

But when the author then tries to demonstrate, by means of statistics, that a similar development of the plaice fishing from the Danish side, east of the line Gjedser-Darss, had already commenced before the Great War it is to be regretted that the statistical material on the strength of which he forms this opinion is erroneous; it originates from *Bulletin Statistique*, in which by mistake the Danish fishing in the western part of the Baltic Sea (west of Gjedser-Darss) has been included under the fishing in the eastern part of the Baltic Sea (east of Gjedser-Darss) since 1912, inclusive, while nothing similar has been done with the German fishing. The result is that the Danish plaice fishing in the Baltic Sea proper already shows in 1912 a tremendous rise which is without foundation in actual fact. The development of the Danish plaice fishing in the Baltic Sea proper has, indeed, moved fairly parallel to the German, inasmuch as not until 1919 did the Danish catch exceed 100 tons, as against only about 30 to 40 tons in each of the previous 7 years. It reached a temporary maximum in 1924 with 2009 tons (Cf. *Fiskeriberetning* for 1909—1925, Copenhagen 1910—1926).

The author more especially seeks the cause of the augmented expansion of the plaice fishing during recent years in the circumstance that the fishing of recent years moves farther and farther out from the shoal water along the shore.

It is to be hoped that statistics of similar nature may be collected yearly in future, so that a solid basis may be at our disposal for the measures to be taken (new size-limits, etc.) with regard to the most economical exploitation of the stock of plaice in the Baltic Sea proper. A. F. B.

BIRGITHE RUUD. Quantitative Investigations of Plankton at Lofoten, March—April, 1922—1924. Preliminary Report. Report on Norwegian Fishery and Marine Investigations, Vol. III, No. 7. Bergen 1926.

Coastal waters are richer in diatom species than the open sea, owing to the nutritive substances brought down from land by river water. Off the Norwegian coast there is a short period in spring when a great quantity of water enters the sea as a result of the melting of the snow on land, and there is transported with it nutritive materials as in the case of river water. The spring flowering of diatoms does not take place here until after the influx of the snow water, and the latter is considered by GRAN to be the cause of the former. Miss RUUD, in this preliminary report, gives the abridged results of a number of examinations of plankton samples collected in the Vest Fjord at Lofoten, during March and April, in the years 1922, 3, 4. Unfortunately, the collections did not cover the whole period of the spring flowering in any one year, but the results obtained support GRAN's conclusions.

The melting of the snow begins towards the end of March but may be delayed until early April — depending upon land temperature — and the spring flowering may be early or late in consequence; this has an important bearing on the chances of survival of the newly-hatched cod — upon which this work is concentrated — for, unless hatching coincides with an abun-

dance of planktonic food, the larvae will have a slender chance of surviving.

Miss RUUD found that production of plankton began first in the fjord near the land, spreading out to the bank, and extending later to the middle of the mouth of the fjord; production was always associated with lower temperatures and salinities. The quantity of plankton at each place was dependent upon the supply of snow water to that place. At Lofoten, the spring flowering is an entirely local phenomenon, and is not influenced by the snow water coming from the Baltic, as is that on the west coast of Norway.

The diatoms are Arctic-Neritic forms: spore-formers which are bound to the coast; after a short vegetation in the surface waters they sink downwards. Only three of the most characteristic forms are shown separately in the tables, and of these, *Skeletonema costatum* is the species which occurs in the greatest numbers, although near land towards the end of the flowering, *Chaetoceras* spp. are abundant. Just as production began near the coast, so it first ends there, and the diatoms begin to sink. A chart is given which shows that at one station the maximum was at 50 metres, where a week earlier it had been at the surface. Progress downwards was invariably checked below 50 metres by a layer of water of higher salinity, and thereafter the descent was less rapid.

As an example of the variability of the season, the following figures are instructive:

1922	—	April 11th	—	73,100	Diatoms per litre.
1923	—	„	—	147,460	„
1924	—	„	—	22,600	„

Very little snow was melted during March and early April in 1924, compared with the two previous years. The March temperature in 1923 was the highest of the series, and much snow was melted, resulting in the largest production of diatoms.

As an index of production, oxygen samples were taken at a depth of 1 metre, before production had begun, and when it was at its maximum, but as only the figures for 1924 are reliable, it will be better to defer consideration of these until the final report is published.

In 1923, samples were collected farther west, beyond the "Edge" in water of 800—900 metres, which was found to be Gulf Stream water of high salinity; the plankton here was much more abundant than at any other station, and while it lacked certain typical species which showed that it was not supplied by local waters, its chief species was the neritic *Skeletonema costatum*, which probably found its way there from southern coastal sources.

We look forward to the final report, which will carry the work on to 1926, and will also include the summer collections. R. E. S.

MAURICE ROSE. Le plankton et ses relations avec la température, la salinité et la profondeur. Annales de l'Inst. Océanograph. Tome III. Fasc. IV. 1926. pp. 161—242.

Between the years 1907 and 1914 investigations were carried out by the EIDER to determine in detail the temperature and salinity of the water