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On Feeding of the North Atlantic Saury, (*Scomberesox saurus*)

by

V.K. Zilanov and A.A. Nesterov <sup>\*)</sup>



The material used in the present paper has been collected by AtlantNIRO and Sevrybpromrazvedka vessels in 1968-1972. The saury was fished at light stations by means of dip nets and board traps.

The qualitative food composition was determined from laboratory analysis of 60 saury stomach contents from the northeastern and northwestern Atlantic. The filling degree of the digestive tract and the fat content in the intestines were estimated in the field, based on 14 510 specimens.

The analyses showed that euphausiids, amphipods, copepods and small fish were the main food objects for the saury (Table 1).

Planktonic gastropods, decapod larvae and isopods, sagittae and ascidian larvae were insignificant in the saury diet.

25% of the intestines analysed contained part of fish or whole fish. Identification of more or less intact specimens showed that they belonged to the families of Myctophidae and Gonostomidae. In the intestine of sauries 30 cm long or longer, about 2 anchovy specimens of 4-5 cm in length could be found. In some individuals young *Maurollicus* sp. were found (about 92 fry of 0.9-14.0 mm in the intestine of one saury), which made up 70-80% of the total food clot. Saury fry were also found in the digestive tracts, and, in some areas they are probably an important food object. Therefore, it seems that in its feeding the saury reveals an element of cannibalism.

During 24 hours saury feeding varies considerably. Table 2 shows that at 20.00 hours the average degree of filling was 1.75, and that it gradually decreased to 0.3 by 06.00 hours.

From Table 2 it is also evident that the saury feeds in the light hours of the day, while at night the food is digested, judging from the intestine contents. According to Hotta (1958), the food is digested by *Cololais saira* (this species is morphologically and ecologically close to the saury) in 9-10 hours. It is possible that this time is needed for the saury as well.

A quantitative analysis of the stomach contents and fat contents in the intestine for the period from August to January (Figure 1) in the northeastern Atlantic allowed to follow the changes by months. For example, the average grade of stomach filling did not change significantly during the months of studies and was close to grade one.

<sup>\*)</sup> AtlantNIRO,  
Kaliningrad,  
USSR

Simultaneously it was noted that the fattening of the saury intestine increased from August to October from grade one to grade two. The increase in fat content is likely to result from the intensive feeding in summer. Beginning from October, there was a gradual reduction in the average grade.

The trophic relationships of the saury lead to the conclusion that this species is a typical planktophage, the zooplankton being the main feeding component. The saury itself forms a part of the diet of other fishes, such as sharks, tunas, marlins (Parin, 1968), cods and hakes (Netzel et al., 1966), and according to our data serves as a food object for squids, sea birds and dolphins.

Table 1. List of organisms found in the saury stomachs.

Components	Occurrence (%)	Components	Occurrence (%)
Euphusiacea	72.2	Decapoda (larv.)	6.8
<u>Thysanoessa</u> sp.		Isopoda	ind.*)
<u>Meganyctiphanes</u> <u>norvegica</u>		Mollusca	6.9
Amphipoda	37.8	<u>Limacina</u> sp.	
<u>Themisto</u> sp.		Chaetognatha	ind.*)
<u>Gammaridea</u>		<u>Sagitta</u> sp.	
Copepods	15.3	Tunicata	ind.*)
<u>Calanus finmar-</u> <u>chicus</u>		<u>Ascidacea</u> (larv.)	
<u>Scaphocalanus</u> sp.		Pisces	25.0
<u>Candacia armata</u>		<u>Myctophum</u> <u>punctatum</u>	
<u>Pleuromamma</u> <u>robusta</u>		<u>Maurolicus</u> sp.	
<u>Laophonte</u> sp.		<u>Scomberesox</u> <u>saurus</u> , juv.	

\*) ind. - individually

Table 2. Variation in the saury intestine filling degree at night (30-31 October 1970).

Time of Sampling	Filling Grades %					Average Grade	n
	0	1	2	3	4		
20.00	-	46	37	13	4	1.75	100
21.40	2	36	10	2	-	1.12	50
23.00	24	56	18	2	-	0.98	50
24.00	30	50	16	4	-	0.94	50
01.00	18	52	20	10	-	1.22	50
03.00	72	26	2	-	-	0.30	50
04.20	44	54	2	-	-	0.58	50
05.00	88	12	-	-	-	0.22	50
06.00	70	30	-	-	-	0.30	50

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Figure 1.