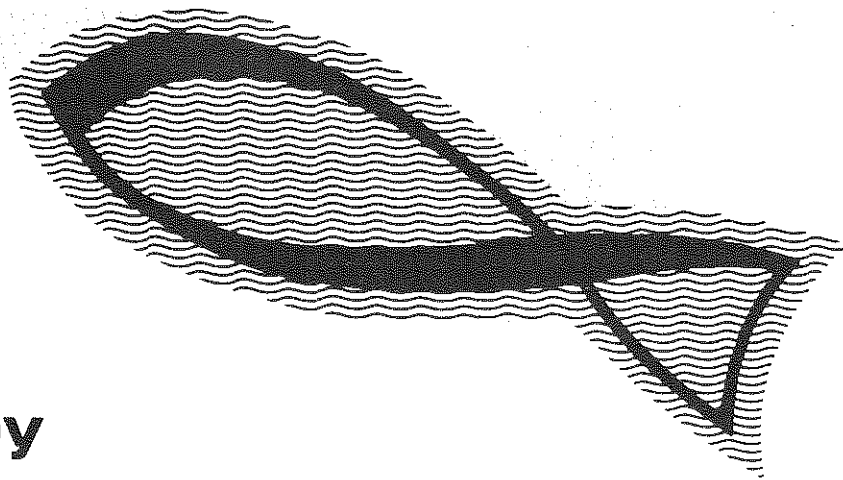




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**Results of Salmon tagging in
the Killala Bay area ,1976**



by

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Results of Salmon tagging in the Killala Bay area, 1976

Abstract:

Salmon movements in and around Killala Bay were investigated by tagging. A total of 49 tags (17.07%) were returned. The areas of recovery ranged from the Kerry coast to the Scottish west coast. A high proportion of the tags recovered from the River Moy were from fish tagged at stations to the east of Killala Bay.

Introduction:

The investigations of movements of salmon in the sea by tagging has been in progress since 1948, and available information on recaptures of salmon tagged in the open sea has been summarised by Went (1970). The present work was undertaken to obtain information on local movements of salmon in and around Killala Bay; a total of 287 salmon were tagged at stations in the bay or in close proximity to the bay during the period 14th June to 14th July, 1976.

Materials and Methods:

The fish were obtained from the commercial drift net fishery in the area, and were tagged as they were taken from the nets. Only fish in good condition were released. The fish were tagged using the Lea hydrostatic tag, originally devised by Mr E Lea of the Fisheries Directorate, Norway, and described by Went (1951). The tag, which is shown in Fig. 1, is a transparent plastic tube closed by a plastic bung at each end. One of the bungs is drilled to accept the stainless steel wire which is used to attach the tag to the fish; the other bung is merely a stopper to seal the tube and is coloured yellow to enable it to be easily seen. Twin-mounted hypodermic needles (Fig. 1) are pushed through the flesh just forward of the dorsal fin, and the wires of the tag are then inserted through the needles. When the needles are removed the wires are left in place. These are tied off and the fish is ready for release. The overall length of the tag is 2.5 cm with a diameter of 0.5 cm, and it contains a message which reads:-

"This fish was tagged in order to study its migration growth etc. Kindly send this message to the Fisheries Division, 3 Cathal Brugha Street, Dublin 1, with full particulars of the date and place of capture, type of gear used, weight and length (from tip of the snout to the fork of the tail) of the fish and fisherman's name and address. Send also 50 scales scraped from the fish in the region between the back fin and side line. A reward will be paid and you will be informed of details of the original tagging of the fish. A souvenir tag will be given in exchange for this message on request".

Release and Recapture:

Salmon were tagged and released in the areas shown in Fig. 2. The number circled is the number of fish tagged at the station, the number in the square is the total number of recoveries obtained from fish tagged at the station, and the number at the end of the arrow is the number of these tags recovered from the River Moy. Thus at Lenadoon Point 105 salmon were tagged, 22 tags were returned and of those 13 were from the River Moy. Details of the number tagged, the number recovered, the percentage recovery and the location of recapture are given in Table 1 for the nine release areas. From a total of 287 tags released, a total of 49 tags (17%) were returned.

DISCUSSION:

Movements. The recapture points ranged from the Cashen River, Co Kerry to the Solway Firth on the Scottish west coast (Fig. 3). Despite the wide range of the recovery points, 47% of the recoveries were from the River Moy, 19 from the estuary and 4 from the freshwater part of the river. Of the tags returned from the River Moy a higher percentage recovery was obtained from fish tagged on the west side. In general, fish tagged on the west side of the Bay (Fig. 3) appeared to be in transit and were recovered at great distances outside the bay, while salmon tagged on the east side (Fig. 4) were apparently destined for locations in Killala Bay, Sligo Bay or Donegal Bay. In fact these local migrations accounted for 88.0% of the total recaptures. There was only one migration from the east side of the bay out of the area mentioned (Fig 4); this fish was recaptured in Tullaghan Bay.

Travel Speeds. Some deductions may be made from the distance between the points of recapture and the tagging zone. Apparent rates of travel in miles per day can be established, based on the minimum distance the fish could have travelled and the number of days it was at liberty (Table 2). A high proportion of the fish (77%) travelled less than 5 miles per day while 87% travelled less than 10 miles per day. The fish which covered the greatest distance (to the west coast of Scotland) travelled at 11 miles per day, while the fastest recorded speed was 25.6 miles per day by the salmon recovered from the River Cashen, Co Kerry.

Time at liberty. In general, the fish were at liberty for short periods. Table 3 shows the number and the corresponding percentage of tags recovered during ten-day periods. Within ten days following release, 69% of the tags had been returned and 83% of the tags were returned within 20 days after their release. The fish which remained at liberty for the longest time was recaptured after 108 days at Newport.

Length and Weight. The average length and weight of the fish at the time of tagging was 63.5 cm (standard deviation 3.6) and 3.0 kg (standard deviation of 1.4). The average length and weight of the fish on recovery were 63.9 cm (standard deviation 2.9) and 3.0 kg (standard deviation .24). There is no statistically significant difference between the two groups of fish.

ACKNOWLEDGEMENTS

I would like to thank the Laboratory staff of Fisheries Division who did the tagging; Derek Carroll, James Carroll, Patrick Gallagher, Paul Gleeson and Fishery Officer, Richard Fluskey; the fishermen who co-operated and gave us every assistance in the work; Mr. Brendan Doherty, Mr. Peadar O'Neill, Mr. John Munelly, Mr. Joseph Garvey and Mr. William O'Reilly. Special thanks must go to Mr. Pat Boland and Mr. Sean McEoin, who made special efforts to ensure that we could carry out the tagging programme. I also want to thank the many fishermen who returned tags and thus made the work worthwhile.

REFERENCES:

- Went, A.E.J. (1951) Proc. R. Ir. Acad. Vol. 54. Sect. No. 8.
 Went, A.E.J. (1970) Berichte der Deutschen Wissenschaftlichen Kommission für Meeresforschung 21 (1970): H (1-4).

Table 1: Recaptures of tagged salmon released in Killala Bay

| Location of Tagging Station | Number Tagged | Number Recovered | Percentage recovery | No. of days at liberty | Location of Recapture |
|-----------------------------|---------------|------------------|---------------------|------------------------|----------------------------|
| Downpatrick Head | 10 | 1 | 10.00 | 6 | Cashen River |
| Creevagh Head | 13 | 2 | 15.38 | 5 | Easky estuary |
| Kilcummin Head | 45 | 7 | 15.56 | 11 | Salmon Weir, Galway |
| | | | | 108 | Burrishoole River, Newport |
| | | | | 1 | Kilcummin |
| | | | | 24 | Solway Firth, Scotland |
| | | | | 44 | Ballisodare River |
| | | | | 15 | Culmore, River Foyle |
| | | | | 7 | River Moy, Ballina |
| | | | | 14 | River Moy, Ballina |
| | | | | 6 | River Moy, Ballina |
| | | | | 9 | River Moy, Ballina |
| | | | | Enniscrone | 12 |
| Pollacheeny | 11 | 1 | 9.09 | 9 | River Moy, Ballina |
| Lenadoon Point | 105 | 22 | 20.95% | 1 | Lenadoon Point |
| | | | | 1 | Lenadoon Point |
| | | | | 1 | Lenadoon Point |
| | | | | 6 | River Moy, Ballina |
| | | | | 8 | River Moy, Ballina |
| | | | | 2 | River Moy, Ballina |
| | | | | 1 | River Moy, Ballina |
| | | | | 1 | River Moy, Ballina |
| | | | | 3 | River Moy, Ballina |
| | | | | 3 | River Moy, Ballina |
| | | | | 9 | River Moy, Ballina |
| | | | | 6 | River Moy, Ballina |
| | | | | 6 | River Moy, Ballina |
| | | | | 35 | River Moy, Foxford |
| | | | | - | River Moy, Foxford |
| | | | | - | River Moy, Foxford |
| | | | | 7 | Enniscrone |
| 1 | Ballisodare | | | | |
| 38 | Drumcliffe | | | | |
| 16 | Rathlee | | | | |
| 5 | Erne Estuary | | | | |

Table 1 (Contd):

| Location of Tagging Station | Number tagged | Number recovered | Percentage recovery | No. of days at liberty | Location of recapture |
|-----------------------------|---------------|------------------|---------------------|------------------------|----------------------------|
| Lenadoon Point Easky | 60 | 10 | 16.67 | 9 | Tullaghan Bay |
| | | | | 2 | Easky Estuary |
| | | | | - | Easky Estuary |
| | | | | 6 | River Moy, Ballina |
| | | | | 2 | River Moy, Ballina |
| | | | | 5 | River Moy, Ballina |
| | | | | 7 | River Moy, Ballina |
| | | | | 7 | Killala Bay |
| | | | | 14 | Dromore Bay West |
| | | | | 21 | Drumcliffe River |
| Carrownabinna Point | 14 | 3 | 21.43 | - | Carrigfad Rock |
| | | | | 24 | Easky Estuary |
| | | | | 9 | River Moy, Ballina |
| Aughris Head | 14 | 2 | 14.29 | 8 | River Bundrowes |
| | | | | 15 | River Moy, Lough Cullin |
| | | | | - | Easky Estuary |

Table 2: Number and percentage of fish that travelled at various speeds

| Miles per day | 0-4.9 | 5.0-9.9 | 10.0-14.9 | 15.0-19.9 | 20.0-24.9 | 25.0-25.9 |
|---------------|-------|---------|-----------|-----------|-----------|-----------|
| No. of fish | 31 | 4 | 3 | 1 | 0 | 1 |
| Percentage | 79% | 10% | 7% | 2% | 0 | 2% |

Table 3: Number and percentage of fish recaptured during 10-day periods after release

| No. of days at liberty | 1-10 | 11-20 | 21-30 | 31-40 | 41-50 | Over 50 |
|------------------------|------|-------|-------|-------|-------|---------|
| No. of tags recovered | 31 | 6 | 3 | 2 | 1 | 2 |
| Percentage | 69% | 13% | 7.5% | 4% | 2.5% | 4% |

APPENDIX 1

List of people who returned tags

Mr M Bourke, Kilglass, Co Sligo

Mr J Cassidy, Tullaglass, Co Leitrim

Dr D M Clarke, Easky, Co Sligo

Mr J Clarke, Ballina, Co Mayo

Mr D Corcoran, Moy Fishery, Co., Ballina, Co Mayo

Mr P Culkin, Moy Fishery Co., Ballina, Co Mayo

Mr J F Diggin, Ballyduff, Tralee, Co Kerry

Mr G Doudican, Tullaghan, Co Leitrim

Mr V Duignan, Carlow, Co Carlow

Mr M Farrell, Drumcliffe, Co Sligo

Mr M Flynn, Foxford, Co Mayo

Mr Fox, Ballyshannon, Co Donegal

Mr K Gallagher, Newtownholmes, Co Sligo

Mr S Gaughan, Doohoma, Co Mayo

Mr G D F Hadoke, Foyle Fisheries Commission, Londonderry

Mr J Kilcannon, Dromore West, Co Sligo

Mr E Kelly, Rathlee, Co Sligo

Mr P Loughmey, Moy Fisheries Co., Ballina, Co Mayo

Mr B McEoin, Enniscrone, Co Sligo

Mr P McGrearty, Ballyshannon, Co Donegal

Mr T Nicholson, Annan, Dumfriesshire, Scotland

Mr P J O'Reilly, Ballyshannon, Co Donegal

Dr D Piggins, Salmon Research Trust, Newport, Co Mayo

Mrs N Rafter, Easky, Co Sligo

Mr J Scanlon, Salmon Fishery, Galway

Mr G Smith, Ballisodare, Co Sligo

Mr A Tighe, Moy Fishery Co, Ballina, Co Mayo

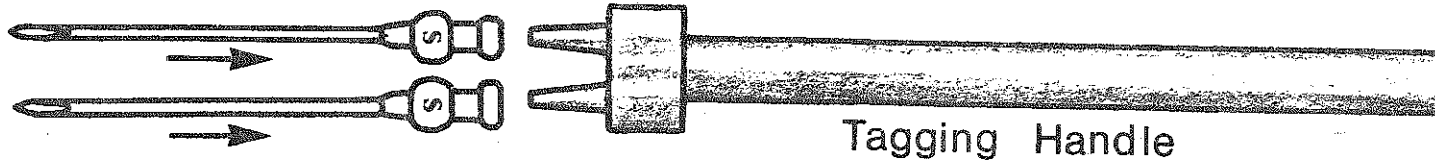
Mr W O'Reilly, Rathlee, Easky, Co Sligo

Dr M P Caulfield, Castlebar, Co Mayo.



Tag (Actual size)

Lea Hydrostatic Tag



Two number 11 Hypodermic needles

Tagging Handle

Fig.1 The Lea Hydrostatic Tag and the mounted hypodermic needles
used for inserting the tag.

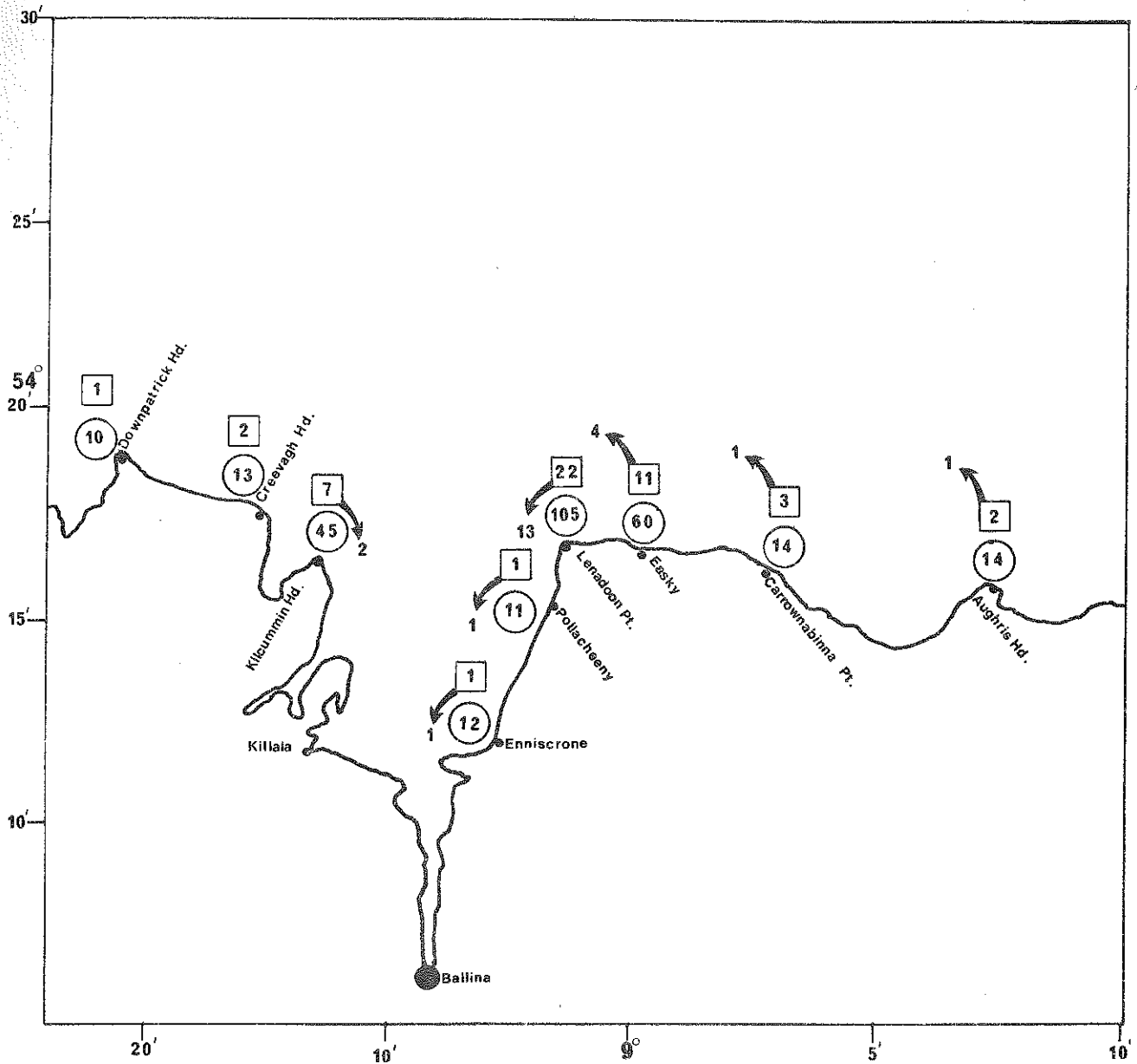


Fig.2 The approximate locations of the nine tagging stations.

Circles indicate the number tagged. Squares indicate the number recovered. The number at the end of the arrow indicates the number of tags recovered from the River Moy.

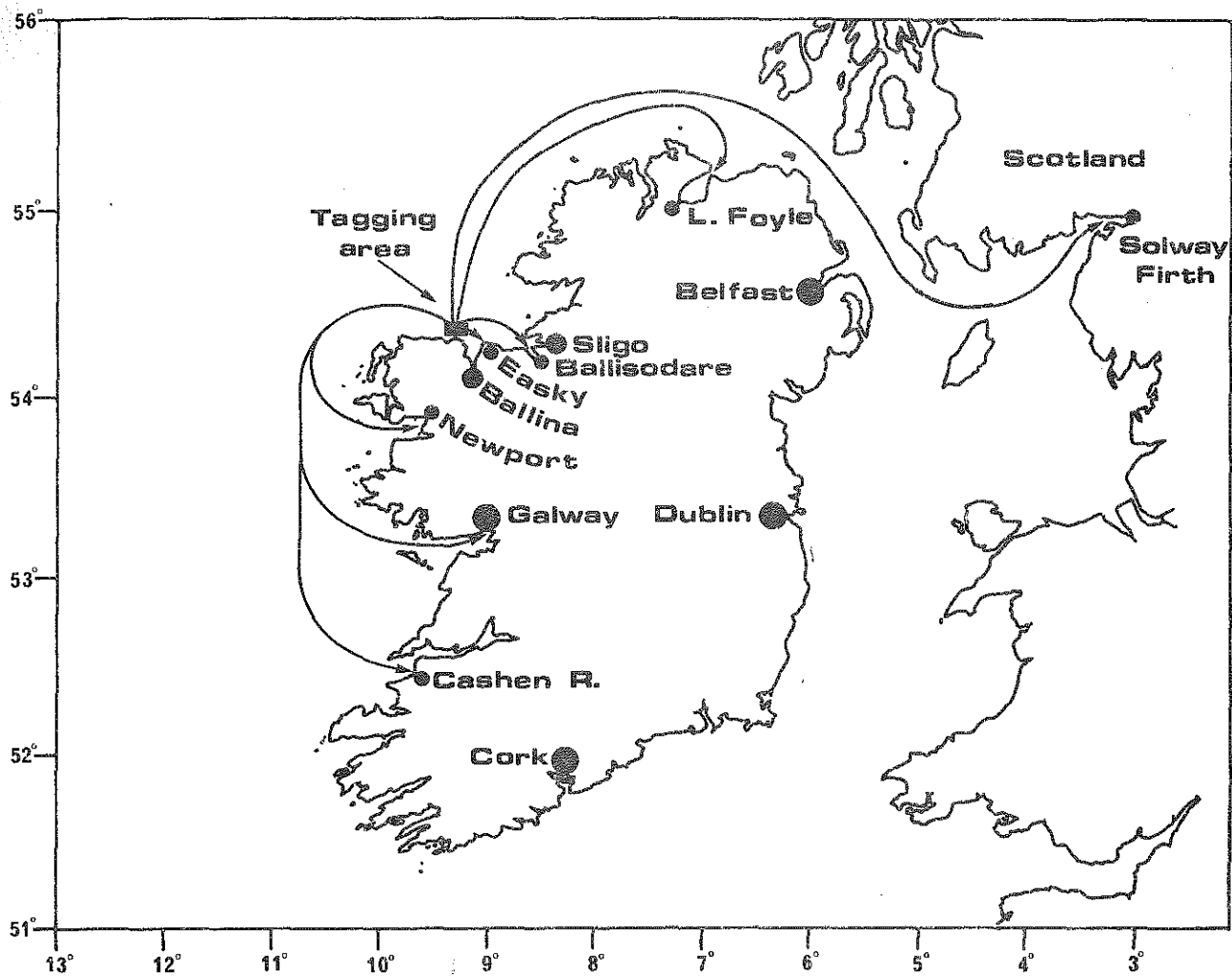


Fig.3 The recovery point of salmon tagged at stations to the west of Killala Bay.

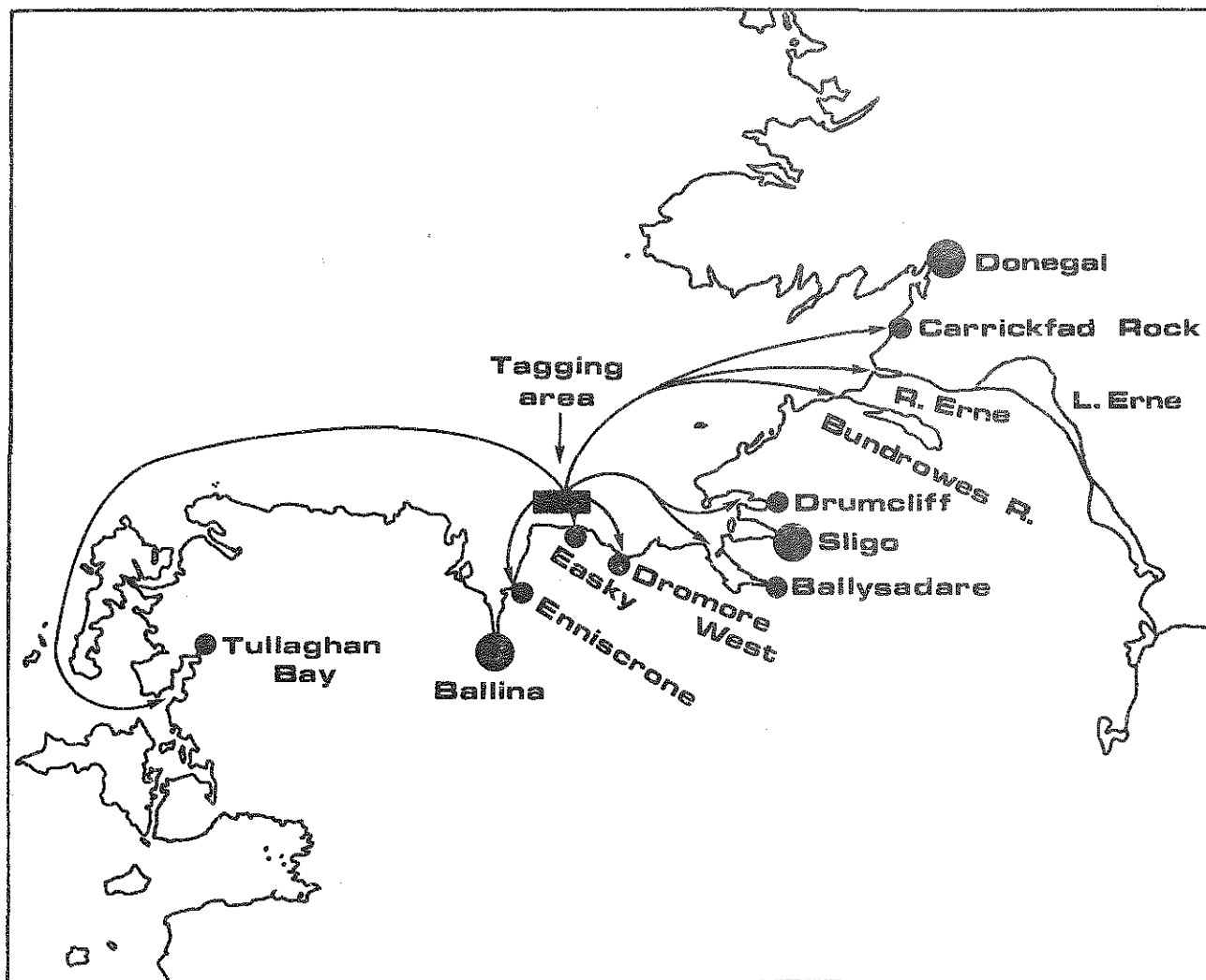


Fig.4 The recovery point of salmon tagged at stations to the east of Killalua Bay.