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ANNUAL MEETING - JUNE 1976Movements of herring tagged in the Bay of Fundy - Update

by

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

Introduction

In 1973-64 Canada conducted several herring tagging experiments in the Bay of Fundy area. Tag recoveries reported to March 1975 have been reported previously (Stobo *et al.*, 1975) and this paper is intended as an update to that report.

Results

That portion of ICNAF Subarea 4 and 5 in which the tagging experiments were conducted and recoveries made is shown in Fig. 1 for reference. The recoveries reported to March 1976 from each tagging experiment are presented in Fig. 2-6 and a general summary of the recoveries is given in Fig. 7.

Overall a 2.8% return has occurred with a range from 1.1% to 7.3% for individual tagging experiments (Table 1). Generally the revised data substantiate the results and discussion of the previous document. There appears to be substantial movement across the Bay of Fundy from all tagging experiments and substantial outward migration during the winter. The data indicate a greater movement by the fish tagged off Nova Scotia than by fish tagged off New Brunswick.

A total of 57 tags have been recovered in the Div. 4Wa fishery, 46 during the 1974/75 fishery and 11 during the 1975/76 fishery. The recoveries have been made from all tagging locations and indicate substantial movement of fish from both sides of the Bay of Fundy into Div. 4Wa in winter. No recoveries have been made from Div. 4V. Three recoveries had been reported during the 1974/75 fishery but additional information has been received from the boats involved which indicate that the fishing actually occurred off Canso in Div. 4Wa.

A much greater proportion of the fish moving westward out of the Bay of Fundy occurred from the New Brunswick experiments than from the Nova Scotia experiments (Table 1), although the Nova Scotia fish generally migrated farther westward (Fig. 7). Most of the recoveries made in Subarea 5 were from USA coastal fisheries, but 10 tags were recovered from the Jeffrey's Ledge area and 2 from Georges Bank.

Discussion

In view of the substantial number of recoveries made in the Canadian Div. 4Wa fishery in 1974/75 and 1975/76 from the Bay of Fundy experiments and the lack of recoveries from Subdiv. 4Vn, the management of Div. 4V separately and the combining of Div. 4Wa with Div. 4XWb, as recommended by STACRES, are the most logical management units.

The considerable movement across the Bay of Fundy suggests that the New Brunswick fisheries should be considered in the Div. 4WX assessment even though the New Brunswick fisheries are largely juvenile fisheries and the tagging experiments were mainly adult fish.

Further, the movement westward suggests a substantial stock intermix problem that needs additional tagging experiments in Subarea 5 and additional consideration in future assessments.

Reference

STOBO, W.T., J.S. SCOTT, and J.J. HUNT. 1975. Movements of herring tagged in the Bay of Fundy. *Annu. Meet. int. Comm. Northw. Atlant. Fish.* 1975, Res.Doc. 75/38, Serial No. 3517 (mimeographed).

Table 1. Tagging recoveries reported to March 11, 1976, by geographical recovery area.

Tagging Location	Nos. Tagged	Recoveries					Total (%)
		Div. 4X Nova Scotia	Div. 4X-5Y ¹ New Brunswick	Div. 4W	Div. 5Y ²	Div. 5Z	
New Brunswick							
Grand Manan 1973	12147	14	246	-	1	1	262 (2.2)
Grand Manan 1974	3860	10	152	1	1	2	166 (4.3)
Campobello 1974	8133	5	577	2	8	-	592 (7.3)
Total	24140	29	975	3	10	3	1020 (4.2)
Nova Scotia							
Bay of Fundy 1974	11982	138	46	17	5	2	208 (1.7)
Southwest Nova Scotia 1974	11956	62	18	37	18	-	135 (1.1)
	23938	200	64	54	23	2	343 (1.4)
Total	48078	229	1039	57	33	5	1363 (2.8)

¹ That part of Div. 5Y east of Mount Desert Rock.

² That part of Div. 5Y west of Mount Desert Rock.

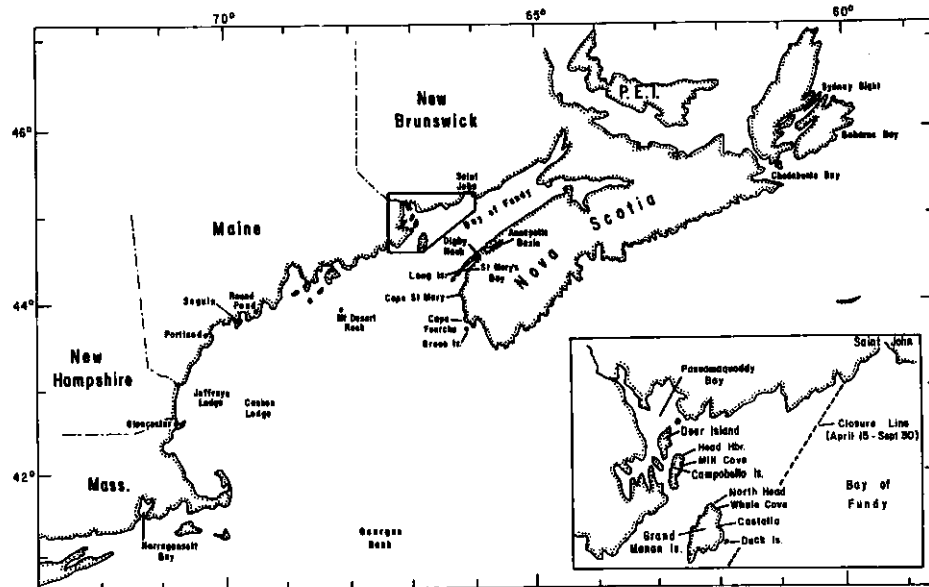


Fig. 1. Map of ICNAF Subareas 4 and 5 where tagging experiments were conducted in 1973-74 and tagging recoveries have been made.

Fig. 2a. Distribution of recaptures (●) from November 21, 1973 to June 30, 1974 from herring tagging experiments off Grand Manan (▲) in 1973. The number of recaptures from each recapture area is given in parentheses.

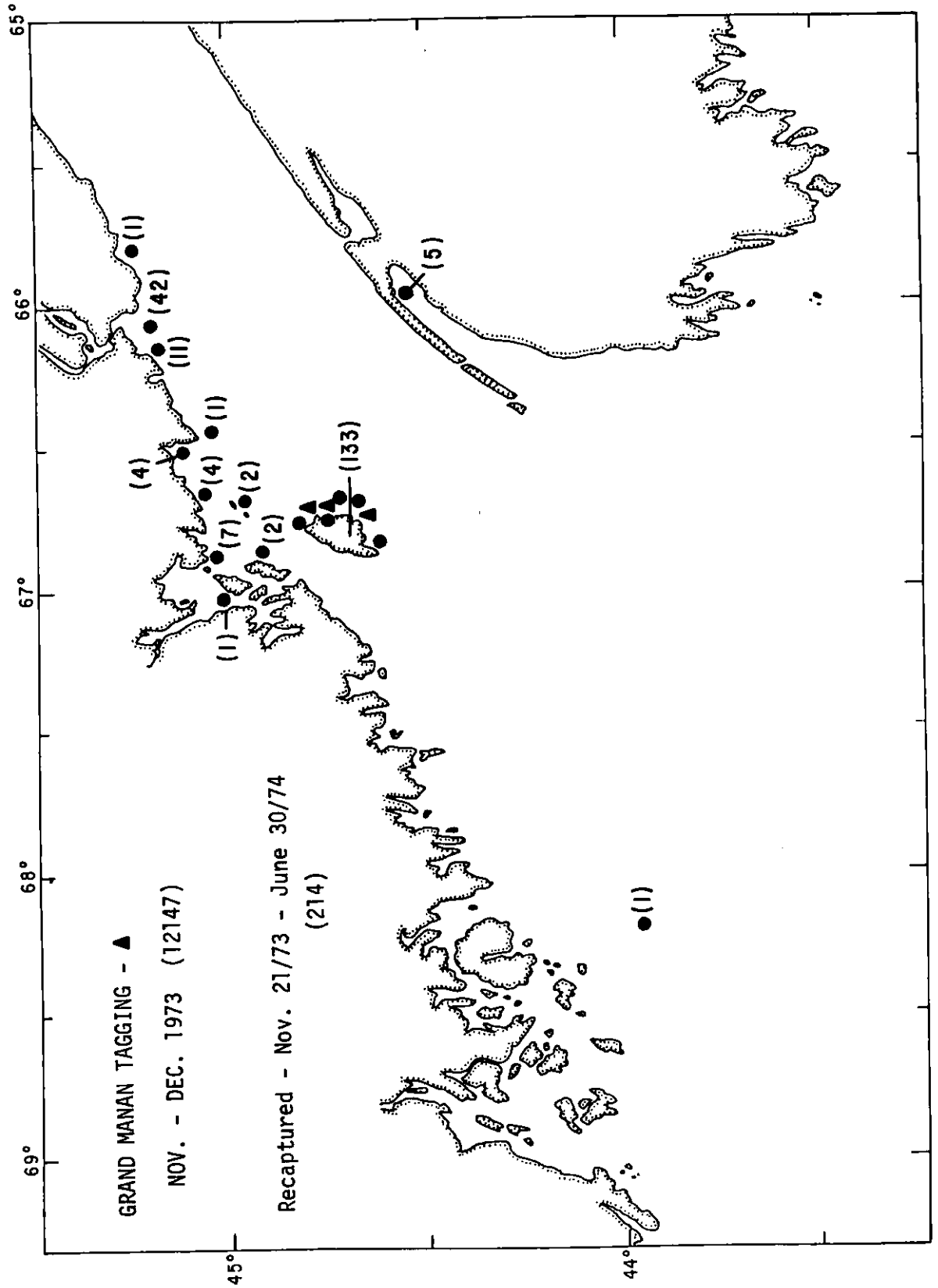


Fig. 2b. Distribution of recaptures (●) from July 1 to December 31, 1974 from herring tagging experiments off Grand Manan (▲) in 1973. The number of recaptures from each recapture area is given in parentheses.

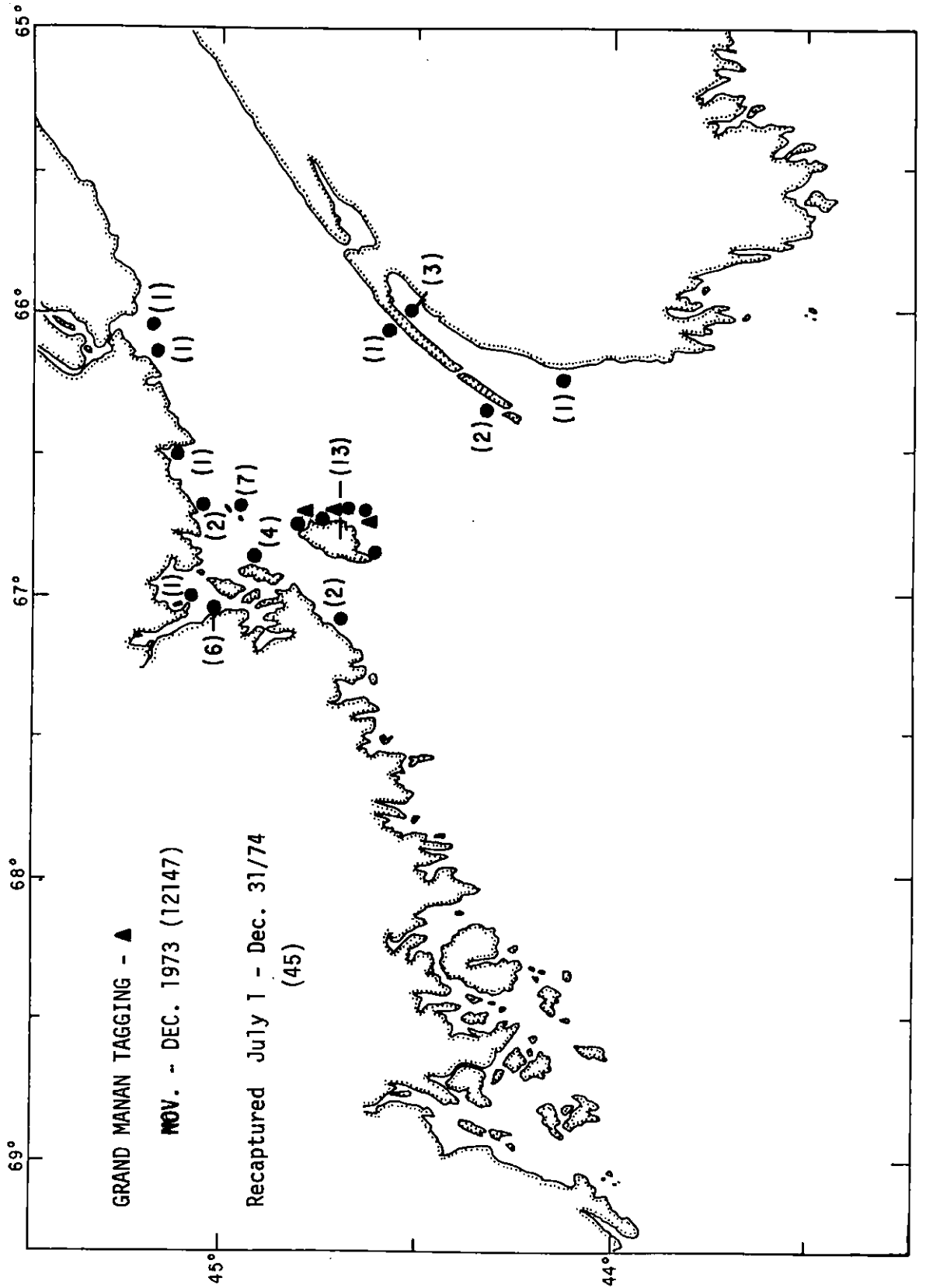


Fig. 2c. Distribution of recaptures (●) from January 1 to August 15, 1975 from herring tagging experiments off Grand Manan (▲) in 1973. The number of recaptures from each recapture area is given in parentheses. No recoveries have been reported between August 16, 1975 and the compilation date of March 11, 1976.

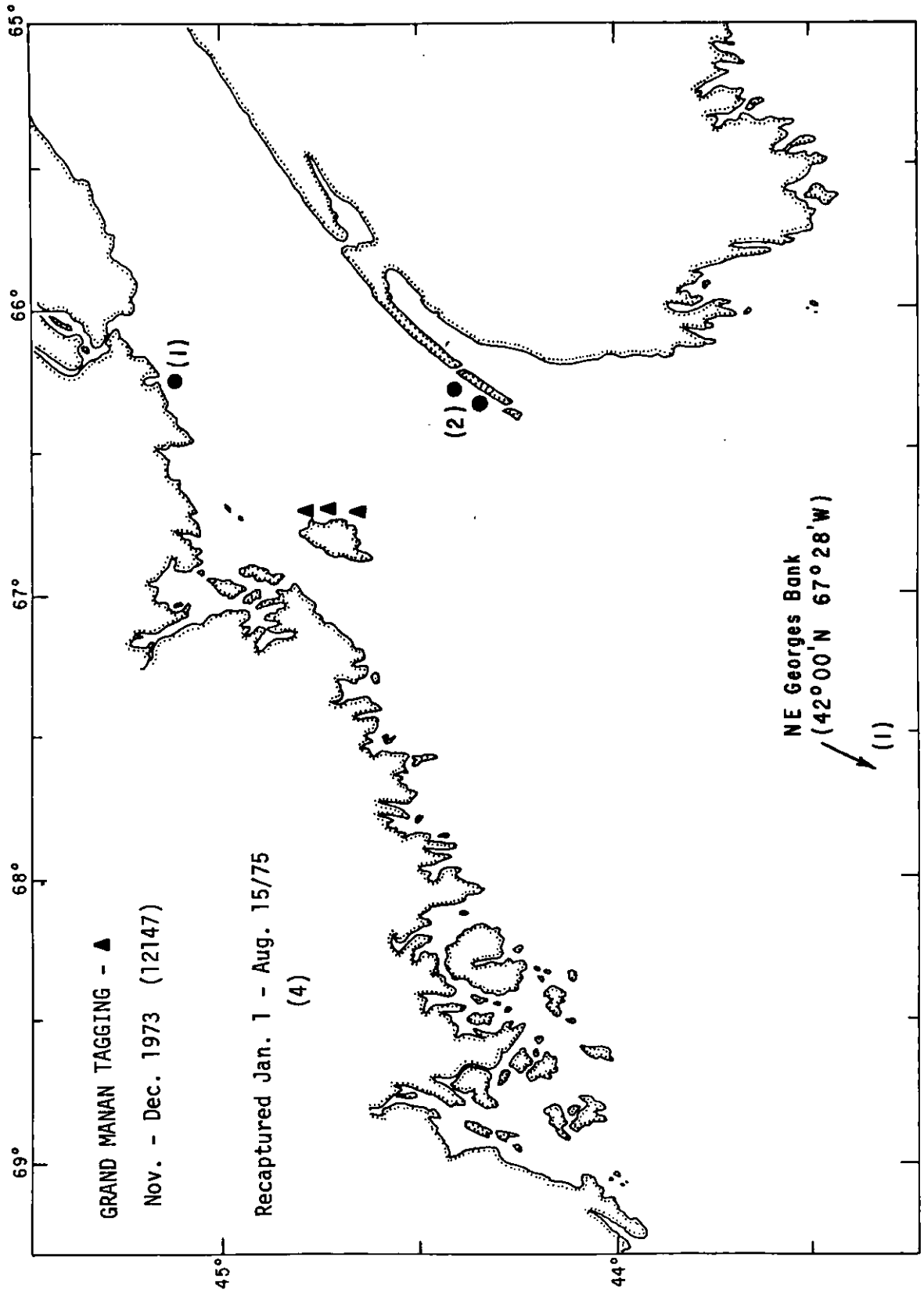


Fig. 3a. Distribution of recaptures (●) from June 24 to December 31, 1974 from herring tagging experiments off Grand Manan (▲) in 1974. The number of recaptures for each recapture area is given in parentheses.

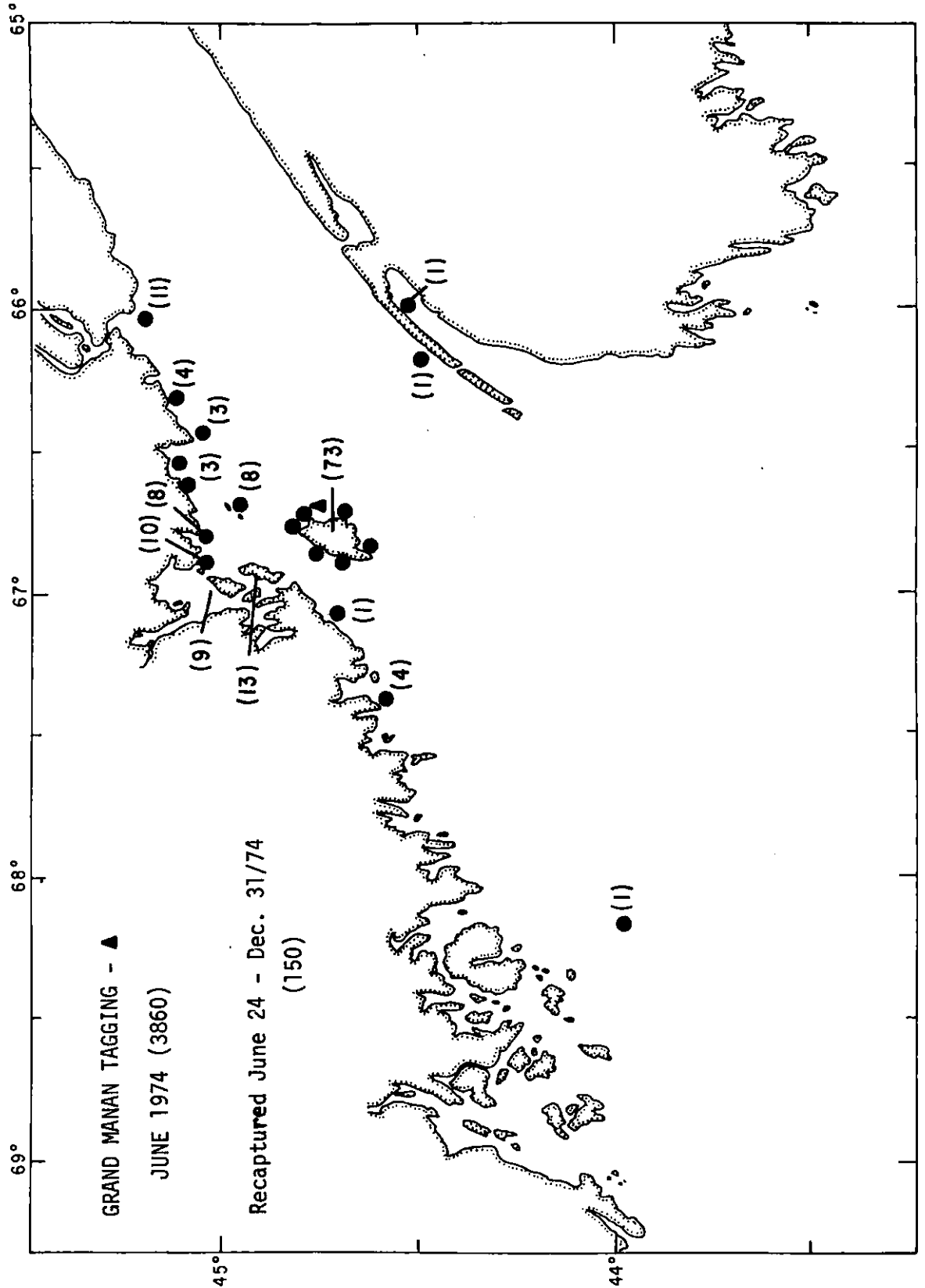


Fig. 3b. Distribution of recaptures (●) from January 1 to August 31, 1975 from herring tagging experiments off Grand Manan (▲) in 1974. The number of recaptures for each recapture area is given in parentheses. No recoveries have been reported between September 1, 1975 and the compilation date of March 11/76.

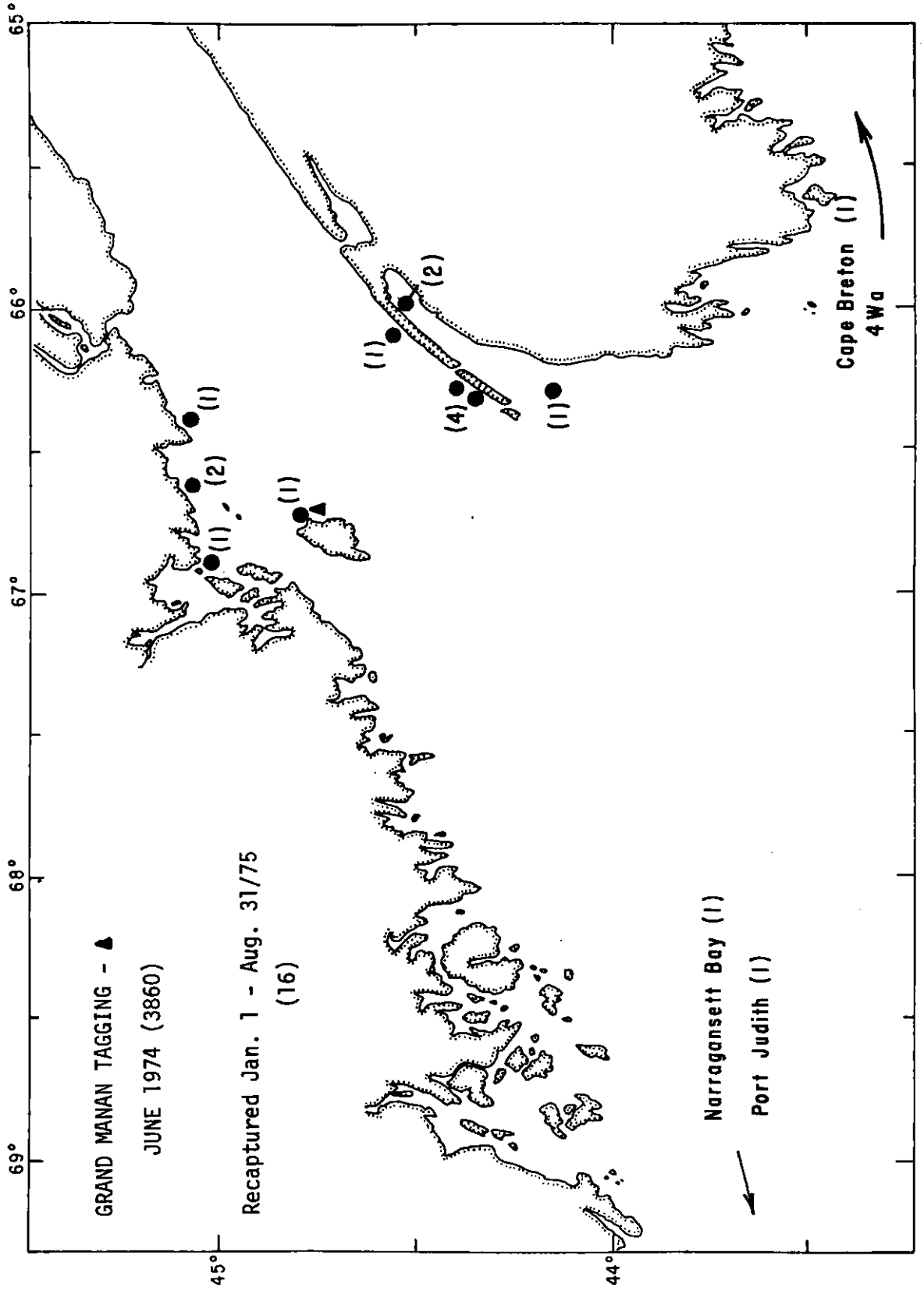


Fig. 4a. Distribution of recaptures (●) from July 26 to December 31, 1974 from herring tagging experiments off Campobello (▲) in 1974. The number of recaptures for each recapture area is given in parentheses.

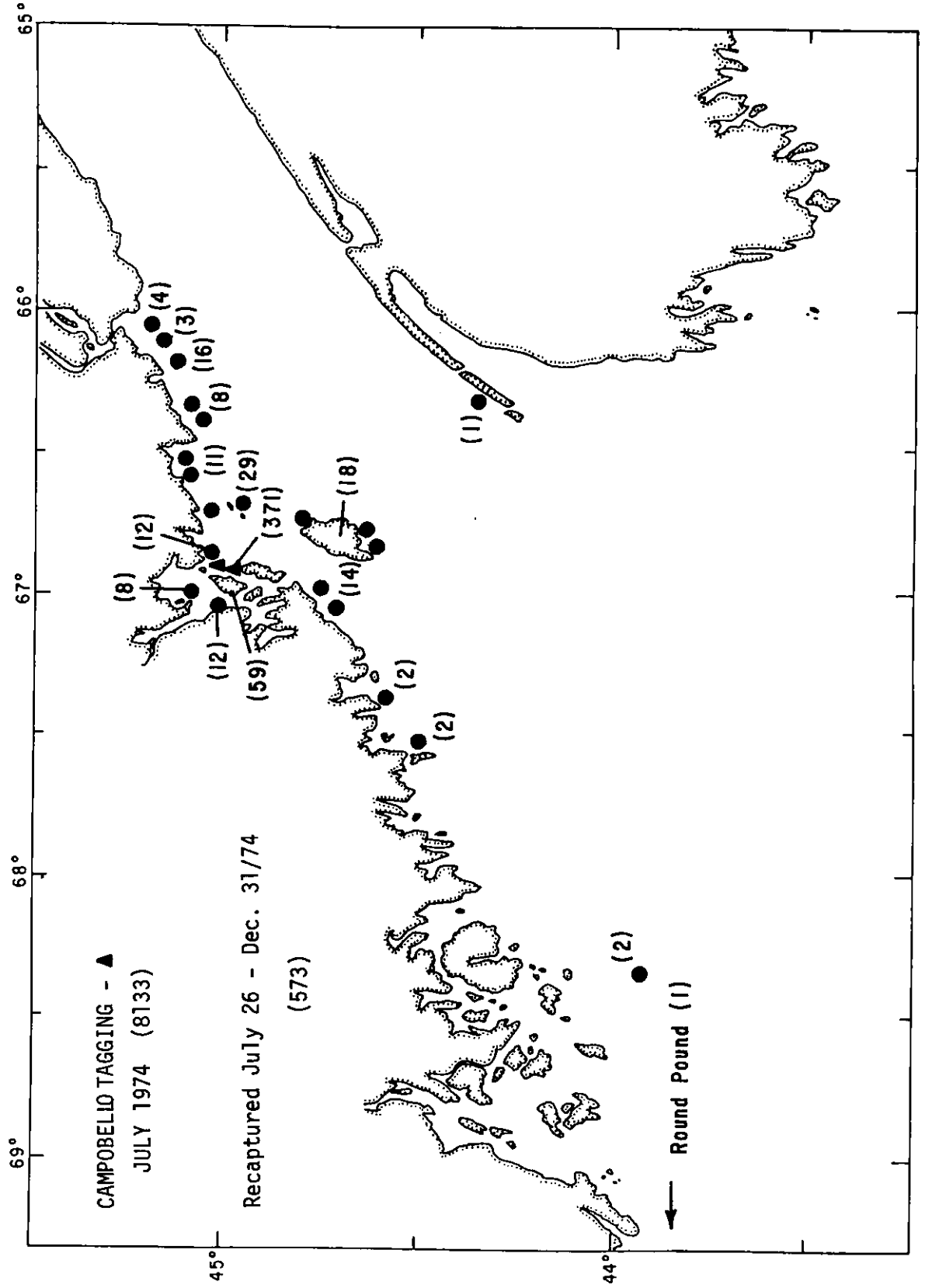


Fig. 4b. Distribution of recaptures (●) from January 1 to November 4, 1975 from herring tagging experiments off Campobello (▲) in 1974. The number of recaptures for each recapture area is given in parentheses. No recoveries have been reported between November 5, 1975 and this compilation date of March 11, 1976.

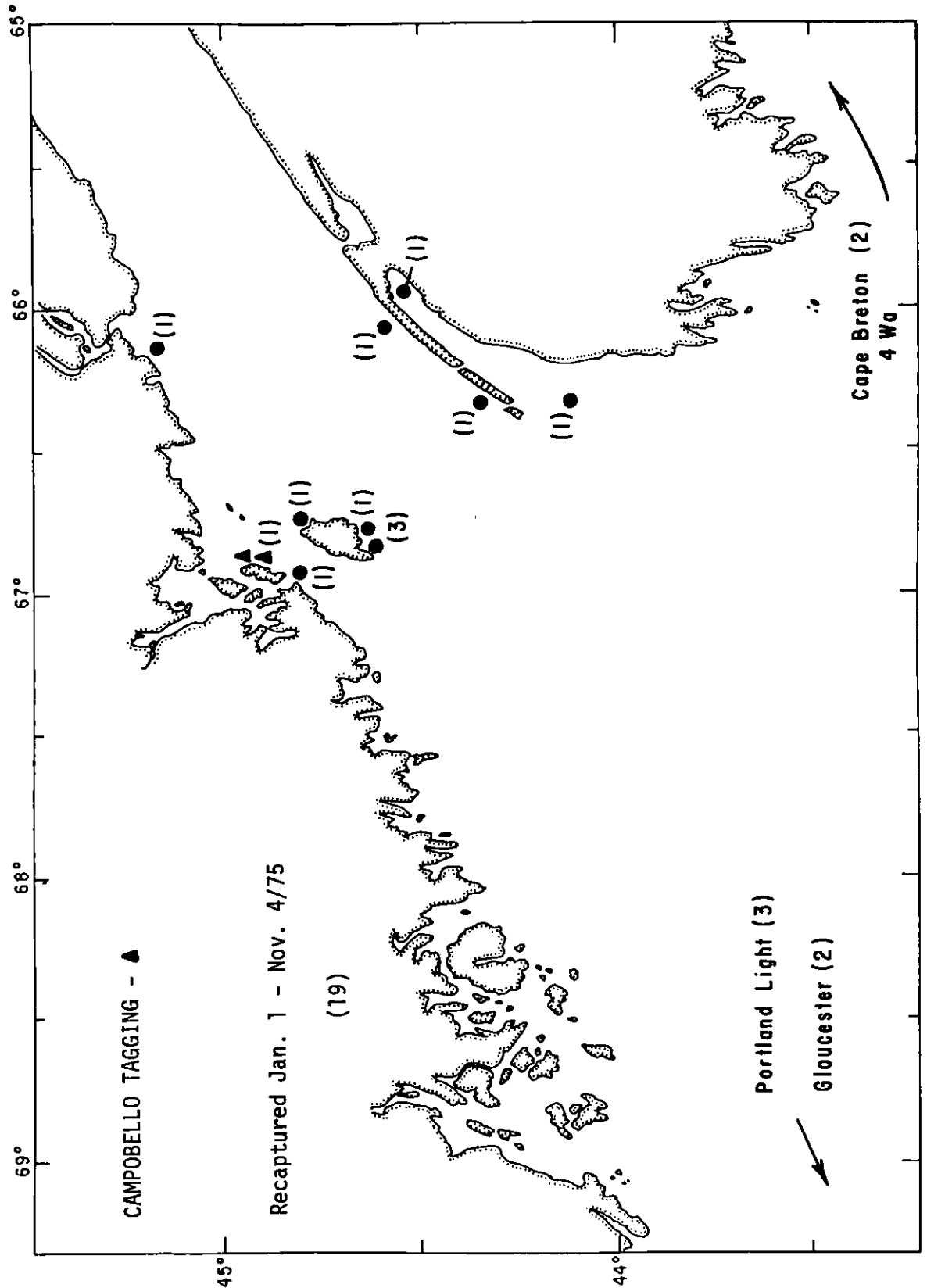


Fig. 5a. Distribution of recaptures (●) from August 20 to December 31, 1974 from herring tagging experiments off Long Island shore, Nova Scotia (▲) in 1974. The number of recaptures for each recapture area is given in parentheses.

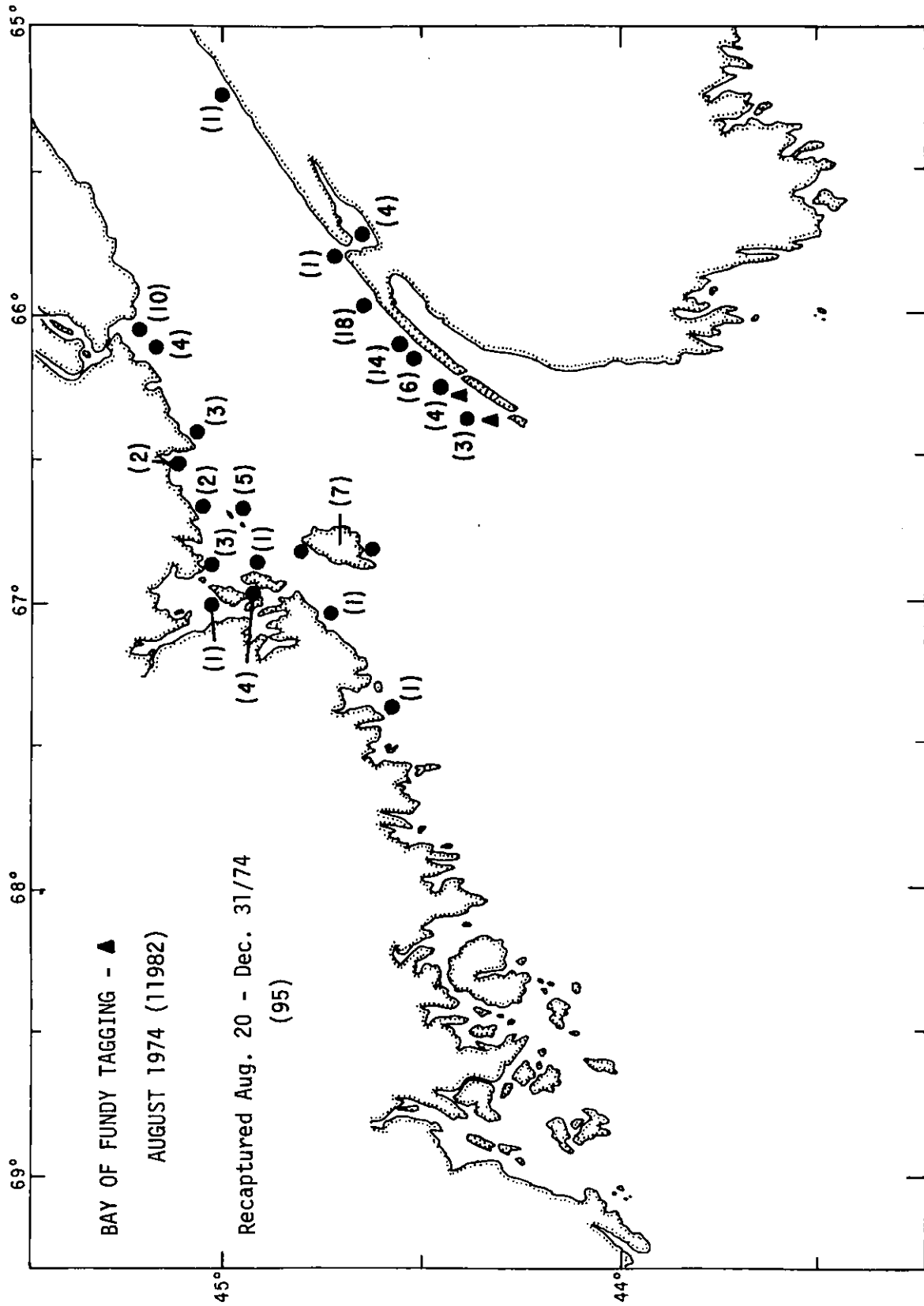


Fig. 5b. Distribution of recaptures (●) from January 1 to June 30, 1975 tagging experiments off Long Island shore, Nova Scotia, (▲) in 1974. The number of recaptures for each recapture area is given in parentheses.

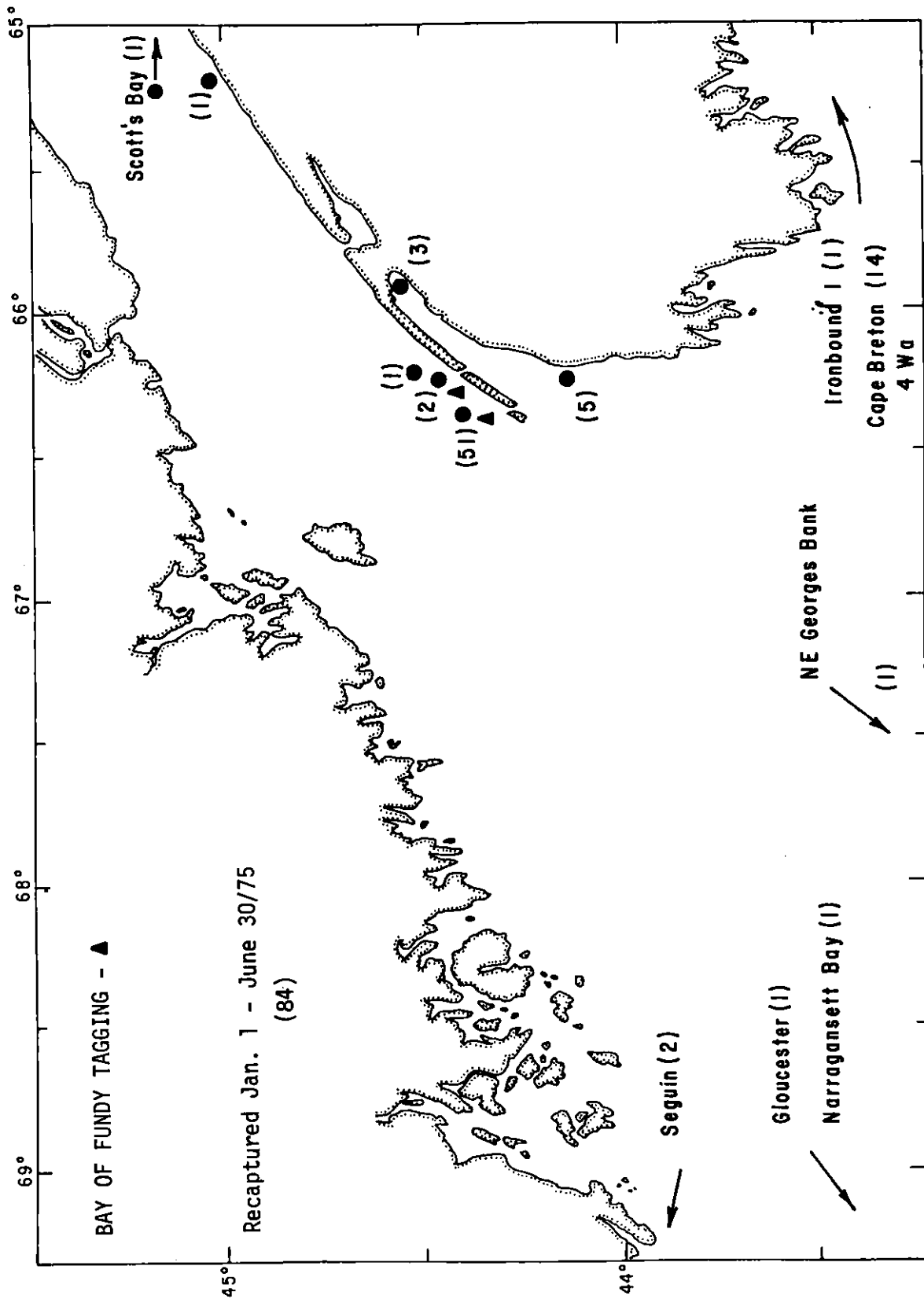


Fig. 5c. Distribution of recaptures (●) from July 1, 1975 to February 19, 1976 from herring tagging experiments off Long Island shore, Nova Scotia (▲) in 1974. The number of recaptures for each recapture area is given in parentheses.

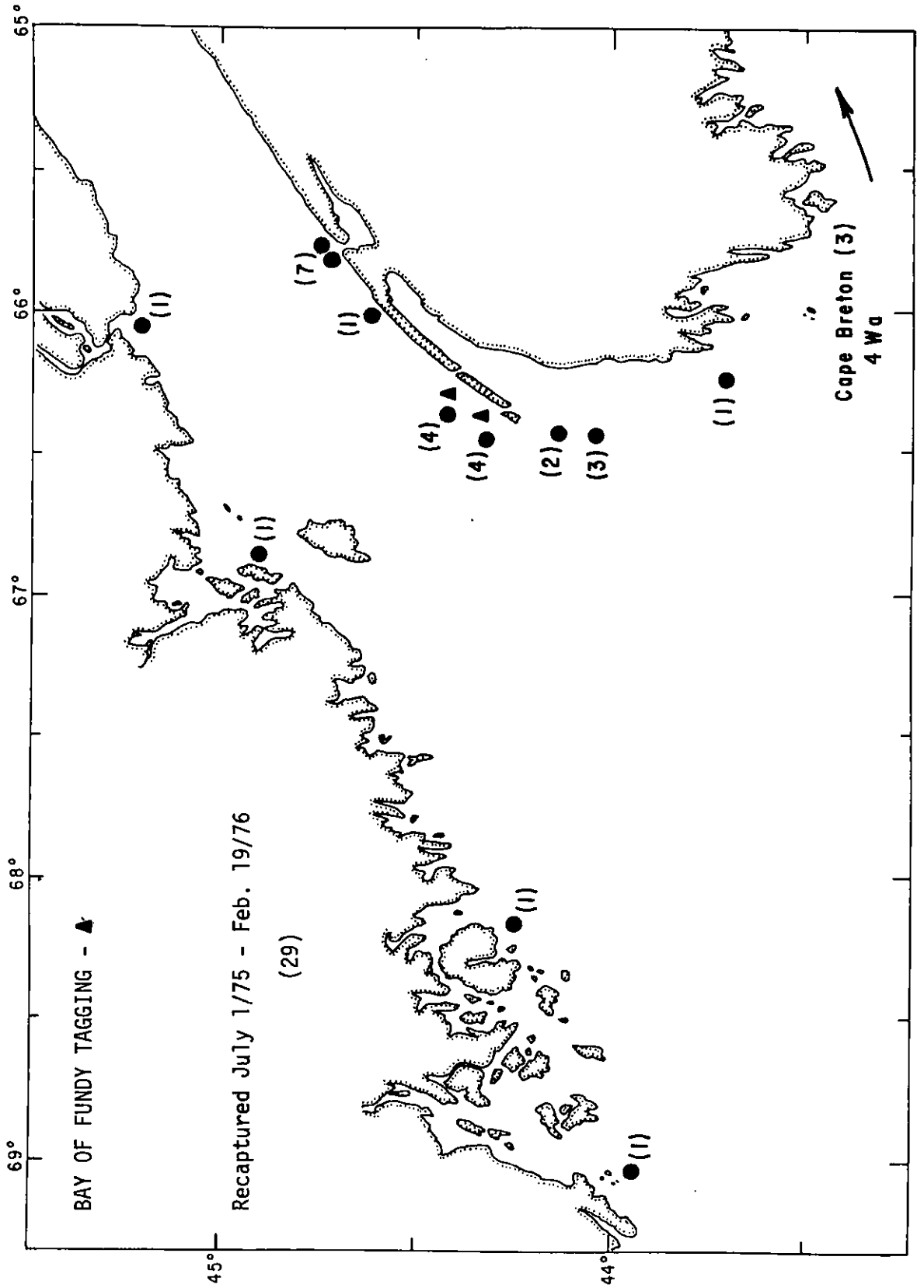


Fig. 6b. Distribution of recaptures (●) from January 1 to June 30, 1975 tagging experiments off Cape Fourchu and Cape St. Mary, Nova Scotia (▲) in 1974. The number of recaptures for each recapture area is given in parentheses.

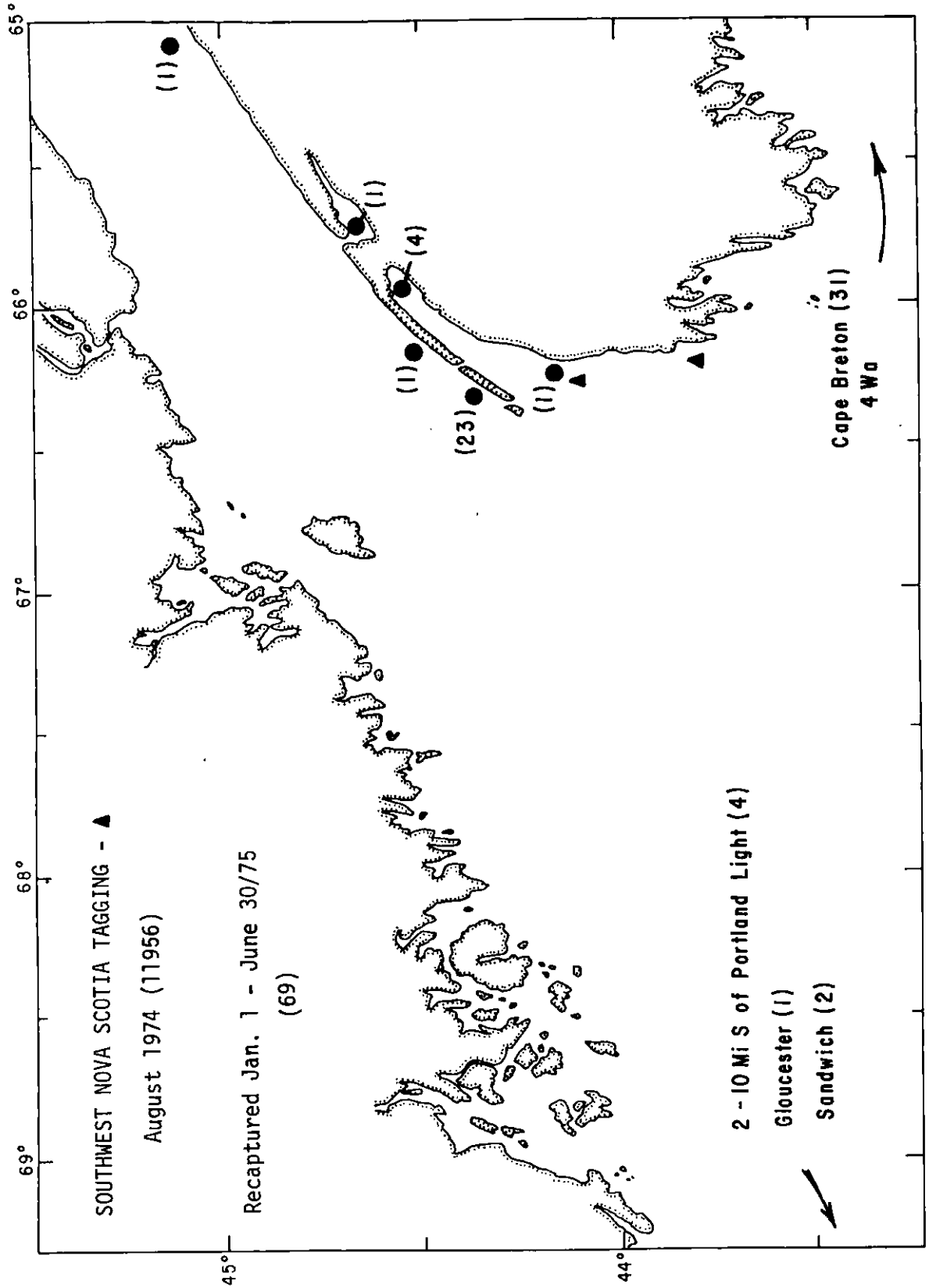
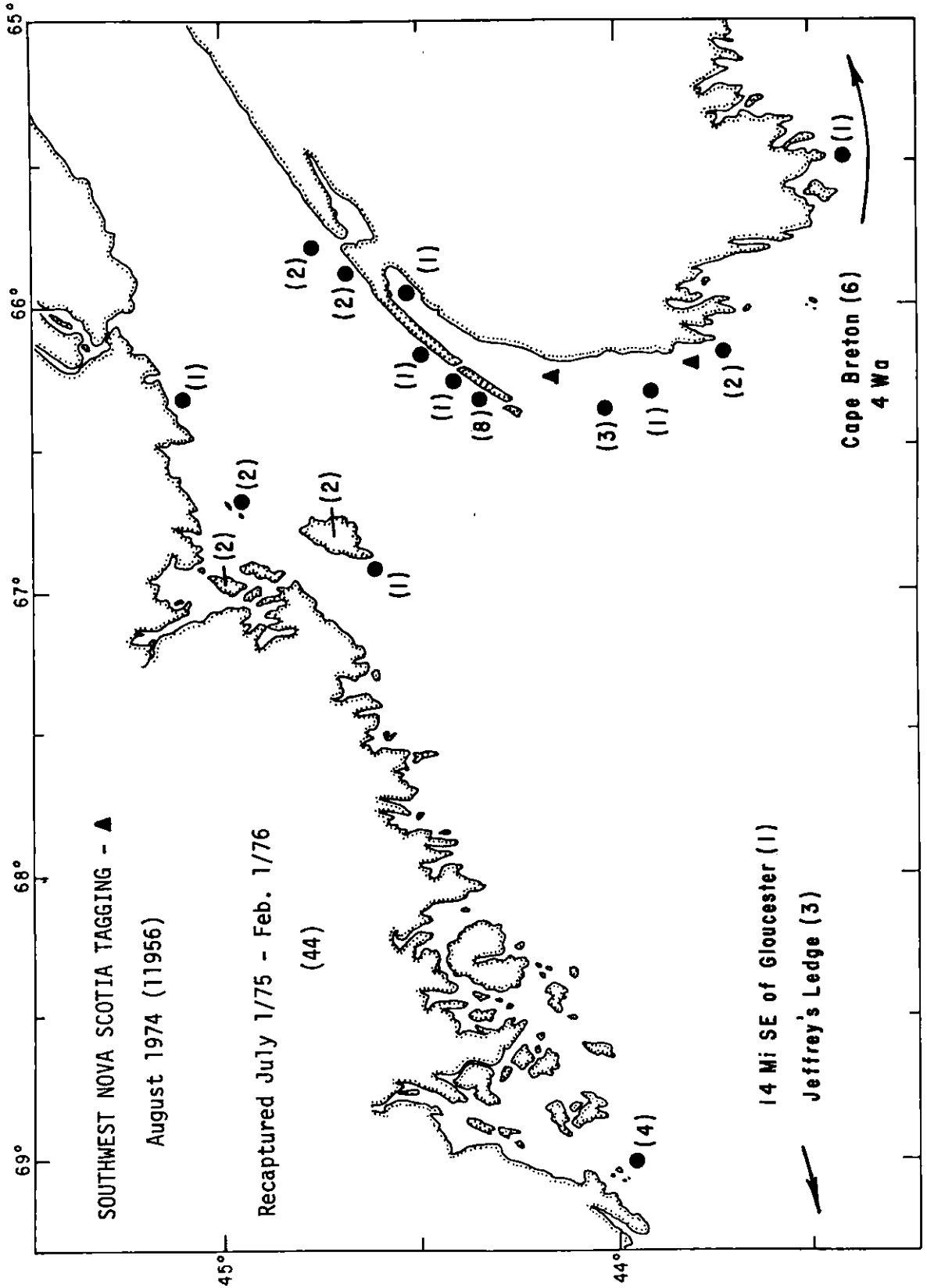


Fig. 6c. Distribution of recaptures (●) from July 1, 1975 to February 1, 1976 from herring tagging experiments off Cape Fourchu and Cape St. Mary, Nova Scotia (▲) in 1974. The number of recaptures for each recapture area is given in parentheses. No recoveries have been reported between February 1, 1976 and the compilation date of March 11, 1976.



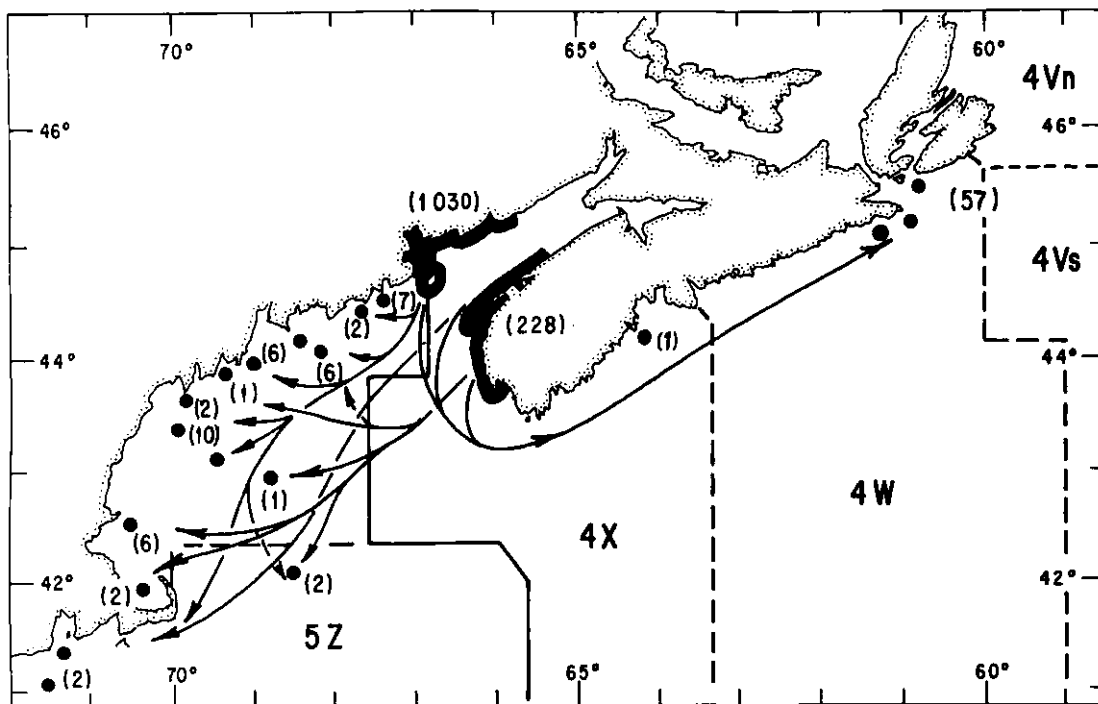


Fig. 7. Summary of the distribution of recaptures from herring tagging experiments in ICNAF Div. 4X in 1973 and 1974. The dark areas in the Bay of Fundy indicate the recapture areas in Div. 4X. The closed circles (o) indicate locations of longer distance recaptures with the number recovered given in parentheses.