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Results of a tagging experiment with plaice caught with a Dutch shrimpboat.

by

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During the last four years the Biological and Technical Research Departments of the Ministry of Agriculture and Fisheries have worked on the perfection and introduction in commercial fishing of a rotating shrimp sieve which sorts the catch on board. The shaking sieve formerly common in use, has many shortcomings, of which the fatal injuries done to undersized plaice and sole are the most important. Since 1968, when the rotating sieve was described in an ICES-paper 1), the use of this sieve in commercial fishing has made steady progress. At present about 40% of the Dutch shrimpboats are equiped with this sieve.

In November 1967 tagging experiments were carried out with undersized plaice caught by a commercial shrimpboat from Den Oever in the western Waddensea, equiped with both a rotating and a shaking sieve.

Three categories of plaice were tagged, a) plaice direct taken out of the net (552 specimens), b) plaice which passed through the rotating sieve (542 specimens), c) plaice which were sieved on a shaking sieve (550 specimens). Because the tagging was carried out directly after sieving, one obvious advantage of the sorting machine, viz. the immediate returning of the bycatch into the sea again, was left out of consideration. When a shaking sieve is used on board of a shrimper, the bycatch in most cases is scooped overboard after the whole process of cooking, cooling and picking of the consumption shrimps is finished. Plaice is very susceptible to a prolonged stay on board, especially when the air-temperature is rather high.

In spite of the elimination of this serious drawback, the results of the tagging experiment, given in the table below, show clearly the advantages of the rotating sieve over a shaking shieve with regard to the protection of undersized flatfish.

Table

Plaice tagged on board of the WR 86, 25 - 30 November 1967.

Number of days in sea after tagging before recapture	A Direct taken out of the net	B Sorting machine	C Shaking sieve
0 - 2	12	30	18
3 - 6	18	18	5
7 - 10	10	11	0
11 - 15	29	13	11
16 - 20	10	11	6
21 - 30	18	13	5
31 - 40	4	2	0
41 - 50	0	2	0
51 - 60	8	1	0
61 - 70	3	1	1
over 70	0	1	0
Total recaptures (%)	20.3	19.0	8.2
Mean number of days in sea	17.5	11.7	9.9

Since 1967, when this experiment was carried out, changes in the construction of the sorting machine have resulted in a higher sieving-capacity, a sharper

- selection -

selection of the shrimps and a probably still better protection of undersized flatfish 2). In the original construction the inner sieve cylinder, separating shrimps and bycatch, consisted of straight, stainless steel bars. The slots between the bars (12.5 mm wide) were divided into rectangular openings of 12.5 x 47 mm by circular threads (1 mm diameter) at the inner side of the sieve. These threads caused damage to the undersized flatfish on their passage through the sieve. This construction was replaced by round, spiral bars. The slots between the bars (12 mm wide) are divided in openings of 36 x 12 mm by circular bars at the outer side of the cylinder. By this change the surface of the inner sieve has become practically smooth. This type of rotating sieve is commonly in commercial use now.

A new tagging experiment with plaice and sole shall be carried out in September 1971.

References:

1. Boddeke, R. "A new shrimp sieve". ICES, C.M. 1968/B:12.

2. Boddeke, R. "De spoelsorteermachine voor de garnalenvisserij". Visserij 24 (1971), 3-11.