

International Commission for



the Northwest Atlantic Fisheries

Serial No. 3835
(D.C.4)

ICNAF Res.Doc. 76/VI/49

ANNUAL MEETING - JUNE 1976

Movements of mackerel tagged in Subarea 4

by

W.T. Stobo
Department of the Environment
Fisheries and Marine Service
Biological Station
St. Andrews, N.B., Canada

INTRODUCTION

In 1973 and 1974 Canada conducted several mackerel tagging experiments in Subarea 4. The preliminary results of the two experiments conducted in 1973 have been previously reported (Beckett et. al., 1974) and this document is presented to update the recoveries from the 1973 experiments as well as to report the results of the 1974 experiments

RESULTS AND DISCUSSION

The tagging locations and recoveries by year are presented in Fig. 1-3. The locations of the tagging experiments and the times were selected in order to obtain a comprehensive view of the movement of mackerel found in Subarea 4. The Aspey Bay experiment was conducted as mackerel were migrating into the Gulf of St. Lawrence in order to get information on movements within the Gulf and into Subarea 3. The Gulf of St. Lawrence experiments (Cape Tryon - 1973, and Tracadie - 1974) as well as the 1973 and 1974 St. Margarets Bay experiments were conducted to obtain data on overwintering distribution.

The results from all the experiments appear to be complementary. Recoveries from all five experiments have been made in Subarea 5 and from all but Tracadie in Statistical Area 6 (Table 1). The recoveries made in November-December 1973 from the 1973 St. Margarets Bay experiment indicate a progressive southwestward movement (Fig. 1) with a January-March, 1974, overwintering period in the northwestern part of Statistical Area 6 (Fig. 2). This appears to have been followed by both an inshore and offshore movement in April-July back into Subarea 4. The concentration of 1975 recoveries in Subarea 5 (Fig. 3) corresponds with other evidence of a northeasternly distributional shift of overwintering concentrations (Anderson and Almeida, Res.Doc. 76/13). The recovery of two tags in 1974 in Statistical Area 6 from the Cape Tryon experiment plus the recovery of tags from all the Gulf experiments in 1975 in Subarea 5 substantiate the hypothesis that some mackerel in the Gulf of St. Lawrence during summer overwinter in the southern area.

The recoveries in Subarea 4 in 1974 and 1975 indicate substantial dispersion through this Subarea during the summer as well as some movement into Subarea 3. The movement of mackerel found in Subarea 3 during summer into Subarea 5, and Statistical Area 6 during winter has been previously reported (Moores et. al. 1975) and these recoveries complement those earlier tagging experiments.

The distribution of tag recoveries in both time and place from the Subarea 4 tagging experiments leave little doubt that the fisheries in Subareas 3 and 4 and those in Subarea 5 and Statistical Area 6 are to a considerable degree exploiting the same contingent of the mackerel stock at different times of the year. Until substantially more data are available on the degree of intermixing of northern and southern contingents, it would be logical to continue managing mackerel in Subareas 3-6 as one stock.

REFERENCES

- Anderson, E.D. and F. Almeida, 1976. Distribution of Atlantic mackerel in ICNAF Subareas 5 and Statistical Area 6 based on research vessel spring trawl surveys, 1968-1975. ICNAF Res. Doc. 76/VI/13.
- Beckett, J.S., W.T. Stobo and C.A. Dickson, 1974. Southwesterly migration of Atlantic mackerel, *Scomber scombrus*, tagged off Nova Scotia. ICNAF Res. Doc. 74/94.
- Moore, J.A., G.H. Winters and L.S. Parsons, 1975. Migrations and biological characteristics of Atlantic mackerel (*Scomber scombrus*) occurring in Newfoundland waters. J. Fish. Res. Bd. Canada 32(8): 1347-1357.

Table 1. Tagging recoveries reported to March 11, 1976, by Subarea

<u>Tagging location</u>		<u>Recoveries by Subarea</u>				
<u>Gulf Tagging</u>	<u>Nos. Tagged</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>Total</u>
Cape Tryon 1973	196	-	1	1	2	4
Aspey Bay 1974	3421	-	7	2	1	10
Tracadie 1974	2426	1	4	3	-	8
Total	6043	1	12	6	3	22
<u>Nova Scotia Tagging</u>						
St. Margarets Bay 1973	1765	-	94	6	8	108
St. Margarets Bay 1974	4314	1	25	12	2	40
Total	6079	1	119	18	10	148
Grand Total	12122	2	131	24	13	170

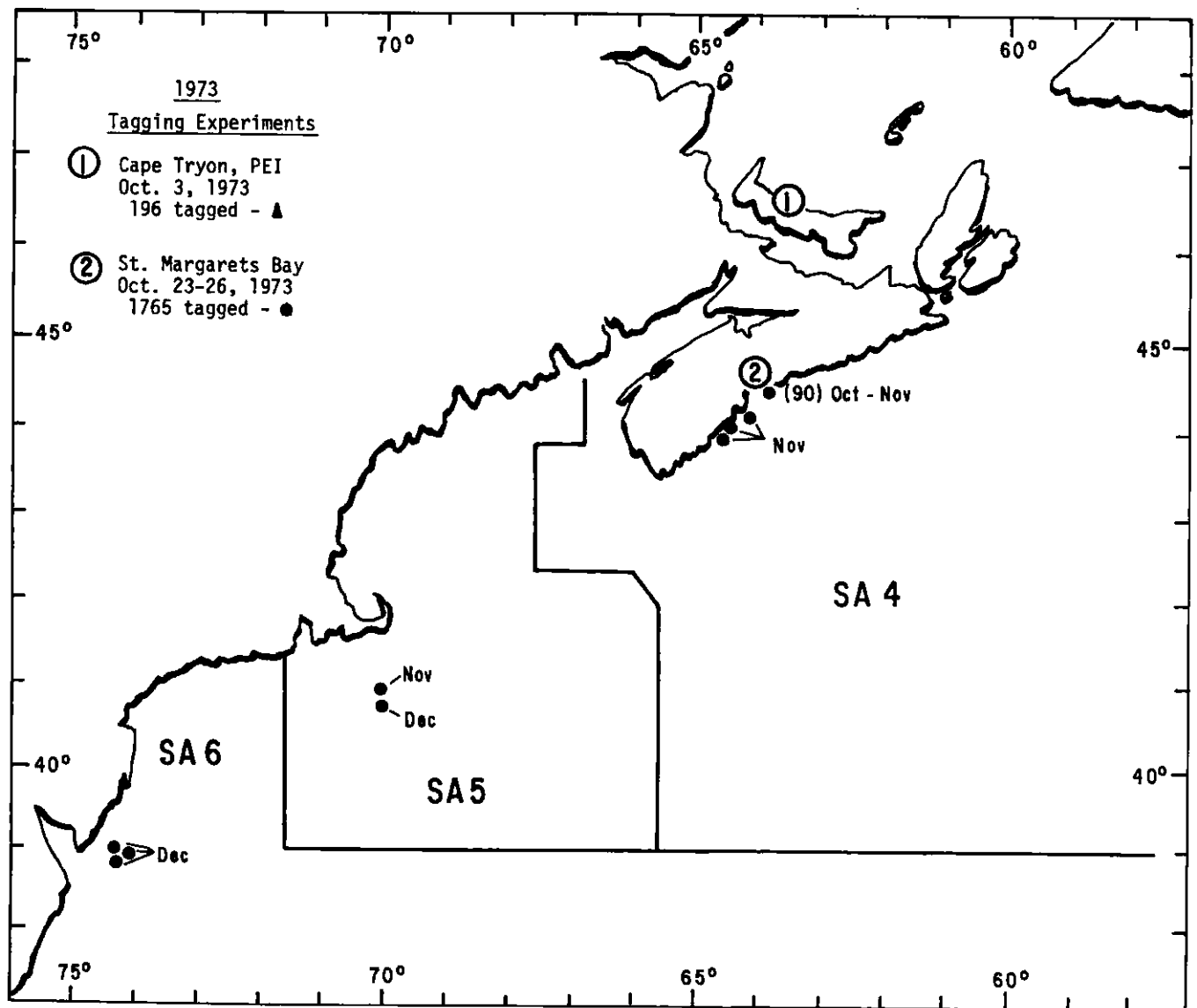


Fig. 1. Location of tag recoveries made during 1973 from mackerel tagging experiments.

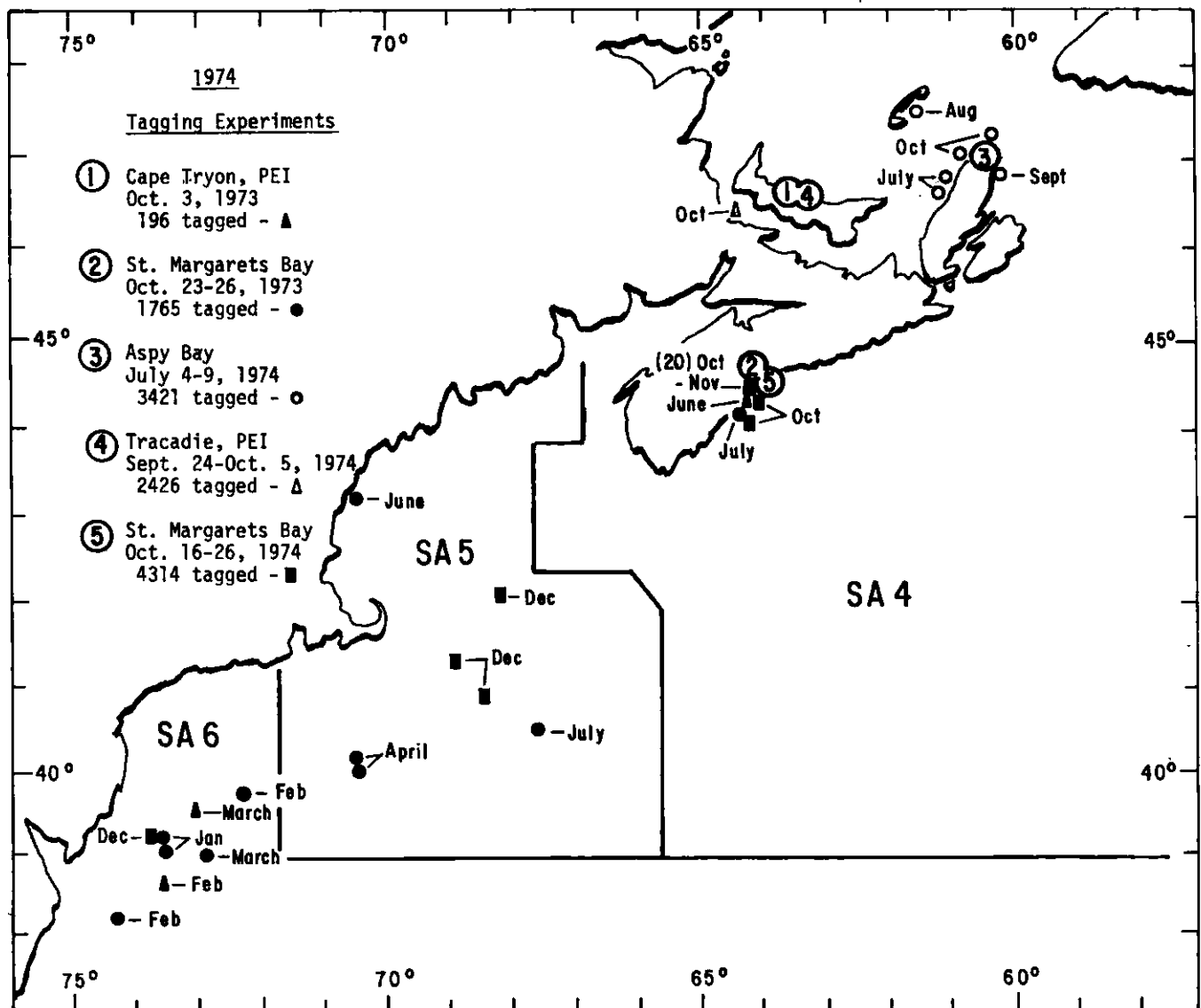


Fig. 2. Location of tag recoveries made during 1974 from mackerel tagging experiments.

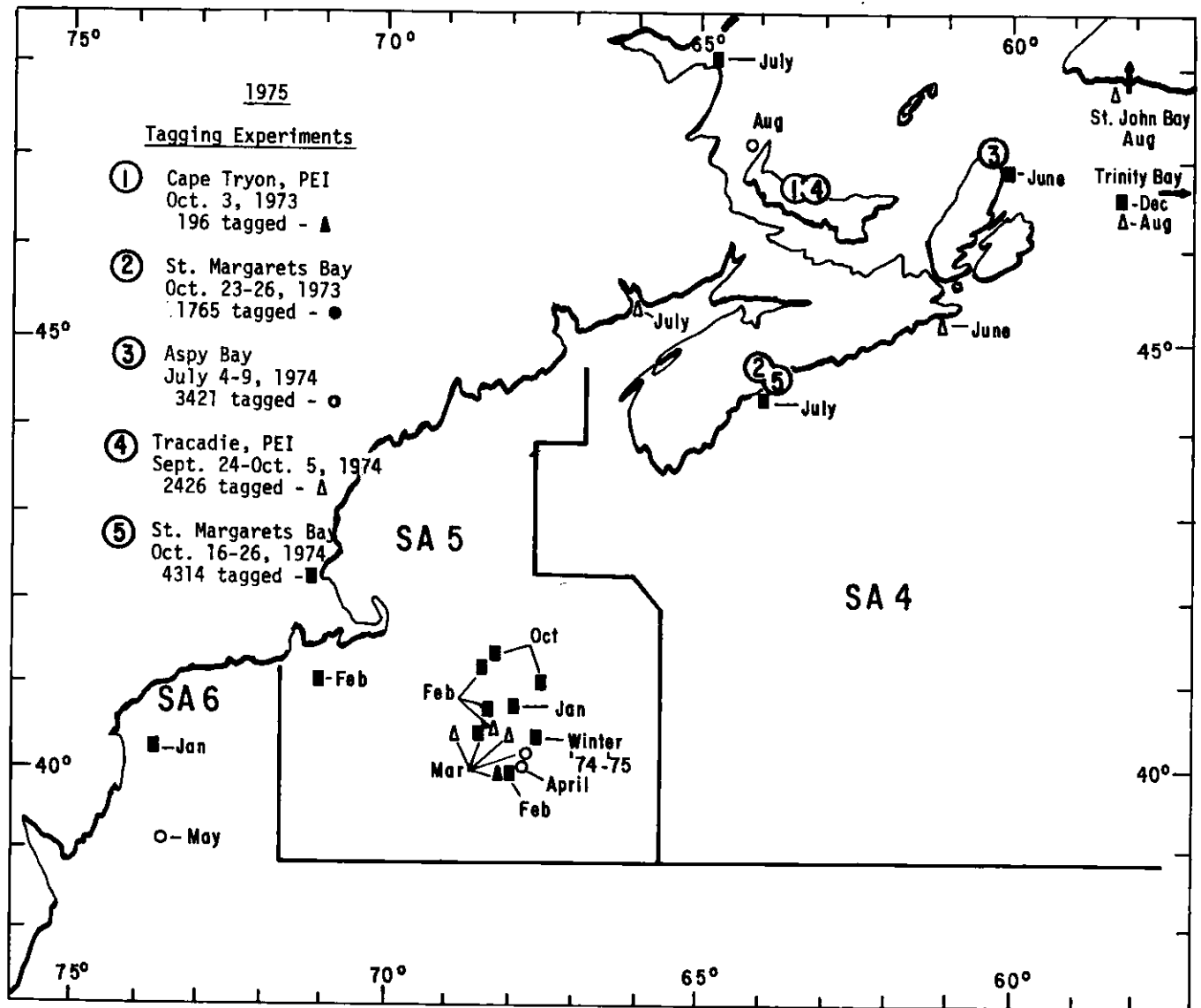


Fig. 3. Location of tag recoveries made during 1975 from mackerel tagging experiments.

