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Data on Distribution of the Northwest Atlantic Saury, *Scomberesox saurus* (Walb.),  
For Evaluation of the Unity of Their Population

by

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Abstract

Based on the data on the distribution and migration of the saury throughout the year the functional components of the area, i.e. the spawning and feeding areas, are determined. The interchange of adult individuals between different parts of the area during the migrations and at early stages of their development indicates the unity of the Northwest Atlantic saury population.

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The data on the interchange of individuals within the distribution areas of the species are of great importance for revealing of the degree of the fish population unity. These data become still more important when they concern the species having vast distribution areas and performing lengthy migrations.

The present paper is based on the data collected during the cruises aimed at the studying of the North Atlantic saury *Scomberesox saurus* (Walb.) and conducted in the period from 1967 to 1981.

In the north-western part of the ocean the saury are found between the Newfoundland in the north and Cape Hatteras in the south, off the U.S. coast, and at 30°S in the oceanic areas (Fig. 1). The saury are incidentally recorded along the northern coasts of the USA and Canada (Bigelow, Schroeder, 1953; Leim,

Scott, 1966). This species is also found in the open ocean throughout the year (Nesterov, 1979).

The distribution of the saury in the area of their occurrence is of a seasonal pattern. In winter the saury keep to the southernmost distribution areas. In some years, in December, the saury were recorded on the southern Georges Bank and in the waters adjacent to the Bank on the west. With the drop in the water temperature to 9-12°C or below, the aggregations migrate to the southern areas where the adult fish spawn. So, in December-January the saury spawners were recorded to the southeast of Cape Hatteras and in the area between 32-36°N and 50-70°W.

As is evident from the distribution of the saury eggs, larvae and spawners, they spawn between 40° and 30°S at the water temperature of 16.8-23.7° (Nesterov, Shiganova, 1974) (Fig. 1).

In March the saury were recorded in the area between 35° and 40°N. The intensive northward migration of the saury begins in April and May. On crossing the Gulf Stream front, the fish aggregations stay in the Georges Bank area and adjacent waters along the southern slopes of the Grand Bank.

With heating of the upper water layer during the summer period the distribution range of the saury extends farther north. In June the saury schools are found off the Gulf of Maine and in the shelf waters of Nova Scotia as far as 44°N, on the southern slopes of the Grand Bank. In July and August the aggregations occur both south of the Newfoundland and on the Flemish Cap Bank, and also farther east, in the open ocean. According to the literature sources the saury can be also found in more northern areas (Fig. 1).

From September to November the southward migration begins. While in October the saury schools are observed all over the Scotian shelf, in November they are recorded in the Georges Bank area.

From the above-stated it can be concluded that within the distribution area the saury perform active seasonal latitudinal migrations. In the winter months the saury occupy the reproductive part of the area. In summer and early in fall the fish concentrate for feeding in the northernmost parts of the area, including the coastal waters of the USA and Canada (Nesterov, 1979, 1981).

The observations of the peculiarities of the quantitative distribution of the saury show that this species has a continuous distribution area, where, however, their numerical values fluctuate within a wide range from some kilogrammes to 5 tonnes per sq. km (Nesterov, 1979). The wide interchange of adult individuals between different parts of the distribution area takes place during seasonal migrations and at early stages of development by drift transport, which is confirmed by the biological data (Nesterov, 1974).

Thus, in the upper uniform isothermal water layer inhabited by the saury there exist no isolating barriers responsible for the formation of local groupings. In this case the saury stock can be considered as a single population inhabiting the Northwest Atlantic. In this connection, the traditional method for revealing of possible differences between separate fish groups, namely the analysis of meristic and plastic features regarding the Northwest Atlantic saury, was not used. The comparison between morphological features of the saury from the eastern and western parts of the North Atlantic yielded no difference. (Nesterov, Gajkov, 1978).

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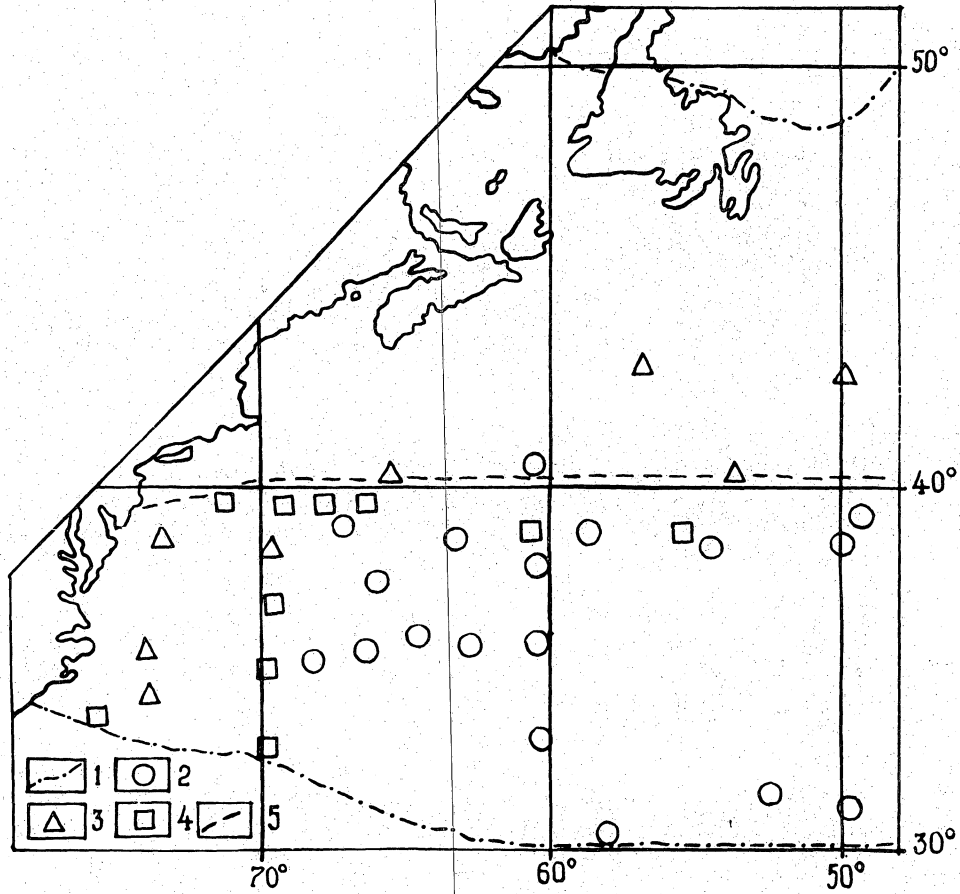


Fig. 1 Distribution of the saury in the Northwest Atlantic:

- 1 - distribution area boundary;
- 2 - occurrence of eggs and larvae;
- 3- 4 - sites of fry and spawner catches;
- 5 - northern boundary of the spawning area  
(author's materials; Ueyanagi et al., 1969;  
Leim, Scott, 1966)

