

Some notes on the sole fishery

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Although it is a well-known fact that the catches of soles have in the last twelve years been considerably higher than in the period before 1940, the magnitude of this increase is perhaps not generally known. This paper is intended to draw attention to some features of this development.

Fig. 1 demonstrates the increase in the total landings of sole from the North Sea. Apart from fairly regular fluctuations, the graph shows an upward trend in the landings from about 1910 onwards, with the result that the average landings in the period 1950 - 1960 were about 7 times as high as those in the period 1909 - 1914. The more or less regular fluctuations are caused by fluctuations in yearclass strength, as is demonstrated by the fact that the percentage of small soles in the landings in the Netherlands shows a peak at the beginning of each upward fluctuation in the total landings (fig. 1).

The upward trend in the landings will either have been due to a more efficient exploitation of a stock of soles, which always has been of about the same abundance, or to a real increase of the sole stocks. Unfortunately the information on number of days fishing, and on the fishing power of ships and gear in the pre-war period as compared with the present situation, is insufficient (at least for the Dutch fishery) to undertake an appraisal of the changes in abundance of sole from catch per unit effort data. However, data given by Aurich (1958) show an important increase in the number of sole eggs in 1948 - 1954 as compared with the period 1902 - 1930, which indicates a real increase in the number of adult soles.

Fig. 2 shows the landings by country. Whereas in the pre-war period England had the highest sole landings, Belgium ranked first in the period 1950 - 1955. After 1955 the landings in all countries declined, except in the Netherlands. Since 1957 nearly half of the total landings of sole from the North Sea were caught by Dutch vessels. The very high landings in the Netherlands in 1961, 11.7 million kg with a value of 32 million guilders, accounted for 6 % of the total weight of seafish landed in this country (shellfish excluded) and 29 % of the total value. Sole ranked second by value in the landings of fish in the Netherlands, after the herring with a total weight of 114 million kg valuing 43 million guilders. This demonstrates the great importance of sole in the Netherlands' fishing industry.

The Netherlands' fleet of smaller vessels (cutters, of about 20 to 30 meters length) has been specializing more and more on soles in the last ten years. The gear has been improved, and the most important development has been the introduction of the double-rig beam trawl (one beam trawl on each side of the ship) for sole fishing, around 1961. This gear has proved to be very efficient. At present about half of the ships fishing for flatfish are equipped with this gear.

The average catch per 100 hours fishing calculated for a Dutch standard ship (cutter, 200 B.H.P., fishing with otter trawl) shows (fig. 3) that, apart from the yearclass fluctuations, the average density of the sole stocks fished by the Netherlands' fleet has remained at about the same level since 1950.

The continuous increase in the Dutch landings in the same period is due to the gradual rise in the total fishing effort of the Dutch fleet, together with an apparent decrease in the fishing effort of the fleets of other countries fishing for sole.

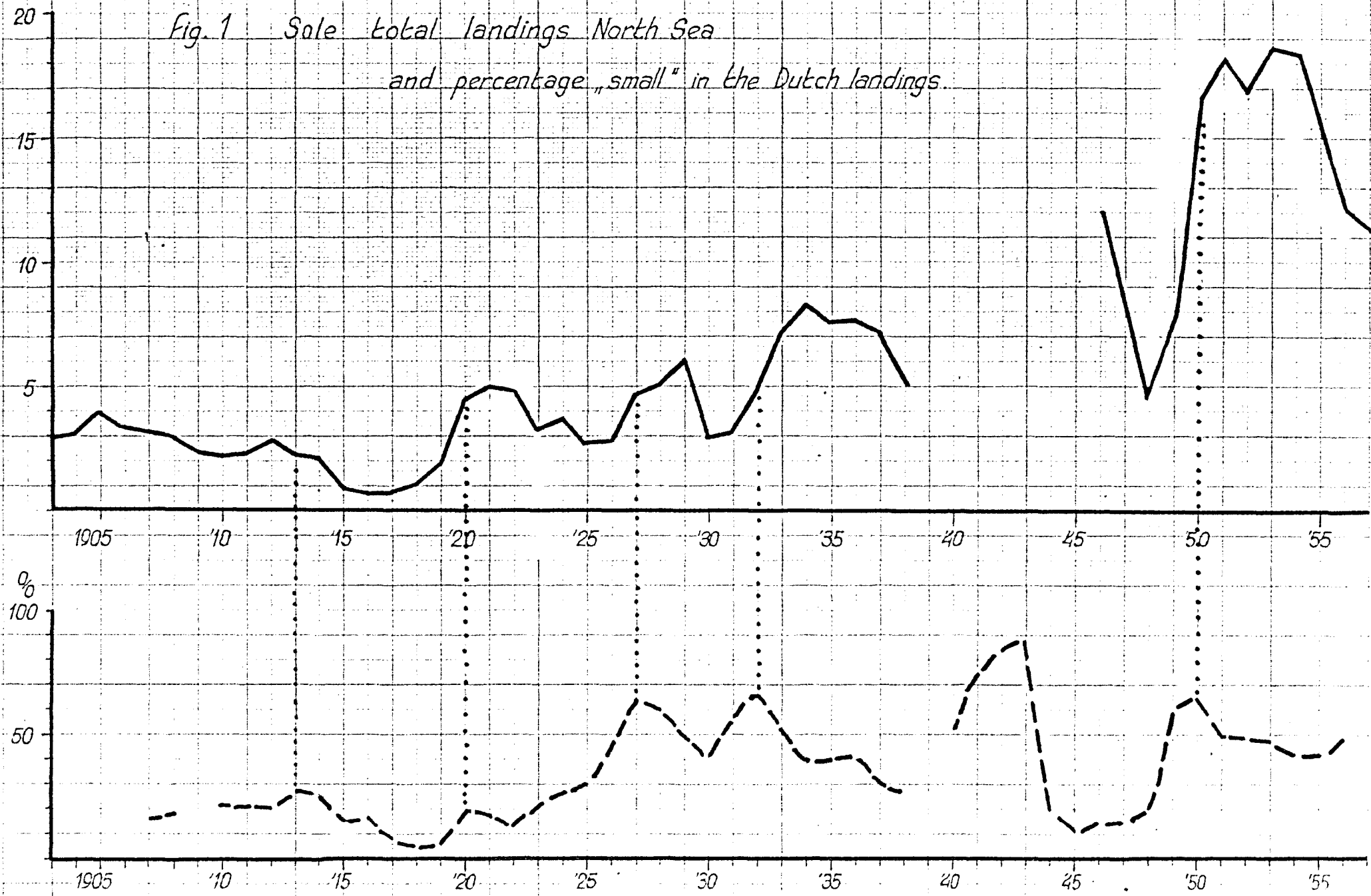
The total fishing effort on soles in the North Sea (estimated from total landings of soles by all countries, divided by the catch per 100 hours fishing of a Dutch standard ship), has remained at about the same magnitude throughout this period (fig. 4).

Reference

Aurich, H.J., 1958. Causes of the changes in the stocks of some summer spawners in the Southern North Sea. I.C.N.A.F. Special Publ. no. 1, Biarritz Symposium.

X 1000 000 kg.

Fig. 1 Sole total landings North Sea
and percentage „small“ in the Dutch landings.



X 1000 000 kg.

Fig. 2 Sole landings North Sea by country

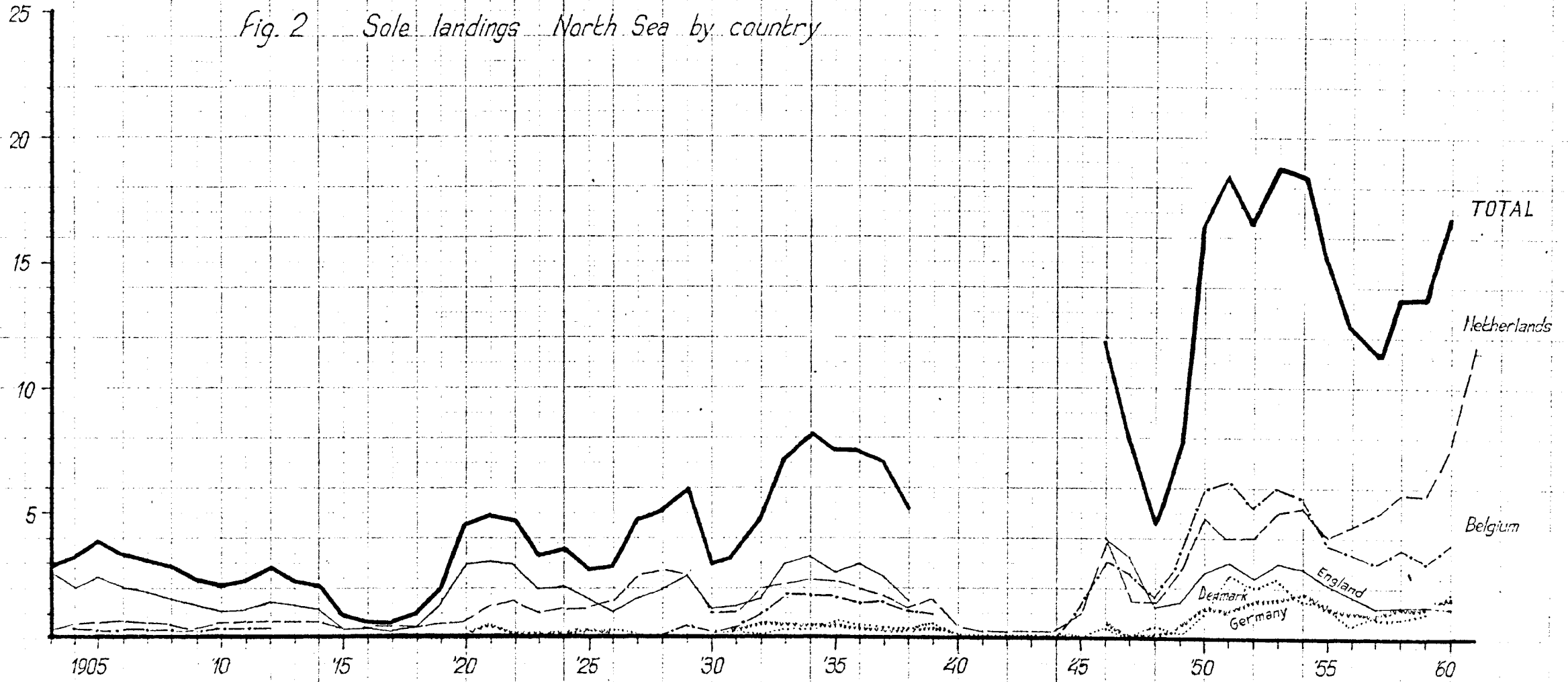


Fig. 3 Sole Catch per 100 hours Fishing of Dutch cutters

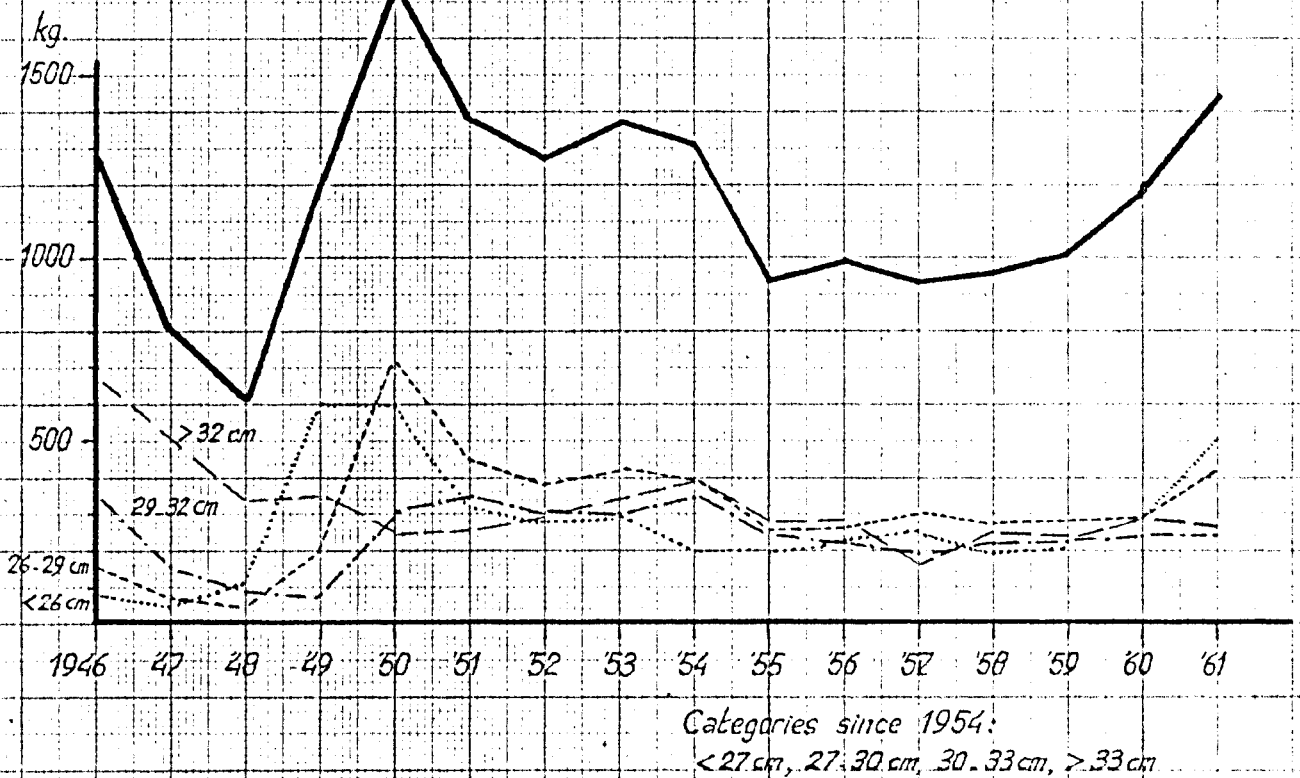


Fig. 4 Fishing effort, expressed in hours fishing of a Dutch cutter of 200 B.H.P.