International Council for
the Exploration of the Sea

C.M.1980/D:17
Statistics Committee
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Distribution of Oceanographic Information to the ICES Community

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The main task of the Service Hydrographique has always been to make oceanographic data and a number of marine environmental data products available to the ICES community. Below is reported on some activities of the Service, as background information for a discussion of future requirements.

Oceanographic Data Bank

Undoubtedly the great majority of classical hydrographic station data from the main ICES region, i.e., the northeastern North Atlantic (including the North Sea, the Transition Area and the Baltic) are available at the Service Hydrographique. For the years 1902-1962 all the hydrographic data received could be published in the Bulletin Hydrographique (and its predecessors) 1902-1956, or in the ICES Oceanographic Data Lists 1957-1962. An index of the data published in the Data Lists is included in the List of ICES Publications. More detailed indexes of the Data List volumes published up to 1968 are available in document C.M.1968/C:8.

The "data explosion" setting in about 1960 made it virtually impossible however, to publish all data, also because new types of data appeared on the scene, such as those from STD, XBT a.o. There was also not the same need as earlier for publishing the data, because of the introduction of automated data processing which made it easy to extract from a data bank the material requested. ICES decided therefore to stop publishing of data, except those from cooperative studies performed under the auspices of the Hydrography Committee and reported to ICES. Under this rule the data from several post-1962 cooperative expeditions have been published: Cooperative Investigations of the Baltic 1964 (5 vols.), Joint Skagerrak Expedition (4 vols. + atlas vol.), International Baltic Year 1969/1970 (4 vols. + atlas vol.), Ocean Weather Station INDIA 1964-1966.

It was the prevailing opinion among oceanographers within ICES that cessation of the Data Lists would presuppose alternative means of obtaining oceanographic data from ICES. A centralized data bank at ICES was therefore essential, although national data centres were being established in a number of ICES member countries.

In accordance with this view a data bank of standard observations of temperature, salinity and chemical constituents has been established on automated carrier (punch cards, magnetic tape). Data are supplied from the data bank at request, on an exchange basis or at minimal cost (essentially the cost of computer time). To make this service efficient it is obviously important that we receive as many data as possible from the ICES member countries, and it is gratifying to note that most member countries do supply their data to ICES. With regard to reading older data on to magnetic tape we have greatly benefited from an exchange agreement with U.S. National Oceanographic Data Center (NODC).

Inventories

When the data are no longer published, a need for annual inventories of observations arises. For the years 1967 onwards an annual "Report on Oceanographic Cruises and Data Stations" has been published, since 1969 in the series "ICES Oceanographic Data Lists and Inventories" (IODLI). This Report at the same time replaces the earlier Administrative Report of the Hydrography Committee. In order to keep down costs the Report is now produced on microfiches instead of as printed volumes. It should be stressed that these Reports, based upon completed socalled ROSCOP forms, also contain a wealth of information about biological, geological, geophysical, meteorological and pollution observations.

An especially important data base constitute the oceanographic observations carried out regularly by the Ocean Weather Ships at their fixed positions. As ICES was involved in setting up the oceanographic observations programme of the Weather Ships in the North Atlantic it was decided that detailed inventories of the oceanographic work by these ships should be issued annually by ICES. These inventories, published in the IODLI series, now cover the years 1947-1978.

Other detailed inventories issued, or in preparation, in the same series cover the "Overflow" Expedition 1973 and the JONSDAP '76 Project.

Environmental Data Products

A meeting in 1966 on the future of the Service Hydrographique suggested that the Service, in addition to be an oceanographic data centre should also become "an oceanographic data analysis centre designed so as to provide such presentations of oceanographic data as the Council's scientific experts, both biological and hydrographic, require in order to pursue their researches effectively". The meeting stressed however that such work could not be carried out without the provision of suitable computer facilities and additional staff.

Although these conditions could not be fulfilled at that time, the needs of fisheries and fisheries research for processed oceanographic data were discussed with fisheries biologists. Obviously the requirements differ from one sort of fishery to another. However, priority would seem to be given to

1. Charts of temperature and salinity in the shelf areas, in some places also at certain depth levels;
2. Time series of temperature and salinity, or of their anomalies, at certain points.

In accordance with these expressions of requirements a number of environmental data products have been prepared:

Monthly charts

Since 1969 monthly charts of bottom temperature and salinity in the North Sea have been published regularly, and from 1970 onwards also monthly charts of temperature and salinity at bottom and at 10 m depth in Skagerrak/Kattegat have been published. Sample copies of some of the most recent charts (those for November 1977) are appended. The charts are distributed currently, and also collected and issued as a bound volume for each year. For the months of the ICES Young Fish Survey in the North Sea the mean charts are supplemented by anomaly charts (see, e.g., C.M.1980/H:58). The meeting may wish to consider whether the monthly charts in general should be accompanied by anomaly charts.

Monthly means of surface temperature and salinity

While in the Bulletin Hydrographique volumes for 1932-1956 the data were arranged geographically, according to 1°-squares, they were in the Data Lists arranged after cruises, which makes it somewhat troublesome to extract the data for a certain region. To remedy this, at least to some degree, and at the same time prepare a product needed by some plankton researchers monthly mean values of surface temperature and salinity in areas of 1°Lat.by 2°Long. in the North Sea and the northeastern North Atlantic have been produced. The arrangement of data is not of the same importance now when the data are on magnetic tape and can easily be sorted. On the other hand there is obviously a need for such mean charts or tables. So the series has been continued and now covers the period 1957-1973. Samples of the 1973-tables are appended. Furthermore, in order to bridge the gap to the tables of the ICES "blue Atlas" which covers the period 1905-1954, tables have been calculated also for the years 1955 and 1956. In response to a Council Resolution 5- and 10-year means will be computed and published.

Time series of surface temperature and salinity

For a number of areas (fourteen areas in the Atlantic and one on the east coast of Scotland) monthly anomalies of the sea surface temperature over a long period of years have been calculated, based upon marine meteorological data reported to the Danish Meteorological Institute. This series, which now covers a 100 year period (1876-1975), is distributed over a great many numbers of the Annales Biologiques. In accordance with an earlier Council Resolution these tables will be issued, together with some graphs, as a volume of the IODLI series.

Also for three areas of the southern and central North Sea and two areas of the Celtic Sea the fluctuations of the sea surface temperature have been followed by calculating the monthly anomalies over the period 1902-1973.

In view of the requirement for time series it was considered worth while to work up the sea surface temperature observations made daily at the four main synoptic hours at the North Atlantic Ocean Weather Stations. Since the establishment of the new station scheme in 1975 we have computed monthly means and anomalies at each of the remaining four stations, for publication in the Annales Biologiques.

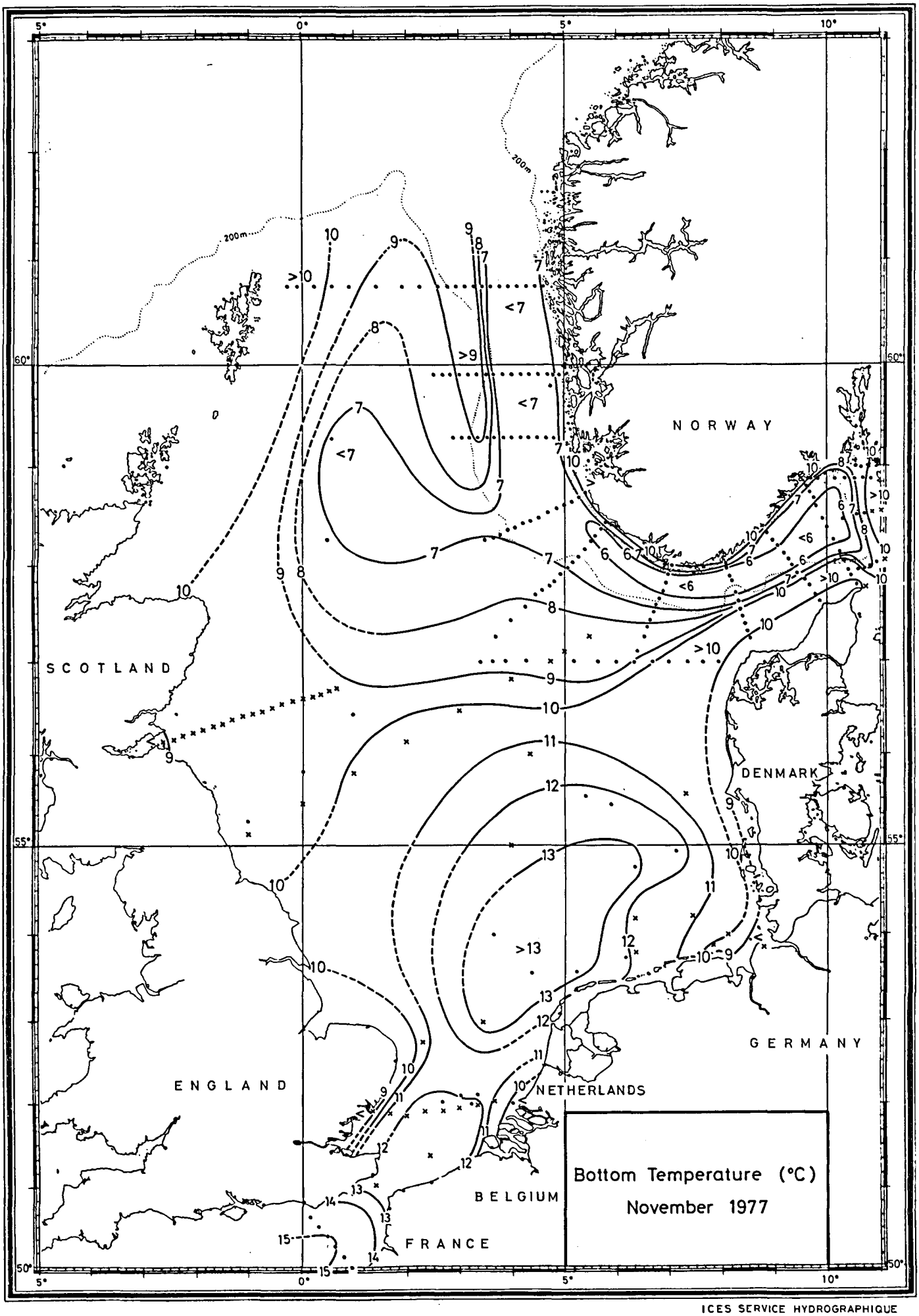
There is also a need for following the fluctuations of the salinity. This has been done for two areas of the Celtic Sea over the period 1903-1973. Furthermore, it is our intention to work up the postwar surface salinity data in a number of areas of the North Atlantic, as a follow up of an earlier investigation of the salinity fluctuations in the same areas during 1902-1939.

Future Tasks

The activities reported above are carried out either in direct response to Council Resolutions or have later on got the blessing of the Council. It would be useful, however, now to consider whether some of the ongoing activities are no longer of sufficient interest to warrant continuance, and to discuss whether there is a need for new activities. The Bureau has decided therefore that a questionnaire asking for comments and suggestions regarding the work of the Service Hydrographique should be distributed, which is being done in connexion with this Council Meeting. What has been reported above may be considered a sort of introduction to the questionnaire.

When considering future tasks it should be born in mind that the computerization of the data bank makes it fairly easy to extract data for a given region and a given period, and also greatly facilitates the preparation of many environmental data products.

One type of data has not been mentioned in the foregoing, viz., remotely sensed data. It is probably not realistic to think of any sort of analysis of such data at the Service Hydrographique. It might be useful however, that we kept a collection of certain types of satellite imagery, with an inventory, so that we might answer questions about relevant material and perhaps supply copies of such imagery.



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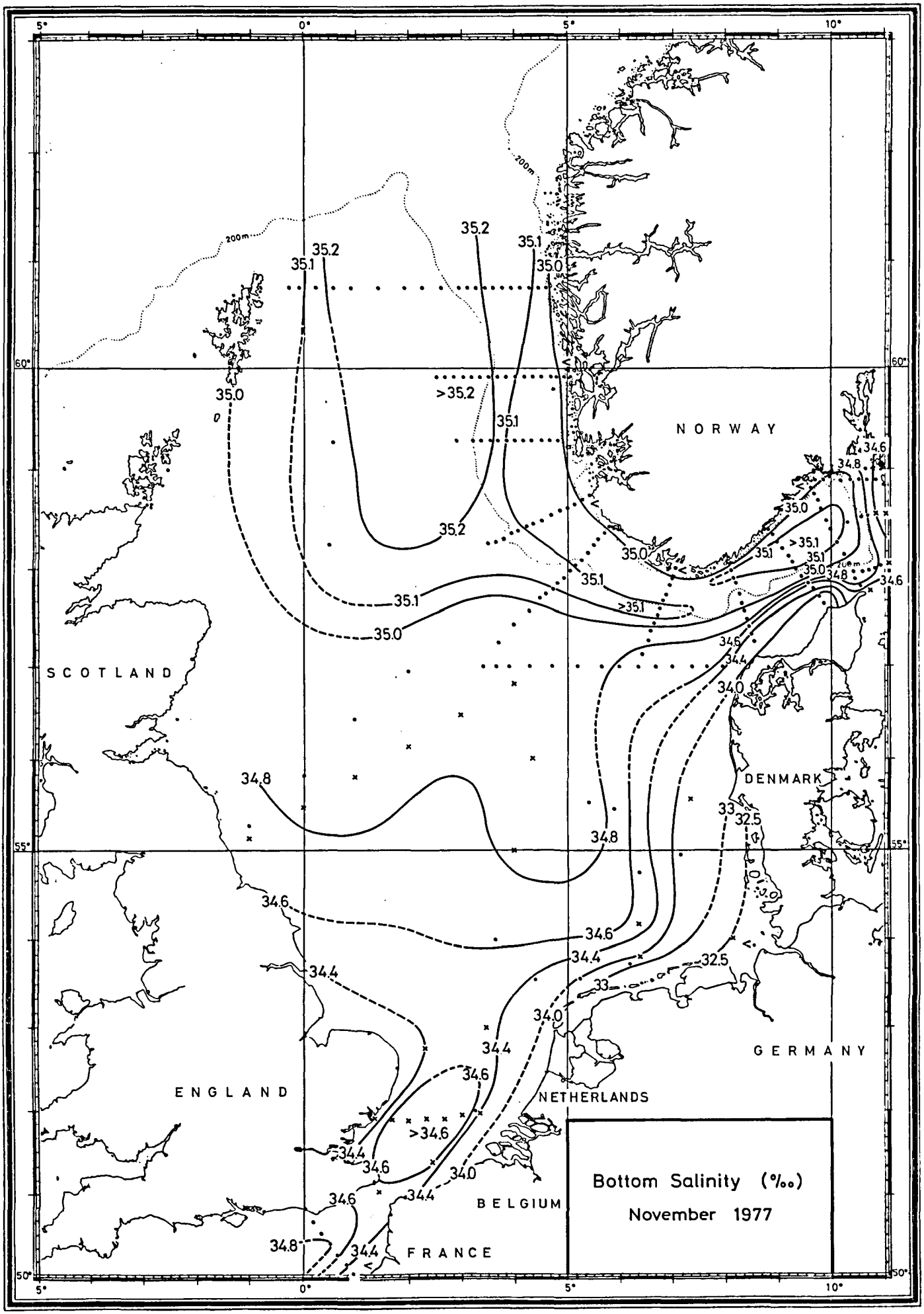

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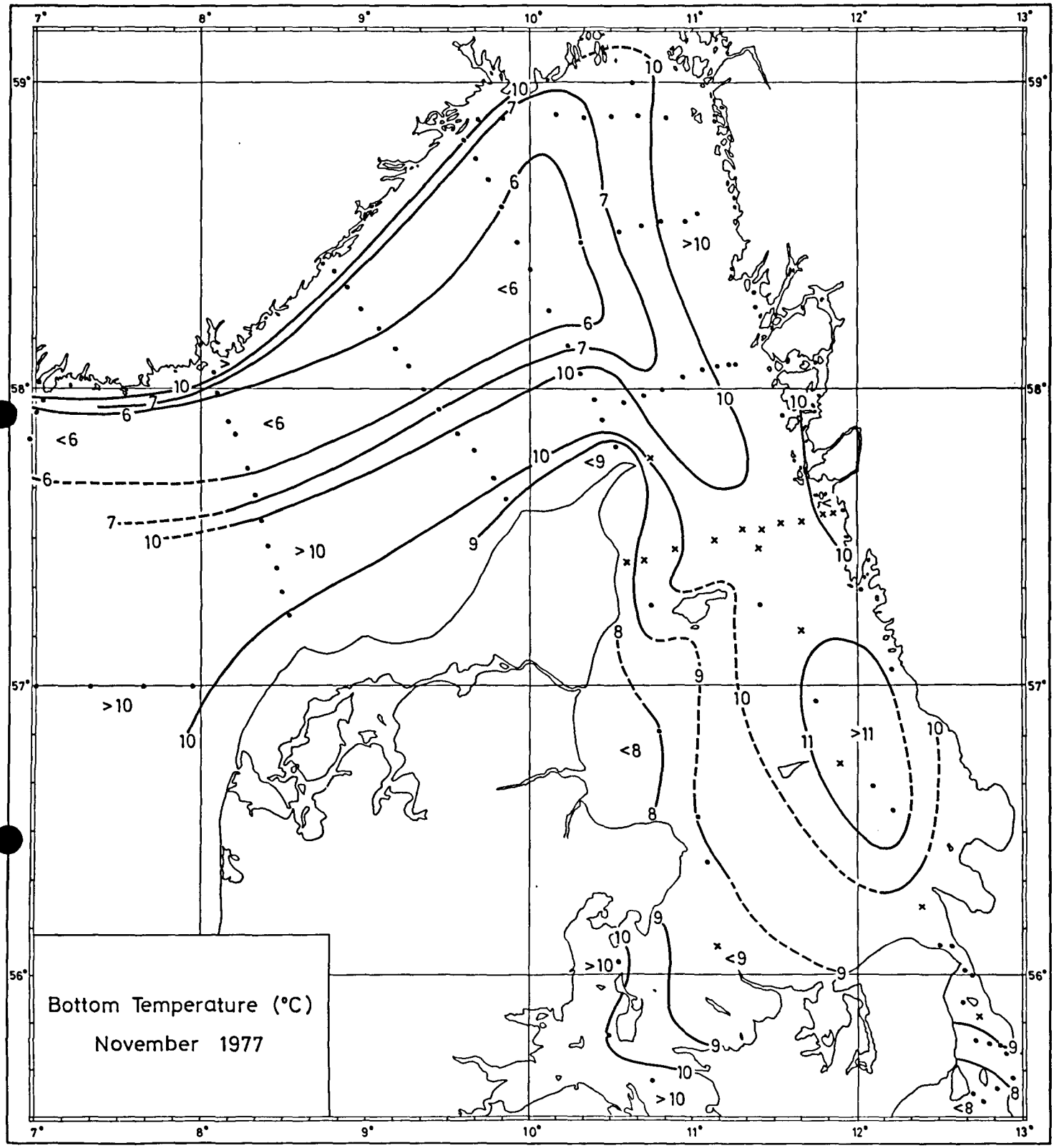

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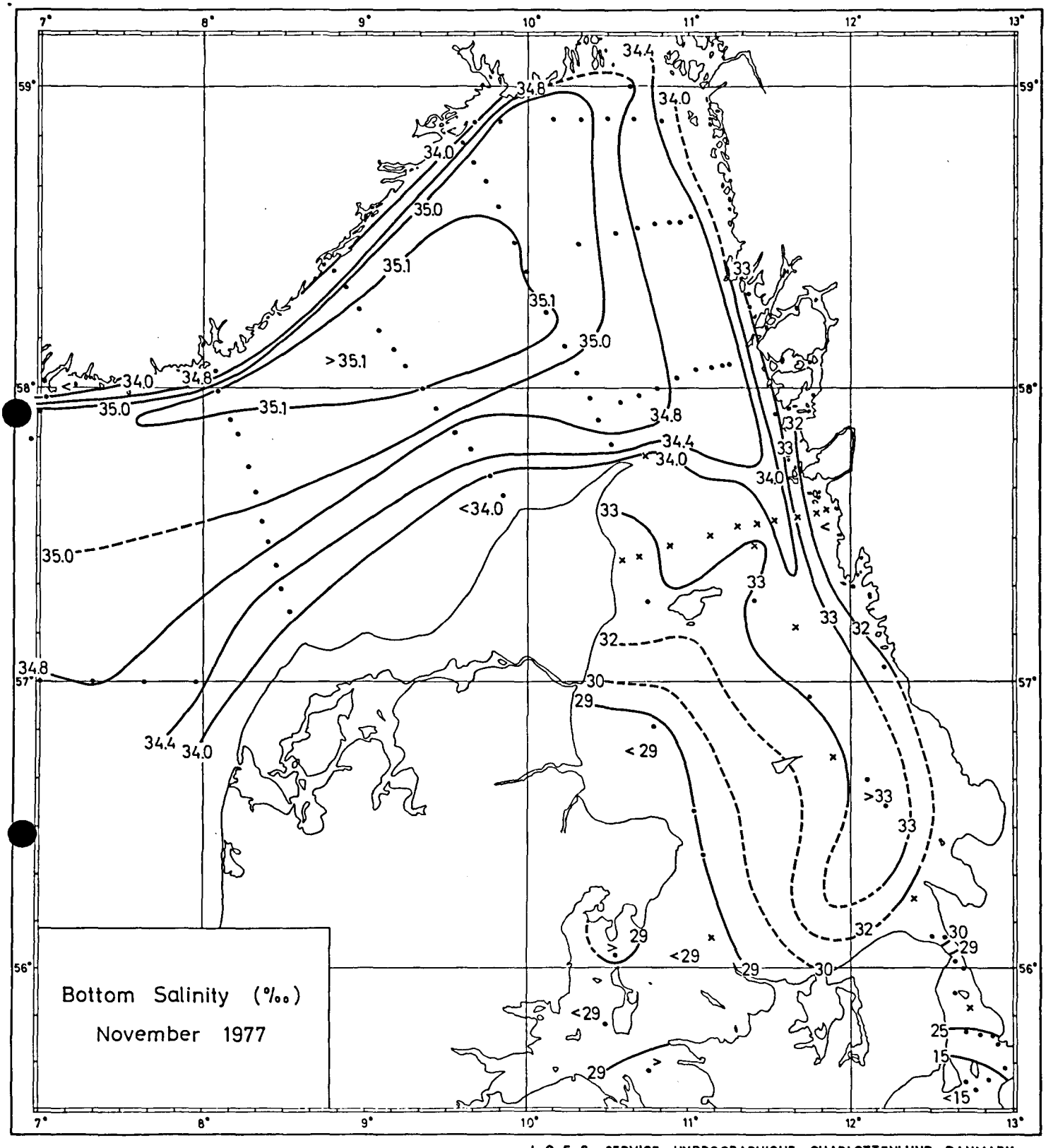

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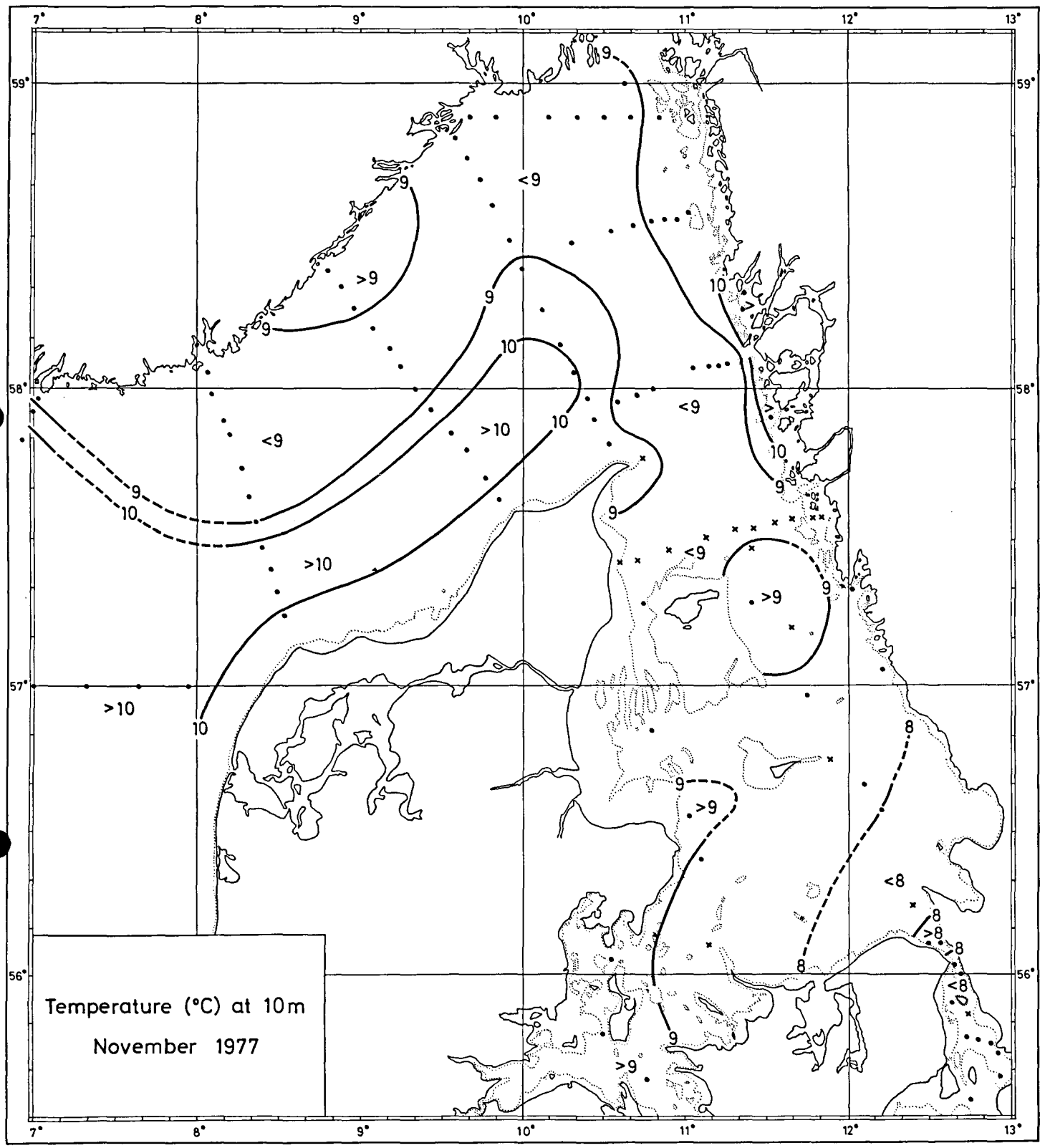

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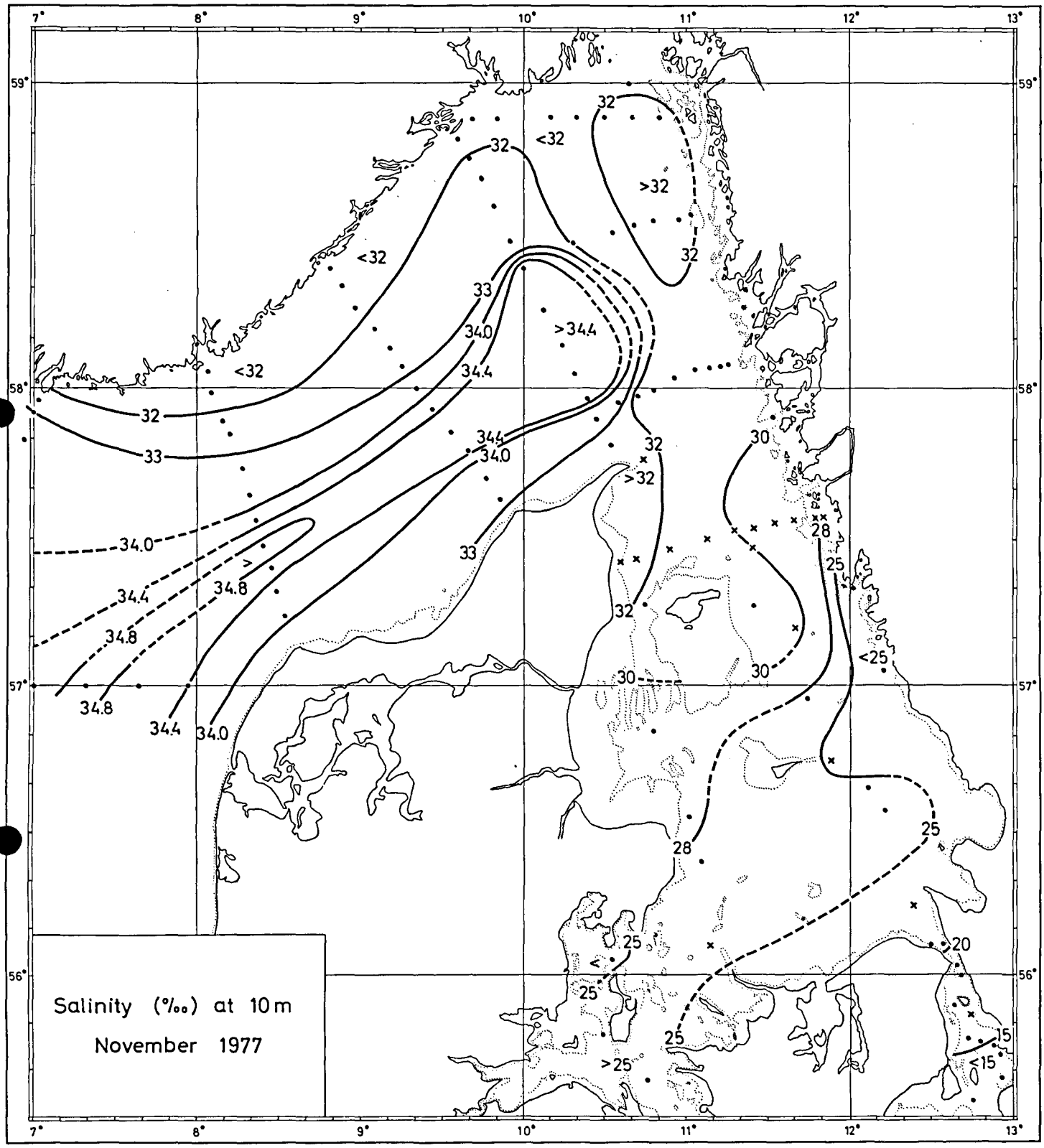

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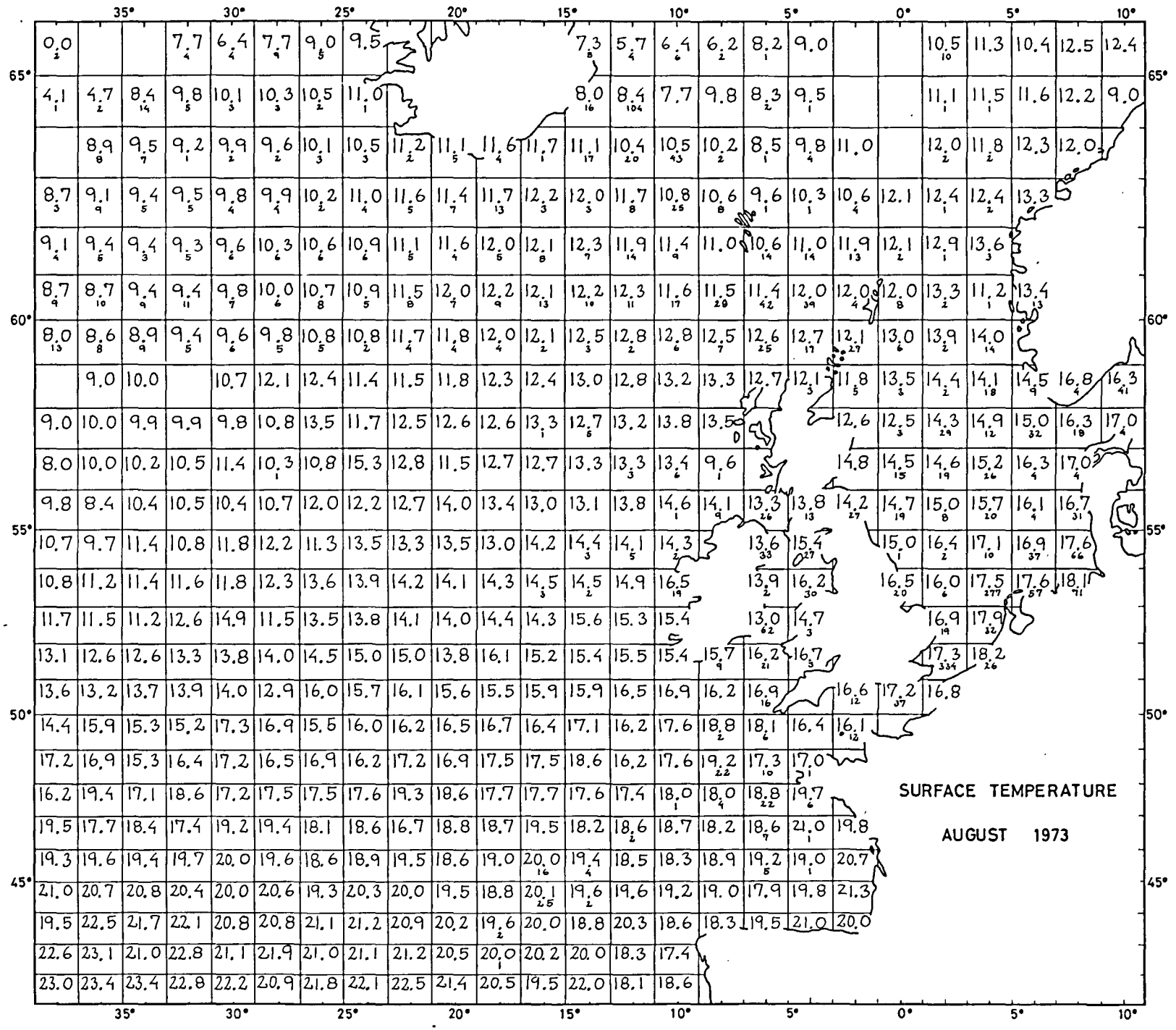
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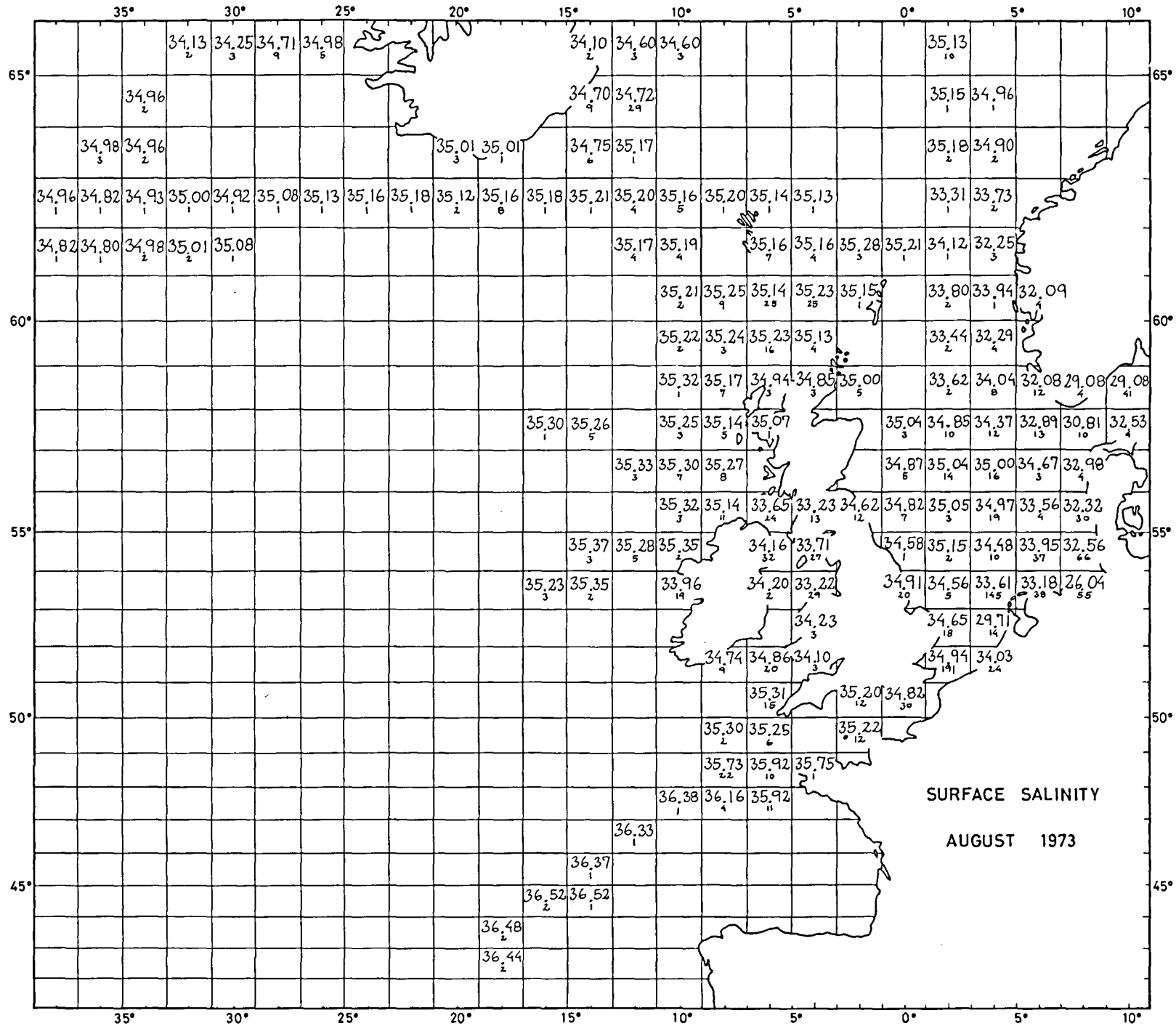
AUGUST 1973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