

International Commission for



the Northwest Atlantic Fisheries

Serial No. 3547
(D.c.4)

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Addendum 1

ANNUAL MEETING - JUNE 1975

First results of cod tagging experiment
on western and southern banks of
Newfoundland (ICNAF Divisions 4R and 3P).

by

J.P. Minet
CRIP - ISTPM
St. Pierre et Miquelon

After the first results presented at the ICNAF Mid-term Meeting in Woods Hole, two more tagged fish were caught (table 3, cont'd) by Newfoundland trawlers and the information concerning these recaptures were transmitted by the St. John's Biological Station.

The first one (14174) was caught 3 miles south of Channel Head, Port aux Basques (3Pn) on 12 April, 83 days after its release at station B 6 near Riche Point (4R) i.e. at about 210 nautical miles.

The second one (14527) was caught on 1st April near Burgeo (3Ps), 60 days after the tagging operation at station B 69 off Long Point (4R) i.e. at about 170 nautical miles.

These additional data confirm the results mentioned previously (fig. 2) since they show the migration of cod from the western banks of Newfoundland (ICNAF div. 4R) to the southern banks (Subdiv. 3Pn and 3Ps), during the "winter" period.

Table 3 (cont'd).- New results on cod migrations.

Tag No	Releases		Recaptures	
	Date	Position	Date	Position
14174	19-I-75	50°35'5N 57°33'1W	12-IV-75	3 miles south Port aux Basques
14527	1-II-75	48°56'2N 59°26'4W	1-IV-75	near Burgeo

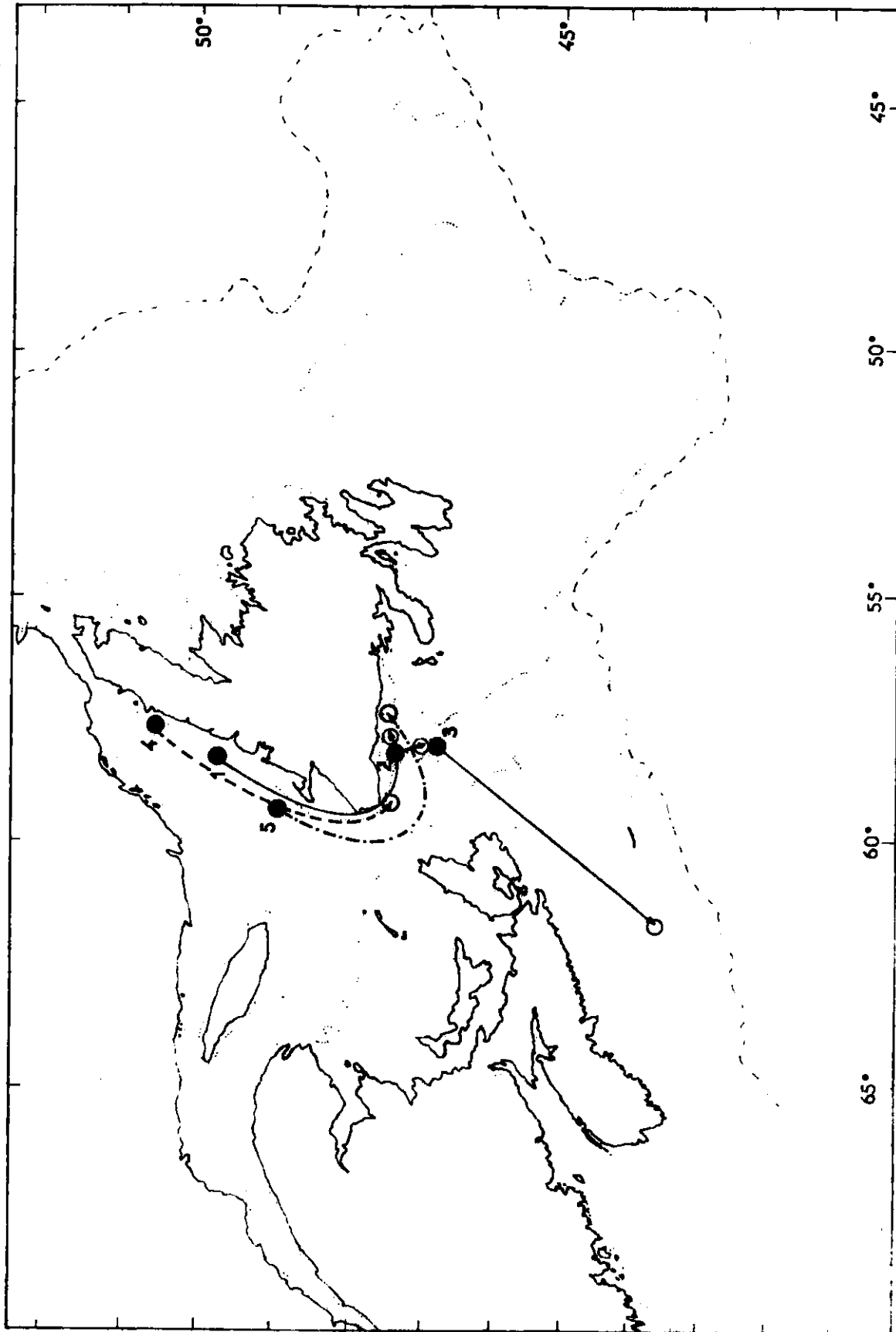


Fig. 2. New recaptures of cod tagged during the experiment (19 January-23 February).

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ISTPM, St. Pierre and Miquelon

I - Introduction -

From 17 January to 24 February 1975, a cod survey was carried out by the CRIP Saint Pierre and Miquelon on board the R/V Cryos in the gulf of St Lawrence (ICNAF div. 4R), on the southern banks of Newfoundland (ICNAF div. 3P) and on the eastern banks of Nova Scotia (ICNAF div. 4V).

One of the aims of this cruise was to study the exchanges that may occur between the cod stock of the western banks of Newfoundland and those of the southern banks in order to improve interpretation of stock divisions.

Indeed, each year, during the "winter" period, we note the movements of the French cod fishing fleet from the Gulf (4R) towards the Rose Blanche bank (3Pn) and then Burgeo and St Pierre banks (3Ps) as the season progresses (MINET, 1973). In addition to the well known reasons, the progression of ice at this period in this area, the observations made on board the R/V Cryos during the winters of 1973 and 1974 showed that cod concentrations move southwards in the Gulf and then move outside onto the southern banks of Newfoundland under the influence of the prevailing hydrographic conditions. These are, at this time, mainly influenced by the spreading to the south of cold waters issuing from one arm of the Labrador current.

For better knowledge of such exchanges, a cod tagging experiment was carried out during this cruise in the gulf of St Lawrence (4R) between Riche Point and the Port-au-Port peninsula, and south of Newfoundland (3P) on Rose Blanche and Burgeo banks.

II - Materials and methods -

1. Catching and handling methods.

To capture fish for tagging, the bottom trawl, Lofoten type, 50 mm stretched mesh in codend, was used. The tows were of 30 minutes duration. Cod taken for tagging were always sampled from relatively small catches and especially when no other associated species like redfish or lumpfish were caught. This was in order to avoid scaling and crushing fish while hauling.

The cod were then placed in a tank of running water to recover. During a period of about one hour, their reactions were observed in order to keep only the fish which appeared to be in good condition. The cod unable to stay in an upright position and which showed damage to skin, loss of scales or intermittent swimming, were discarded to insure better results in the experiment. The author did all the tagging so that the judgement of the condition of fish was the same during all the experiment.

After tagging, cod were placed in a second tank and here again their condition was observed. Those in poor condition were once more discarded and those still showing good swimming habits were released. All tagged fish were released at the surface, the ship stopped in trawling position. By a special device, the bottom of the second tank was opened at sea level, releasing its water and with it small groups of 5 or 6 fishes.

2. Tags used and attachment techniques.

For this experiment, yellow flag tags were used, numbered from 14129 to 14999 on one side and printed with "ISTPM-St Pierre" on the other. These tags were attached between the first and second dorsal fins by means of a stainless steel wire through the muscle, in order to hang on the right side of the fish.

During this operation, the fish were held on a tagging board where they were measured in millimeters.

3. Information on the tagging experiment.

The commercial fishermen were informed of this work by several official statements through the St Pierre radio station transmitted in French, English, Spanish, German and Japanese languages. In addition, data on the details of the experiment were sent to the ICNAF Secretariat for diffusion to all member countries.

III - Results -

From 19 january to 23 february, 870 fishes were tagged : 465 in the gulf of St Lawrence (4R) and 405 on Rose Blanche and Burgeo banks (3P). Details on the dates, on the number of tagged fish and on the position of release are given in table 1.

In the two areas, depths of capture and release were included between 100 and 260 meters with most of them from 190 to 230 m. The greater part of tagged cod had from 36 to 98 centimeters in total length with a wider range in division 4R (table 2).

During the month following the end of the experiment, three tagged cod were caught (table 3).

- The first one (14595) was caught on 28 february by a French trawler on Burgeo bank (3Ps), 13 days after its release at station B 119 on Rose Blanche bank (3Pn), i.e. 16 nautical miles southeast.

- The second one (14395) was caught on 5 march by a Spanish trawler on the south coast of Newfoundland (3Pn), 35 days after its release at station B 42 off Bonne Bay, i.e. at about 200 nautical miles.

- The third one (14947) was caught on 14 march by another Spanish trawler on the Sable Island bank (4 W), 20 days after its release at station B 185 on Burgeo bank, i.e. at about 250 nautical miles.

These data obviously show a migration of cod to the southward, firstly from the gulf of St Lawrence to the southern banks of Newfoundland, then from these banks to those of Nova Scotia (figure 1).

IV - Conclusion -

The first results of this cod tagging experiment are certainly insufficient to lead to definite conclusions, more recaptures and other tagging operations being necessary to give precisions about these migrations.

They bring however some new elements which, added to those previously published, extend our knowledge of cod migrations in these western and southern parts of Newfoundland during the "winter" period.

The tagging studies carried out on the southern banks of Newfoundland and particularly on Burgeo bank in 1954 (TEMPLEMAN, 1956) had also shown that cod was able to cross the Laurentian channel since some specimens had been caught on Banquereau bank (ROJO, 1973).

On the other hand, the migration outside the Gulf of St Lawrence must be associated with the recaptures made in 1956-57 by Spanish trawlers on the south coast of Newfoundland after the Canadian tagging experiments in the northern gulf (ROJO, 1973).

Therefore, close connections seem to exist in "winter" between the cod stocks of ICNAF divisions 4R and 3P. We are then entitled to wonder whether seasonal exchanges such as those described west of the Laurentian channel, between the 4T and 4V cod stocks, do not occur also in the east of the channel. In this case, it would be necessary for a rational exploitation of these stocks, to take the migrations just described into account in order to avoid errors in the assessments.

References.

- MINET (J.P.), 1973.- Observations on the French cod fishery in the gulf of St Lawrence (ICNAF div. 4R) during the winter of 1973.- ICNAF Res. Doc. 73/36, serial no 2972.
- ROJO (A.), 1973.- Recuperacion, a bordo de pesqueros espanoles de bacalaos marcados en el Atlantico occidental.- Trabajos Inst. Esp. Oceano., vol. 39, 115 p.
- TEMPLEMAN (W.), 1956.- Canadian researches, 1955.- ICNAF Annual Proceedings, vol. 6, p. 21-23.

Table 1. Positions and number of cod tagged during the experiment.

Divisions	Dates	No Stations	Positions		Number tagged
WEST NFLD	19-I-75	B 4	50°29'3 N	57°35'5 W	24
	19-I-75	B 6	50°35'5 N	57°33'1 W	35
	21-I-75	B 9	50°08'7 N	58°52'5 W	41
	21-I-75	B 12	50°07'0 N	58°58'7 W	11
	26-I-75	B 25	49°25'5 N	59°04'2 W	26
(ICNAF	27-I-75	B 28	49°22'3 N	58°35'2 W	29
	27-I-75	B 31	49°24'4 N	58°44'5 W	34
	28-I-75	B 36	49°55'7 N	56°11'5 W	50
	29-I-75	B 42	49°41'0 N	58°25'5 W	56
	31-I-75	B 57	48°43'5 N	59°25'5 W	14
Division 4 R)	31-I-75	B 60	48°46'6 N	59°37'5 W	48
	1-II-75	B 69	48°56'2 N	59°26'4 W	37
	1-II-75	B 72	49°15'5 N	59°14'8 W	60
TOTAL		WEST	NFLD		465
SOUTH NFLD	15-II-75	B 119	47°19'0 N	58°16'0 W	34
	15-II-75	B 122	47°32'3 N	58°37'4 W	61
	15-II-75	B 125	47°31'0 N	58°33'5 W	42
	16-II-75	B 128	47°25'2 N	58°16'1 W	21
(ICNAF	16-II-75	B 131	47°25'2 N	57°57'3 W	16
	16-II-75	B 134	47°21'0 N	57°42'5 W	24
	16-II-75	B 137	47°06'7 N	57°27'0 W	8
	22-II-75	B 180	46°54'9 N	57°56'0 W	44
Subdivisions	22-II-75	B 183	46°57'0 N	58°00'0 W	39
	22-II-75	B 185	46°57'2 N	58°00'0 W	74
	22-II-75	B 187	46°59'3 N	58°03'8 W	12
3 Pn - 3 Ps)	23-II-75	B 190	46°59'8 N	57°41'8 W	30
TOTAL		SOUTH	NFLD		405

Table 2. Lengths of cod tagged in ICNAF Divisions 4R and 3P.

Lengths (cm)	West Newfoundland (4 R)	South Newfoundland (3 P)
27-29	1	0
30-32	0	0
33-35	0	0
36-38	3	3
39-41	4	6
42-44	11	5
45-47	23	11
48-50	19	20
51-53	52	22
54-56	66	51
57-59	71	64
60-62	70	63
63-65	52	42
66-68	25	42
69-71	17	23
72-74	12	13
75-77	11	15
78-80	7	8
81-83	7	3
84-86	1	6
87-89	1	2
90-92	2	2
93-95	2	3
96-98	2	1
99-101	0	0
102-104	2	0
105-107	0	0
108-110	2	0
111-113	1	0
114-116	0	0
117-119	0	0
120-122	0	0
123-125	0	0
126-128	1	0
TOTAL	465	405

Table 3. First results on cod migrations.

Release			Recapture	
Tag No	Date	Position	Date	Position
14595	15-II-75	47°19'0 N 58°16'0 W	28-II-75	47°04'0 N 58°07'0 W
14395	29-I-75	49°41'0 N 58°25'5 W	5-III-75	47°29'0 N 57°59'0 W
14947	22-II-75	46°57'2 N 58°00'0 W	14-III-75	43°37'0 N 61°46'0 W

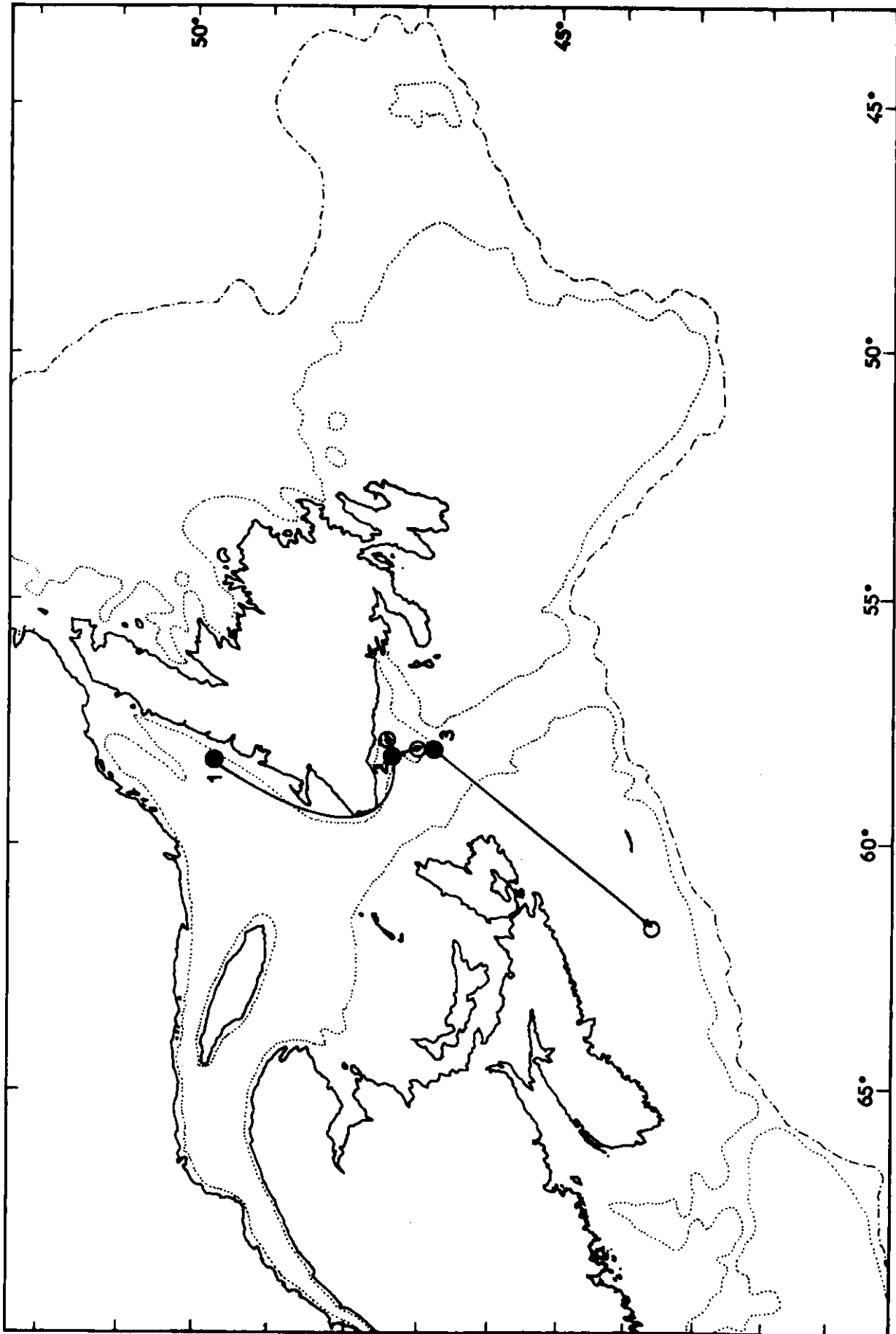


Fig. 1. First recaptures of cod tagged during the experiment (19 January-23 February 1975).