EXTRAIT

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DESTRUCTION OF YOUNG FISH ON THE CONTINENTAL COAST.

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THE object of this paper is not to submit new considerations to the general discussion on the effect of thinning on the stock of fish, but simply to enphasize the necessity of obtaining abundant numerical data before we may consider ourselves in position to decide whether thinning or protection is preferable in each of the natural sections of the continental coast of the North Sea.

We want to obtain more details about the normal density and variations of each young-fish population, the local productivity of food and the amount of destruction resulting from commercial fishing and shrimping operations.

Before the war the Belgian littoral fleet was almost entirely composed of small sailing crafts — open boats and cutters. Now we have only motor-boats. They are generally larger and their fishing capacity is higher. Besides, being less dependent on weather, wind, tide and current, the number of their fishing days is also considerably higher than it used to be.

An accurate estimate of the destruction carried out along the coast was impossible during several years following the printing of my report on littoral fishing in 1928[1], owing to the fact that the adoption of motors, and other changes in the fleet, were, at first, neither sudden nor regular but gradual and intercurrent. Presently, the evolution being complete, it may be possible to draw conclusions from the accumulation of facts collected about the mean importance of the catch, daily, monthly and throughout the year.

So far, however, our tabulations and calculations are still unfinished, for want of assistance, and I must confine this note to a preliminary attempt of comparing the figures recently obtained for plaice, dab and sole, during the month of May 1932, with the corresponding numbers for the same month in the 15 years recorded in diagrams 2, 4 and 6, in the report of 1928[2].

The Table below gives also, separately, the mean numbers for May in the year 1926, the last recorded in my report, when fishing had nearly come back to pre-war conditions.

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[1] Gilson. La pêche littorale sur les côtes de Belgique. Conseil International pour l'Exploration de la Mer. Rapports et Procès-Verbaux, Volume LI. 1928.

[2] Loc. cit. p. 132. 134. 135.

DESTRUCTION OF YOUNG FISH BY BOATS FISHING FROM OSTEND IN THE MONTH OF MAY.

A. Mean number of fishes in one fishing.

	1 Sailing cutter. Mean number in May calculated on 15 years	Mean number during May 1926	1 Motor cutter. Mean number during May 1932
Plaice	45.00	5.75	117.8
Dab	124.00	159.00	2,456.00
Sole	14.00	6.25	86.60

B. Destruction in the month of May by one cutter.

	Total number *destroyed in May* by 1 sailing cutter: Mean total number calculated on 15 years	Total number in May 1926	Total Number *destroyed in May* by 1 motor cutter: Total Number in May 1932
	16 fishing days		27 fishing days
Plaice	45.00×16 = 720	5.75×16 = 92	117.8 ×27 = 3,181.00
Dab	124.00×16 = 1,984	159.00×16 = 2,544	2,456.00×27 = 66,312.00
Sole	14.00×16 = 224	6.25×16 = 100	86.60×27 = 2,338.20

C. Destruction in the month of May by the whole fleet of cutters.

	Total number *destroyed in May* by 117 sailing cutters: Mean calculated on 15 years	Mean of May 1926	by 105 motor cutters: Mean of May 1932
Plaice	720×117 = 84,240	92×117 = 10,764	3,181.00×105 = 334,005.00
Dab	1,984×117 = 232,128	2,544×117 = 297,748	66,312.00×105 = 6,962,760.00
Sole	224×117 = 26,208	100×117 = 11,700	2,338.20×105 = 245,511.00

The number of cutters has been decreasing slightly, from 117 to 105.

The figures for 1932 are the mean numbers based on the complete analysis of 10 out of the 27 fishings carried out by our fishermen in May, inside the 10 mile limit and parallel to the coast. Having at disposal at present only one month of tabulated data and knowing the monthly variations to be considerable in the course of the year, we cannot as yet satisfactorily compute the *yearly* destruction under the new conditions.

Let us remember also that the month of May belongs to the period of least destruction of young fish on our coasts. That makes the figures of this year still more impressive and conducive to the following remarks:-

1. The destruction of young fish resulting from littoral fishing has increased enormously since motors have been adopted by most of our fishermen.

2. Formerly, while a minimal size prohibition was in force, the whole of the waste, including young fishes, was returned to the Sea. An important part of the latter escaped destruction, and the dead part of it could still supply both other fishes and invertebrates with abundant food.

Since the removal of the prohibition, in 1928, on the contrary, the whole of the young fish and invertebrates, dead or alive, are brought ashore and bought on the quay by the agents of the fishmeal factories and thus totally destroyed. Moreover, when marketable fishes are scarce or prices low, a number of boats take to sea with the special purpose of catching young fishes and selling them to the factories.

During May and June our boats have seldom less than a basket of waste, that is 50 kg., generally however they have much more and their landing has been known to reach one ton or more.

3. The variability in the density of young fish shoals and their moving about from place to place are well known, and other causes of disturbance to fishing operations and experiments are numerous. We, therefore, require long series of continuous observations, collected during all months of the year and along the whole length of the eastcoast before we can seriously tackle the vexed question of the effect of intense destruction of young fish on the general stock of the North Sea.

When we are in possession of numerical data, superseding opinion and personal impressions, we shall very likely be able practically to apply to particular regions the conclusions of many laborious studies and particularly some very interesting formulae that have been proposed for the estimation of the effect of "thinning out"[1]).

4. Pending these complete data we may perhaps be able to investigate by specially devised methods some particular problems, as f. i. the effect of intense destruction of young fishes on certain neighbouring stocks of still small but already marketable fishes that remain for a time in depths of from 20 to 30 metres and furnish, before escaping to the high sea, an important supply to the coastal fishery from which certain fishing populations obtain a living.

Many fishermen of this class, although deriving certain profits out of the selling of waste to the factories, have expressed to me their apprehension about the destructive effect which the landing of enormous quantities of very young fish and invertebrates may have on the middlesized plaice, dabs and soles which they particularly want to catch at a short distance from the coast to take straight to Ostend, without using ice, and to sell there at higher price. I am told that similar circumstances exist in other parts of the East coast along the North Sea.

5. None of the many questions concerned with the effect of intense littoral fishing and with the possible intervention of Governments could be satisfactorily solved by the exertions of only one of the countries bordering the eastern part of the North Sea: co-operative researches carried on simultaneously by France, England, Belgium, Holland, Germany and Denmark are needed before definite measures can be devised adaptable to each particular region without involving the total annihilation of the shrimping industry.

To obtain such co-operation will be among the principal aims of the Combined North Sea and Eastern Channel Committee.

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[1]) See: Russell: Scientific meeting. Cons. intern. 1932.