

MAREANO – An introduction

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The primary aim of the MAREANO programme is to provide geospatial decision support for the holistic, ecosystem-based management of the Barents Sea and the sea areas off the Lofoten Islands. The first phase was initiated in 2005, and covers the areas Nordland VII, Troms II, Tromsøflaket and Eggakanten (the shelf edge north of Tromsøflaket). These areas were deemed particularly valuable and vulnerable during the pre-MAREANO planning process. The first phase will be finished in 2010. MAREANO comprises extensive mapping, and research and development. Mapping starts with a multibeam echosounder survey, which provides a detailed bathymetric terrain model and backscatter data. This is followed by sampling to provide ground truthing – with a variety of tools such as corers and grabs, trawls, and very high resolution video equipment. Fundamental products include hydrographic and acoustic data (databases and maps), a range of geological maps, point distributions of biological data (biomass, species, taxonomy) and point distribution of selected inorganic and organic contaminants. An important derived product is predicted nature-type maps, where terrain and sediment characteristics are integrated with biological data. Naturetype maps are similar to what have previously been termed "habitat" or "biotope" maps.

Key research and development topics in the first phase of MAREANO are:

- Identification and documentation of the main sedimentary processes, ranging from large scale shaping of the marine landscape, to present day processes modifying the seabed and influencing the benthic ecosystems.
- Understanding the links between the physical environment at the seabed (landscape, sediment) and the biological component of the benthic ecosystems.
- Development of proxies for benthic ecosystems, utilizing remote sensing with a minimum of ground truthing. This involves investigations of how remote sensing (multibeam bathymetry and backscatter,

high resolution sediment echosounder) in combination with a limited number of physical samples of sediments and biota, and visual documentation, can contribute to a reliable full areal prediction of nature types.

- Understanding and documentation of the links between shallow geological features and processes, and the physical, biological and chemical environment of the seabed. This includes pockmarks, authigenic carbonates and possible thermogenic sources for organic contaminants in the sediments.

The MAREANO programme depends on high quality research and its development to provide the scientific basis for the management of the Barents Sea – Lofoten area. At the same time, it provides knowledge and foundation data sets for other types of research. It is our hope that this volume gives a good overview of the state of current research and development, and that it illustrates some knowledge gaps which we still need to fill.