

## THE KINGDOM OF NORWAY

### The Kingdom of Norway

The Kingdom of Norway consists of a mountainous strip of about 325 000 km<sup>2</sup> of western Scandinavia. In addition, Norway has sovereignty over the Archipelago of Svalbard and some lesser islands in the Arctic. Norway also has interest in greater parts of Antarctica and two small Antarctic islands.

Norway literally means "the way North". Its name is derived from the coastal waters which have provided the navigators with a sheltered sea lane from the North Sea all the way to Russia and the Arctic since time immemorial. The origins of the name gives an indication of the importance attached to navigation through the ages.

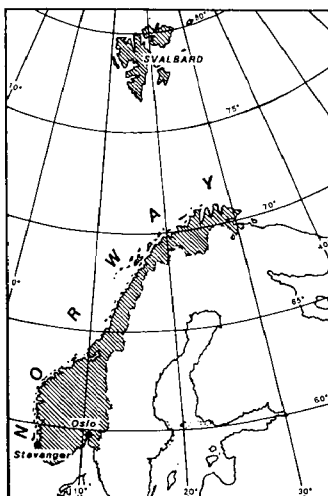


FIG. 1.- Norway.

The coast of Norway facing the North Sea in the south and west, the Norwegian Sea and the Barents Sea in the north, is for most of its length deeply indented with numerous fjords and offshore islands. Including the islands it has a total length of coastline of over 57,000 km. The vast system of leads and fjords provides navigable access to 24 of the 25 major towns and 3/4 of the population.

The sea area which falls within Norway's EEZ is roughly 2 million km<sup>2</sup>, of this area about 1 million km<sup>2</sup> is continental shelf. The population of Norway is about 4.5 million. Norway is a constitutional monarchy, the present sovereign being King Harald V. The capital city is Oslo, which is also the seat of the government. The North Atlantic Current gives Norway a mild, humid climate, with average temperatures considerably higher than one might expect for a country situated between 58° and 71° N latitude.



FIG. 2.- SJØMÅLEREN  
300 ton coastal multibeam survey vessel.

The Norwegian merchant fleet is one of the largest in the world, with a total of 20.6 M gross registered tons (Aug. 1996). The economy of Norway is highly dependent on exports and imports. The exploitation of oil and gas on the continental shelf of Norway contributes considerably to the national revenue. Fishing has always been an important industry. In recent years, fish farming has become the fastest growing industry in Norway. The development of the various marine industries requires careful management of the country's resources, including the protection of the environment.

### **The Norwegian Hydrographic Service**

The first Norwegian Hydrographic Service (NHS) was established in 1874 as a section within the Land Topographic Survey. In 1932, the section was transformed into an independent institution.

Mr. Randolph DAVIDSEN has been the Director of the NHS since June 1990.

The last few years have seen a profound change in the NHS. The organisation is in the process of making a complete transition from an analogue to a digital line-of-production. The change affects everything from surveying to chart production. This trend has been accentuated by the development of the ECDIS systems combined with readily available precise positioning and the rapidly growing

demand for ENC-data. The emphasis is being shifted from a comprehensive surveying and chart production effort, to digital management of data which will place the NHS in a pivotal role in the dissemination of maritime geographically reliable information. The centrepiece in this scenario is a digital database that is expected to be operative in 1997.

The NHS manages its own fleet of survey vessels. It has, at present, three survey ships, and a number of survey launches at its disposal for near-shore surveys. The NHS has, for the time being, no ship dedicated for ocean surveying.

All data acquisition is now effected in digital form. A custom built DGPS positioning system is utilised for all survey operations. Multibeam echosounding is applied extensively in waters deeper than 30 m. The NHS has also decided to apply area covering sounding devices in shallow waters.

The survey of Norwegian waters and particularly the inhospitable waters around Svalbard to acceptable standards will take a very long time with the present resources available to the NHS. Pending the capability to assimilate survey data from external sources, the NHS will make arrangements with various private and public organisations to obtain supplementary bathymetric data resulting from their survey efforts. For the moment, the NHS is holding more of this kind of data than it is able to utilise in the production of charts.

As the final element in a process oriented line-of-production, a new, advanced chart production system is expected to be operative in 1997. Drawing on the information in the central databases, this tool is designed to provide various types of geographical reliable information. The prime product will remain the nautical chart, both as standard or custom made ENC's as well as films for the production of traditional papers charts. The system is also designed to produce other customised products.

Since 1984 the NHS has been heavily engaged in questions associated with electronic navigation charts. In the international arena these activities have been carried out in close contact with the IHO, NSHC, IMO, and a number of Hydrographic Offices and has led to the establishment of the Stavanger based Electronic Chart Centre.

The Electronic Chart Centre (ECC) is a division within the Norwegian Mapping Authority and is independent of the NHS. Its main objective is to establish an infrastructure and service to support ECDIS with authoritative electronic navigational charts (ENC) and updates compliant with relevant international standards in cooperation with the Hydrographic Offices. The ECC is based in Stavanger. Mr. Asbjørn KYRKJEEIDE has lead and directed the ECC from its embryonic stage in 1988.