpretation. In this context, assessments provide a means of reviewing the performance of monitoring programmes and of identifying important gaps in knowledge.

This regional Quality Status Report (QSR) presents an assessment of environmental conditions and of their development in that part of the maritime area of the OSPAR Convention which, for assessment purposes, is known as the Greater North Sea or Region II (**Figure 1.1**). This is the area defined for the purposes of the North Sea Conferences, but extended to cover the Kattegat. The Greater North Sea is regarded as being bound by the coastlines of England, Scotland, Norway, Sweden, Denmark, Germany, The Netherlands, Belgium, and France, and by imaginary lines delimiting the western approaches to the Channel (5° W), the northern Atlantic between Scotland and Norway (62° N, 5° W), and the Baltic in the Danish Straits.

Together with similar quality status reports for the other four regions (see Foreword), this report forms the basis of a holistic and integrated summary of the quality status of the entire OSPAR maritime area.

## 1.2 The assessment processes

This assessment is based upon the most recent information available from national and international sources, including OSPAR committees and specialist working groups, the International Council for the Exploration of the Sea (ICES), published reports and the scientific literature. Although most of the information relates to the 1990s, some topics assessed required the use of earlier data, either because the recent record is sparse or because trend analysis involves consideration of historical data. While every effort has been made to ensure the comparability of data from different times and locations, methodologies may differ considerably and some comparisons will, inevitably, be tenuous. Where such uncertainties have been identified, they are indicated in the text.

The most recent previous report on the quality status of the North Sea, covering thirteen subregions, was prepared by the North Sea Task Force under the auspices of the Oslo and Paris Commissions, and ICES, and was published in 1993 (1993 QSR). The present report mainly summarises the information which has become available since that time, but some data from the 1993 QSR has been used as background material.

Each of the Chapters of this report were drafted by an individual member country of the Regional Task Team following guidelines agreed by OSPAR. For the 'Overall Assessment' in Chapter 6, a structured expert judgement method was used to assist in the assessment process and to attempt to prioritise human pressures according to their impact in this region. A description of this process is given in Chapter 6.

Figure 1.1 Region II and the other regions of the OSPAR maritime area.



### 1.3 Guidance to the reader

Chapter two gives a concise description of the status and development regarding physical geography, hydrography and climate of the region, as these have an important bearing on the types and distributions of marine habitats and communities, as well as on their sensitivity to environmental change. Substantial information was provided in the 1993 QSR, and much of this is still relevant. However, it has been updated with new information on bottom topography, river systems, estuaries and coastal characteristics. Use has been made of the latest developments in mathematical modelling.

Chapter three examines human activities that directly or indirectly impinge on marine areas, their amenities and resources, and also identifies localities most involved, assessing any apparent trends. The North Sea is surrounded by densely populated, highly industrialised countries and it is one of the busiest sea areas of the world. Up to date information is provided on all of these human activities, including the various Agreements and Conventions covering them.

The next two chapters summarise information on chemical and biological features of the various coastal and offshore ecosystems, focusing in particular on the causes and implications of the changes that are occurring.

Chapter four contains the latest available information on developments in riverine, sea-based and atmospheric

inputs of contaminants, such as heavy metals, persistent organic pollutants, oil, radionuclides and nutrients. For the various groups of substances, geographic and temporal comparisons are made of concentrations in water, sediment and biota. Whenever possible, environmental risks are assessed.

Chapter five is essentially in two parts. The first part contains a short description of some of the most important aspects of the structure and function of the North Sea ecosystem, including food webs and biological production processes. Since the 1993 QSR described the North Sea ecosystem in considerable detail, only general information on key functional organisms and their status is given in this report. The second part of this chapter is linked to chapters three and four through a description and discussion of the nature and extent of the various impacts affecting the biota of the region.

Finally, Chapter six draws on the preceding chapters to identify throughout the region the major causes of any environmental degradation, where improvements have been achieved, and recommendations for the managerial and scientific actions needed to address any impacts.

Where scientific and other terms have been used, their meanings are both defined in the text and included in a glossary of terms. There is also a list of the English and (scientific) species names of the organisms mentioned in the text.