International Council for the
Exploration of the Sea

C.M. 1968/F:10
Demersal Fish (Northern)
Committee

Comparative Tagging Experiments on Baltic Sea Cod in 1968

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by

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During a research cruise of FRV "Anton Dohrn" in April 1968, 4 different types of tags were used in a series of comparative tagging experiments on cod carried out in the Arkona Basin, Bornholm Basin, Slupsk Furrow, Gdansk Bay and the Gotland Basin (Table 1 and 2). The tags used were: 1,615 Spaghetti tags as described by Lamp (1967), 1,166 Carlin tags, 200 double discs of red plastic cloth of 3 cm diameter and 198 double flags (white and red) made also of plastic cloth as described by Aker and Rauck (1967). Another 103 fish were double tagged by a Spaghetti and a Carlin tag. At the same time the Danish research vessel "Dana" had tagged several hundreds of fish by means of Lea tags.

In view of the international cod tagging program scheduled for 1969 in the Baltic Sea, preliminary results on the return rates of the various types of tags shall be reported in the following . Until the 20th of August 1968 a total of 210 fish were returned from Denmark, Poland, the German Democratic Republic of Germany, the Federal Republic of Germany and Sweden. No returns were obtained from the UdSSR until now, although it is likely that there should be several.

As table 1 shows, the Carlin tag gave the smallest return rates, while the return rates for the other tags were rather similar. So in the Arkona Basin, Spaghetti tags were returned nearly 6 times as often as Carlin tags, in the Bornholm Basin more than 3 times as much and in the Slupsk Furrow nearly 2 times as much. The results obtained from the Gdansk Bay and the Gotland Basin shall not be discussed because of too few returns until now.

Apart from the smaller return rate, another disadvantage of the Carlin tag seems to be that relatively less tags have been discovered aboard the ships. In the 3 western tagging areas, 12.8 times more fish tagged with Spaghetti tags were reported back by the fishermen than by the industry, while only 2.7 times in the case of the Carlin tag.

These results suggest that the Spaghetti tags used are better visible and therefore are better suited for cod tagging than the Carlin tag is. It is obvious that the different visibility of the tags is responsible for this result and not a difference in the tagging mortality nor of the shadding rate of tags, as a double tagging experiment suggests, which has been carried out for this purpose in the Arkona Basin (Table 1). In none case tags were lost. The return rate in the double tagging experiment was slightly higher than that in the Spaghetti tag experiment.

It might be mentioned that in earlier tagging experiments cod could be kept tagged with Spaghetti tags over more than 1 year and further returns from these experiments are still being expected (Lamp, 1967). According to Danish reports the fish tagged by Spaghetti tags were found in nearly all cases in good condition.

Finally it was found that the experiment with the double plastic discs carried out in the Bornholm Basin showed even a better return rate than the Spaghetti tag experiment. However, since only one comparative tagging experiment could be made, further more conclusive experiments are recommended.

SUMMARY

A series of comparative tagging experiments using different types of tags showed that Spaghetti tags gave considerable higher return rates than Carlin tags and that the Spaghetti tag could be detected by the fishermen aboard their ships at a much higher rate than the Carlin tag. The reason for this is obviously the better visibility of the Spaghetti tag in comparison to the Carlin tag.

REFERENCES

E. Aker and G. Rauck: Tagging of Juvenile Flatfish at the German North Sea Coast - C.M.1967/F:25 Demersal Fish (Northern) Committee.

F. Lamp: Tagging Programme of Cod in the German Bight - C.M.1967/F:13 Demersal Fish (Northern) Committee.

Table 1 Number and percentage of recaptures from fishingboats (Fb.) and industry (Ind.) from the different tagging places (until 20. VIII. 1968)

Place of tagging		Spaghettitags				Spaghetti+Carlin				Carlintags				Plastikdisks				Plastikflags			
		No. tagged	Fb.	Ind.	Tot.	No. tagged	Fb.	Ind.	Tot.	No. tagged	Fb.	Ind.	Tot.	No. tagged	Fb.	Ind.	Tot.	No. tagged	Fb.	Ind.	Tot.
Arkona B.	n	318	57	1	58	103	21	2	23	129	4	–	4	–	–	–	–	–	–	–	–
	%		17,9	0.3	18.2		20.4	1.9	22.3		3.1	–	3.1	–	–	–	–	–	–	–	–
Bornh. B.	n	308	21	–	21	–	–	–	–	201	3	1	4	200	18	–	18	198	14	–	14
	%		6,8	–	6.8	–	–	–	–		1.5	0.5	2.0		9.5	–	9.5		7.1	–	7.1
Slupsk.F.	n	311	39	8	47	–	–	–	–	91	5	3	8	–	–	–	–	–	–	–	–
	%		12.5	2.6	15.1	–	–	–	–		5.5	3.3	8.8	–	–	–	–	–	–	–	–
Gdansk B.	n	300	4	–	4	–	–	–	–	380	4	–	4	–	–	–	–	–	–	–	–
	%		1.3	–	1.3	–	–	–	–		1.1	–	1.1	–	–	–	–	–	–	–	–
Gotland B.	n	378	4	–	4	–	–	–	–	365	1	–	1	–	–	–	–	–	–	–	–
	%		1.1	–	1.1	–	–	–	–		0.3	–	0.3	–	–	–	–	–	–	–	–

Table 2   Number of recaptures at different periods
(until 20. VIII 1968).

Recapture after days	Place of tagging					
	Arkona B.	Bornholm B.	Slupsk F.	Gdansk B.	Gotland B.	Total
0 – 10	18	16	38	1	–	73
11 – 30	41	21	5	3	2	72
31 – 60	18	14	8	3	1	44
61 – 90	8	6	4	1	2	21
	85	57	55	8	5	210