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New Atlases of Temperature, Salinity and Density of the Baltic Sea

by
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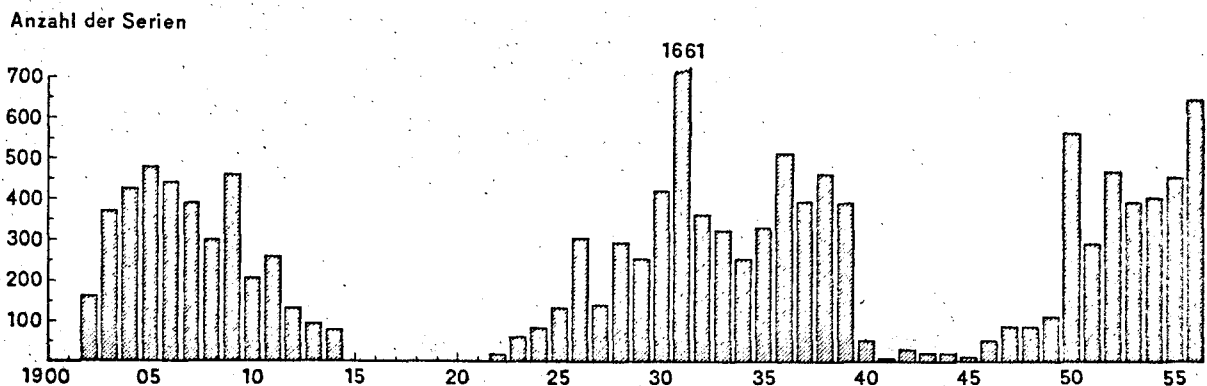
The German Hydrographic Office has published atlases of temperature (1962) and salinity (1967) of the North Sea. Now we have finished similar atlases for the Baltic Sea with an additional atlas of the density of the water.

These atlases consist of

- 1) monthly charts of the horizontal distribution of the different parameter for the depths 0, 10, 20, 30, 40, 60, 80, 100 m and for the bottom
- 2) monthly vertical sections through the entire Baltic
- 3) three-dimensional graphs showing the data on which the atlases base for selected areas and different depths. The axes of the graphs are: time of year, value of the parameter, amount of measurements.

The temperature atlas comprises also a clue for the appearance of ice in the surface charts..

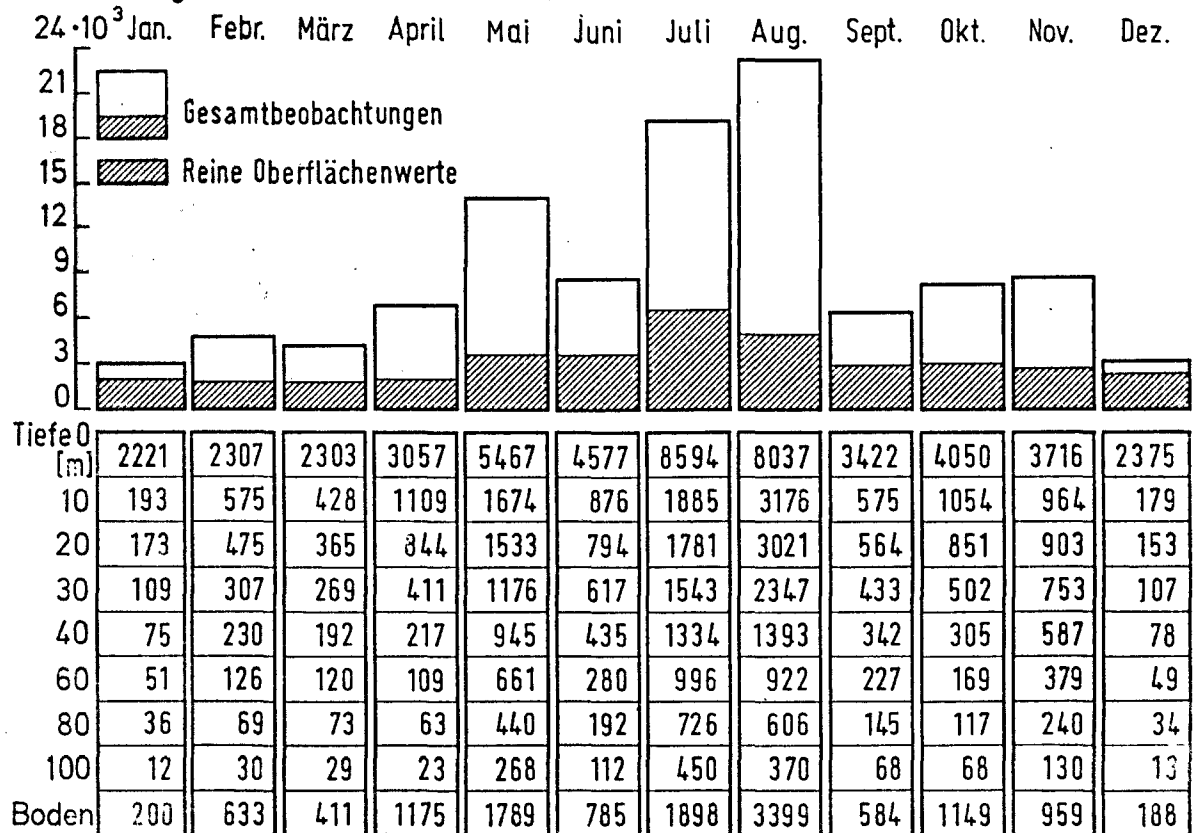
The atlases are an attempt to work up all the data which are collected by ICES during 1902 to 1956 and published in the "Bulletin Hydrographique". How the data are distributed in this time period and during the year it is shown in the following figures:



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Monatliche Verteilung der interpolierten Beobachtungsdaten für die dargestellten Standardtiefen (einschließlich Oberfläche u. Boden)



We had a total amount of about 138 000 single measurements, which should be enough to calculate mean distributions. But as it is seen from both figures the continuity of the collected data is not satisfactory. The two World Wars caused great gaps and most of the data are from the summer months.

Otherwise it is well known that the Baltic Sea does not behave each year in the same way. Its characteristics follow the changes of climate and once in a while we have an inflow of high saline water through the Belt Seas - its consequences can last for years.

This means that such atlases can not be very precise - even if there would be much more data available. In the Baltic Sea temperature and salinity change in a wide range, which is shown more in detail in the atlases. This behavior could be described by mean values and deviations, but because of the irregular nature of the Baltic it is not efficient to calculate any deviation. So it is doubtful to make a decision about better or poorer mean values.

These were the considerations which led us to the decision to restrict our work to the ICES data from 1902 to 1956. Another point

is that by using only these data we give a useful basement for those studies which compare the Baltic with the North Sea, because the atlases of the North Sea mentioned in the beginning are based on the same period of time.

Because of the restricted application of atlases of this kind specially for prognostic purposes it must be asked whether these atlases should not be the last one of this kind. Since the Baltic consists of many parts which are oceanographically more or less independent, one should look more specifically into these parts to give an advanced description about the different influences on temperature and salinity of the water and how they react. This is specially valid for questions which are concerned with coastal waters - and the Baltic has an extreme long coast. Our atlases can't give any useful information about this part because of their small scale.