Long Distance Migrations of Plaice *(Pleuronectes platessa L.)*

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Until recently the plaice have been thought to undertake short migrations only and to stay at the bottom most of the time. In later years it has, however, been established that this theory does not hold, as for example recaptures from Icelandic tagging experiments have shown.

The tagging experiments carried out in Faxaflói on the west coast of Iceland in the years 1953–65 (Fig. 1) and in Skjálfandi on the eastern north coast in the years 1955–65 (Fig. 2) can be taken as examples of the extensive migrations along the Icelandic coast. Recaptures from other tagging areas at Iceland show similar distribution.

It is also known that the plaice sometimes move up into midwater and even close to the surface. Thus, for instance, some years ago captain Bóas Jónsson (personal communication) caught plaice in purse seine over a bottom depth of 800–900 m in the open sea off the east coast of Iceland.

Walker et al. (1978), using acoustic transponding tags, proved that plaice sometimes stay in midwater for hours, apparently using tidal currents as means of transportation when migrating in the North Sea.

Even more remarkable are 6 recaptures of plaice tagged in Icelandic waters and showing long distance migrations (Fig. 3 and Table 1). At least some of the locations of the recaptures seem to be quite reliable, as for instance No. 2 and 3 in Table 1. The location of recapture No. 1 is given within an area extending from the White Sea to Skomvær, Norway. While the position is inexact, this recapture, nevertheless comes from the eastern side of the Northeast Atlantic Ocean. Those who filled in the recapture data forms for No. 4 and 5 expressed some doubt as to reliability of the information on the grounds of recapture. Whether they believed that the original information was inaccurate or only felt that the data were not in accordance with the theory that the plaice is a stationary bottom dweller can not be read from the forms. Recovery No. 6 (Table 1) was found by a filleter; in this case, however, the vessel, the recapture ground and the date of landing seem to have been known. All these fish were caught by British trawlers.

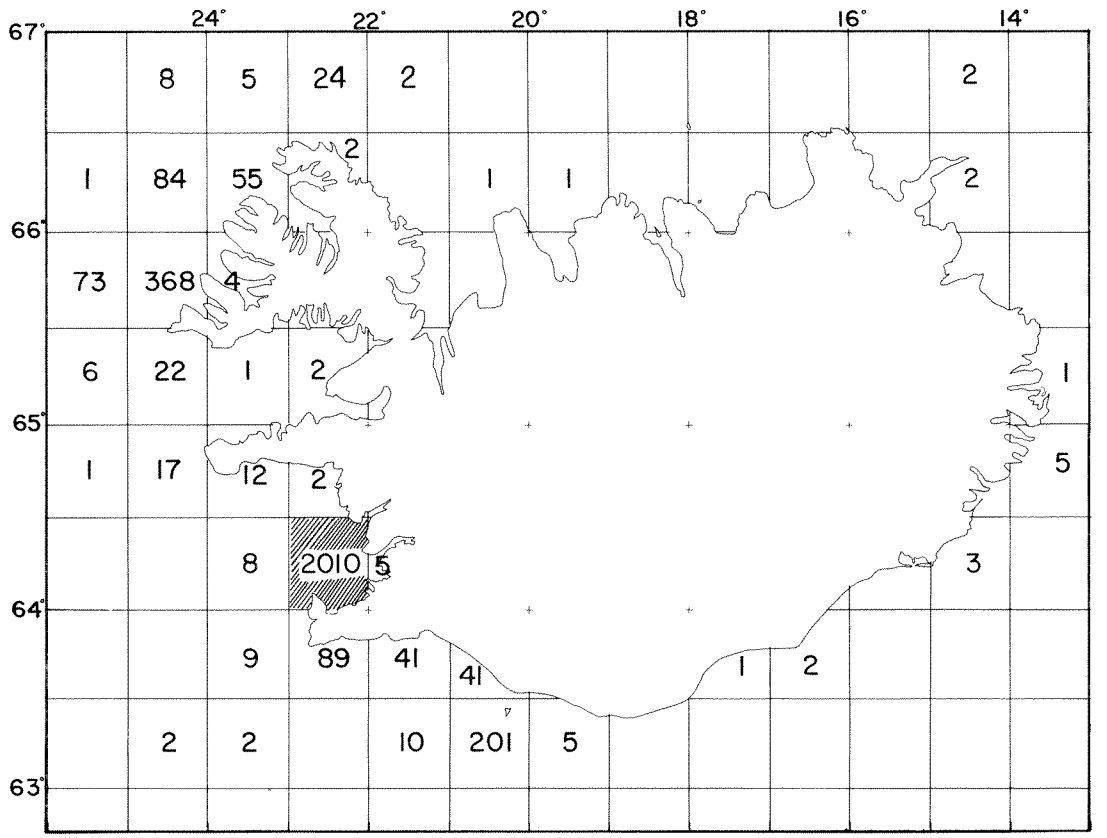

Fig. 1. Plaice tagged in Faxaflói during the years 1953–65 and recaptured before the end of the year 1968. The square of tagging is hatched. The figures show the number of recaptures within each square. The total number tagged was 21,067, that of the recaptures 4,436 or 21.1%, 3,130 of which could be referred to squares.

The shortest possible migration routes between tagging localities and recovery grounds are indicated in Table 1 and Fig. 3, although the fish probably swam in a much more adventitious way. Accordingly the arrow referring to recovery No. 1 is only drawn to Skomvær, which is the nearest point of the quoted area of recapture (Table 1 and Fig. 3). Thus if the individual was recovered at Skomvær, the shortest route of migration is 940 nautical miles covered in 143 days and the minimum average swimming speed 6.6 nautical miles per day. This is a considerable speed for a fish which is not likely to be a fast swimmer. If on the other hand the recapture is from the White Sea the minimum length of the migration route is 1880 nautical miles and the average daily speed can not have been under 13 nautical miles.

Obviously, migrations of plaice back

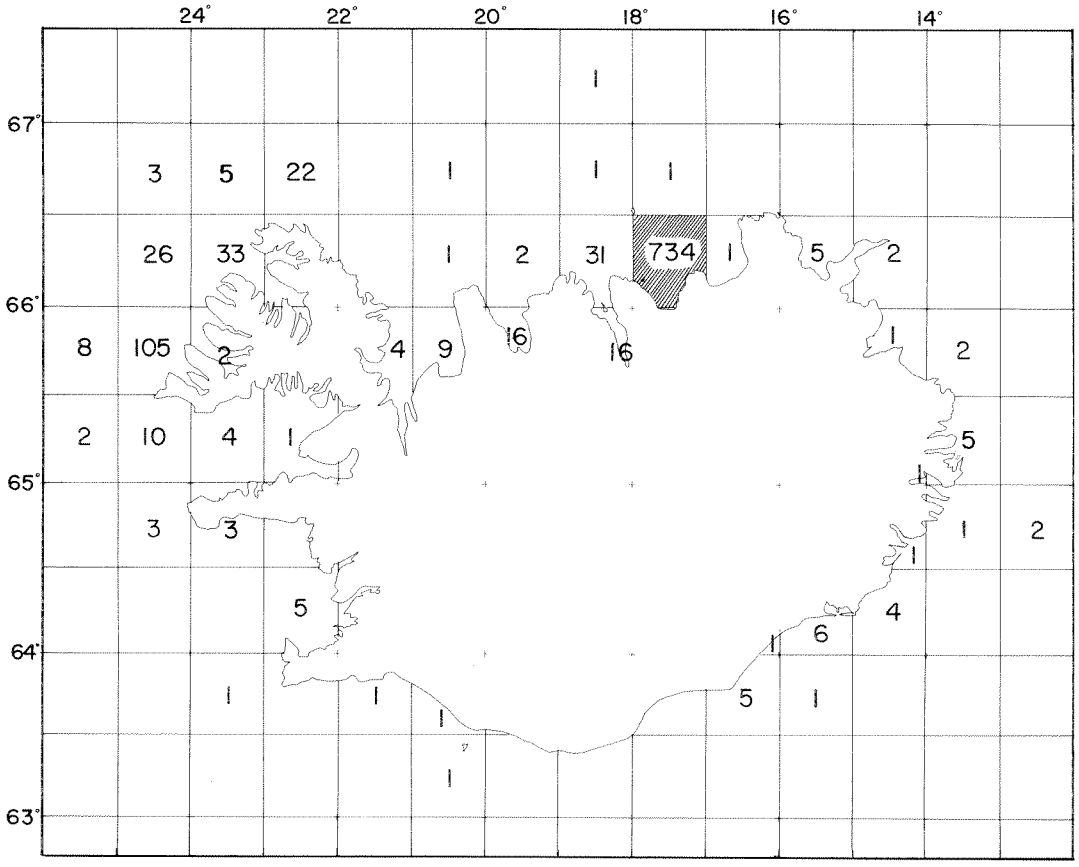

Fig. 2. Plaice tagged in Skjálfandi during the years 1955–65 and recaptured before the end of the year 1968. The square of tagging is hatched. The figures show the number of recaptures within each square. The total number tagged was 3,271, that of recaptures 1,134 or 34.7%, 1,091 of which could be referred to squares.

and forth off the coasts of Iceland are quite common and much more extensive than previously assumed. Furthermore the plaice sometimes migrate from Iceland to the east side of the Atlantic Ocean. However, these migrations are presumably infrequent, since recaptures have been few so far in spite of the large number of plaice that have been tagged in Icelandic waters during the last 30 years.

Apparently, the plaice move in the upper layers of the ocean when undertaking long distance migrations. This suggestion is supported by the fact that plaice have been caught in the upper layers of the ocean off the east coast of Iceland as already mentioned and by the results from the tagging of plaice by acoustic transponding tags in the North Sea (Walker et al. 1978).

TABLE 1

Long distance migrations of plaice tagged in Icelandic waters.

No.	*Liberation data*				*Recapture data*			*Days in sea*	*Minimum distance covered, nautical miles*
	Location	*Date*	*Length (cm)*		*Location*	*Date*	*Length (cm)*		
1	Faxaflói ..... 64°04′N – 22°35′W	Nov. 10, 1954	45	♀	White Sea – Skomvær (Lofoten), Norway	Apr. 2, 1955	45	143	960
2	Skjálfandi ..... 66°01′N – 17°31′W	Jul. 29, 1958	42		NE Muckle Flugga Shetland Isles	Apr. 1, 1966		2821	580
3	Aðalvík ..... 66°23′N – 25°08′W	Aug. 31, 1959	30	♀	61°28′N – 00°21′W, (40 miles NNE of Muckle Flugga)	Mar. 1, 1964	44	1644	700
4	Aðalvík ..... 66°23′N – 25°08′W	Aug. 31, 1959	43	♀	Navalok, Barents Sea Region 101C	Aug. 7, 1961	52	706	1420
5	Faxaflói ..... 64°09′N – 22°22′W	Aug. 16, 1962	32	♀	Skraaven, Norway Region 102C	Mar. 10, 1964	40	572	984
6	Arnarfjörður ..... 65°52′N – 24°00′W	Jul. 11, 1973	29		White Sea	Apr. – May 1978	46	ca 1750	1660

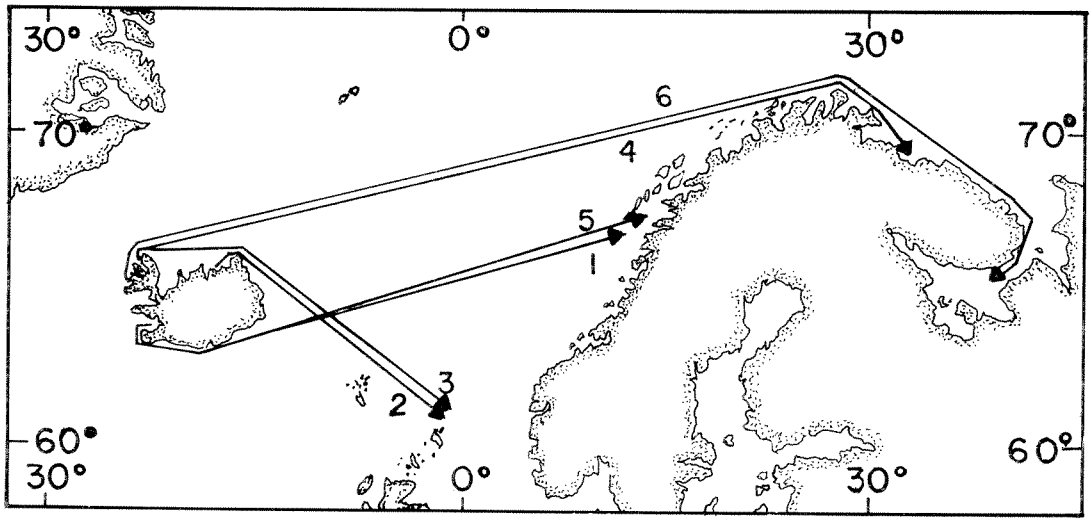

Fig. 3. Shortest possible migration routes of the plaice recorded in Table 1.

REFERENCE

Walker, M. Greer, F. R. Harden Jones and G. P. Arnold, 1978. The movement of plaice (Pleuronectes platessa L.) tracked in open sea. J. Cons. int. Explor. Mer, 38 (1):58–86.