

Northwest Atlantic



Fisheries Organization

Serial No. N1667

NAFO SCR Doc. 89/83

SCIENTIFIC COUNCIL MEETING - SEPTEMBER 1989

On Nature of Non-maturing Redfish (*Sebastes mentella*
Travin) in the Northwest Atlantic

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In the early sixties a strange group of redfish was discovered in the areas of the Notre-Dame Bay and the South Labrador at depths of 500-700 metres. As to external features, growth rate and age composition it practically did not differ from Sebastes mentella Travin inhabiting these waters. However, all the fish, even of a very old age were immature. Moreover, the adult males and females lacked the sex dimorphism known to scientists by the fact that the mature males are smaller than the females of the same age. The migrations from smaller to larger depths usual for beaked redfish in connection with maturing and spawning of larvae are not characteristic of the fish group with the mentioned breakdown of sex function either. It has also been observed that deep-water redfish do not make considerable, daily, vertical migrations. In the Notre-Dame Bay area both the day-time catches and the night-time ones are approximately equal (2,5).

During next years groups of non-maturing redfish were discovered in the Central and North Labrador areas, off the Baffin Island, at the Greenland-Canada threshold, and off the West Greenland with fish size composition displaying some increase of sizes from North to South (2,4,6).

To the South of the Notre-Dame Bay groups of non-maturing redfish are absent. It allows to assume that the mentioned area delimits the range of the non-maturing redfish. Earlier non-maturing redfish were believed to be a hybrid form of natural crossing of redfishes Sebastes mentella Travin and Sebastes marinus Linnaeus which resulted into breakdown of the sex function (3). However, the data collected later showed that this kind of redfish inhabited a number of such areas where Sebastes marinus Linnaeus was absent. It ruled out the possibility of hybridization.

At the same time it is observed that the non-maturing redfish distribution in the North-West Atlantic coincides with the areas inhabited by rock grenadier Coryphaenoides rupestris Gunnerus whose gonads similarly lack development.

By the present time the reasons for existence of non-maturing rock grenadier Coryphaenoides rupestris Gunnerus in the North-West Atlantic have been explained fully enough. Its origin owing to a partial transport of eggs and larvae from the area of major spawning-grounds on the Mid-Atlantic ridge has been proved (1). Due to the fact that at early stages of development the fish drift under unfavourable cold conditions, changes happen in their organisms, retarding development of sex glands.

Having revealed the ecological similarity between the non-maturing rock grenadier of the North-West Atlantic and the mentioned redfish, we got the basis for advancing a new hypothesis. Apparently the ways and causes of transport of the fish into the North-West Atlantic and also physiological changes in their organisms have the same nature. The main area from which such carrying of the redfish takes place is most probably the Irminger Sea where the redfish spawning-grounds coincide or border on the spawning-grounds of the rock grenadier (Fig.1).

Thus, it is evident that the groups of the non-maturing deep-water redfish in the North-West Atlantic are the population components of the redfish of the Irminger Sea. They do not merge with the local redfish and do not take part in the process of population reproduction

The evidence given is especially important in connection with the fact that it shows the ecological isolation of the redfish of the Irminger Sea. Moreover, this evidence can be a key to construction a more trustworthy model of the population of Sebastes mentella Travin, and allows to improve the organization of stock-taking and stock utilization by fishery across the whole range of the species.

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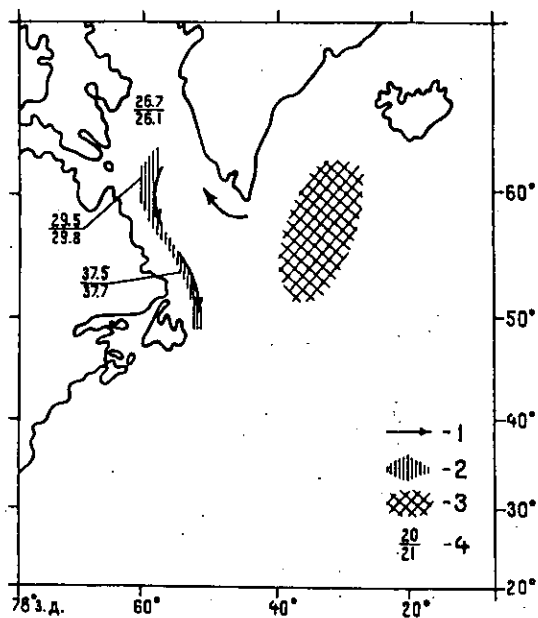


Fig.1 Distribution chart of non-maturing redfish Sebastes mentella Travin in the North-West Atlantic:
1. Ways of transport of larvae and young fish into the North-West Atlantic.
2. Areas of inhabitation of adult fish.
3. Spawning-grounds of redfish and rock grenadier.
4. Mean length (cm) of non-maturing redfish (males are in numerator, females are in denominator).