Examination of the influences of daylight on the catchability of trammel nets used for catching Mullet in Izmir Bay

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In this study, trammel nets which has been used are shown in Fig. 1. The rooms of the net has been set towards shore. The quantities of mullet that have been caught during the night, dusk (between evening civil twilight-sunset) and dawn (morning civil twilight-sunrise time) can be seen in Table 1. As result, most of fish has been caught during the night migrations of mullet towards the shore. Therefore it has been considered that the begining of catching period at evening civil twilight-sunset would be more effective.

				Amount of Mullet		
Locality	Date	Dusk	Down	Dusk	Night	Down
Angalya Burnu	4-9/12/1991			3	13	-
		16.51-17.21	6.42-7.11	-	10	3
				4	17	3
		16.51-17.21	6.45-7.12	6	22	2
				2	14	-
				5	9	-
Şemikler Azmak Önü	12-17/12/1991	16.52-17.21	6.45-7.12	5	12	2
				3	23	-
				-	19	-
		16.53-17.22	6.47-7.18	3	10	1
				1	11	-
				6	38	-
Kuşburnu	20-25/12/1991			3	10	-
		16.54-17.24	6.53-7.22	6	14	-
				2	3	-
		16.59-17.28	6.55-7.24	-	12	1
				1	10	-
				2	27	-
Çakalburnu	26-30/1/1992			8	41	5
		17.01-17.29	6.56-7.26	5	30	2
				2	19	-
		17.02-17.30	6.58-7.28	2	24	3
				-	13	-
				4	10	-
Karaçamur ve Çalıbaşı Arası	5-11/1/1992			2	15	1
		17.06-17.34	7.02-7.32	4	10	3
				7	19	-
		17.10-17.38	7.06-7.36	6	22	-
				6	16	1
				4	11	-
				3	13	1
Tuzla	16-19/1/1991	17.15-17.43	7.12-7.42	5	19	4
				5	26	5
		17.17-17.45	7.14-7.44	6	11	1
Total for 34 catching days				121	579	38

Table 1. The catching efficiency of trammel nets as anchored bottom net for catching mullet.

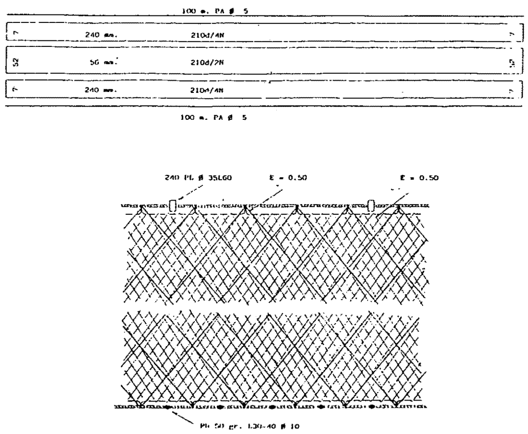

Fig.1 Trammel nets used for catching mullet.

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Introduction to the study of feeding seizing in *Diplodus sargus* (L.) (Pisces Sparidae)

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Introduction.

In perciforms, suction feeding is the most wide spread mechanism for sending on food through the buccal cavity up to the pharyngeal jaws (LAUDER, 1985). Generally the pharyngeal jaws to the handle food before it enters the oesophagus and the buccal jaws do not play any part in the process (LIEM, 1978, LAUDER, 1983, VANDEWALLE *et al.*, 1992). Sparid fishes (perciforms) are supposed to crush preys by the means of the buccal skeletal parts before sending them backward. The aim of the present research is to describe the respective participation of the buccal and pharyngeal jaws in the seizing of decapod crustaceans (crabs) in a sparid fish, *Diplodus sargus*.

Material and methods.

Observations were registered by X-ray movies with a 16mm Arriflex camera at a speed of 50 frames sec^{-1}. Small lead markings inserted in the buccal and pharyngeal bones and on the prey allowed to follow the movements.

Results and discussion.

The bones of the snout and jaws are heavy. The dentaries and premaxillae bear from fore to aft incisors and molar teeth of variable size (BAUCHOT et HUREAUX, 1986). The adductores mandibulae are well-developped and present original anterior insertions reinforcing the cohesion of the buccal apparatus in comparison to other perciforms (see for ex. LIEM, 1970, 1978; VANDEWALLE, 1972; BENMOUNA *et al.*, 1984). A_3 and w adductores mandibulae are divided into several bundles inserting more particularly on the ventral aspect of the lower jaw between the dentary and the angular. By contrast, the pharyngeal jaws are poorly specialized except that they are attached to the neurocranium. They are fastened to the parasphenoid by a fibrous pad but do not hang by muscles as in serranids (VANDEWALLE *et al.*, 1992) nor articulate on the neurocranium as in cichlids and labrids (LIEM and GREENWOOD, 1981).

Movements analysis show that the prey is sucked as in the other perciforms, but in certain cases it is seized by the buccal jaws and in other cases it is brought to the pharyngeal jaws and then sent back forwards and catched by the buccal jaws. *D. sargus* presents for the less two crushing strategies : either a fast hammering (fig. 1) or a slow crushing (fig. 2) of the crab, both resulting in almost every case in a dislocation into for the less two parts, the roof of the cephalothorax being separated from the rest of the body. The parts of the prey are then sent on together to the pharyngeal jaws which seize them separately and transport them to the oesophagus just like in serranids (VANDEWALLE *et al*, 1992). Roles in food catching thus seem to be distributed among buccal and pharyngeal jaw in *D. sargus*. A more extended study including the whole alimentary spectrum is presently carried out to determine the stereotypy of the just described behaviour.

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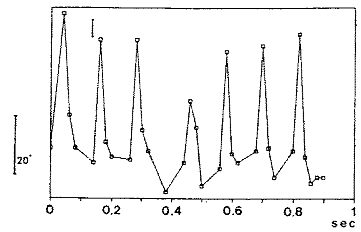

Fig. 1. *Diplodus sargus.* Graph showing the gapes of the mouth during a fast hammering.

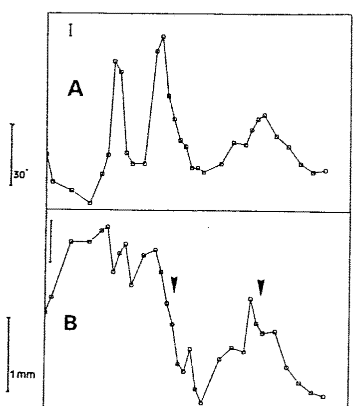

Fig. 2. *Diplodus sargus.* Graphs showing the gapes of the mouth during the preparation and crushing of the prey. A : gapes of the mouth. B : thickness variation of the prey. The arrows indicate the beginning of two crushings.

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