

NOTAS CIENTÍFICAS

ON THE FEEDING HABITS OF THE SEA STAR *LUIDIA SENEGALENSIS* (LAMARCK) IN THE STATE OF CEARÁ (BRAZIL)

JOSÉ SANTIAGO LIMA-VERDE

HENRY RAMOS MATTHEWS

Laboratório de Ciências do Mar
Universidade Federal do Ceará
Fortaleza — Ceará — Brasil

The sea star *Luidia senegalensis* (Lamarck) is one of the most common asteroids of the Brazilian northeast. It has a very broad geographical distribution, occurring in both sides of the Atlantic Ocean (Bernasconi, 1943).

Hyman (1955) states that the species of the genus *Luidia* Forbes feed principally upon other echinoderms, especially ophiuroids, all of which are ingested whole. Clark (1962) referring to this genus mentions that its species, although presenting ciliary currents capable of transporting food to the mouth, are almost totally omnivorous.

Although there are several papers on the feeding habits of species of the genus *Luidia*, we have not found a single one dealing with *Luidia senegalensis*. In the present paper the feeding habits of this sea star, from the State of Ceará (Brazil), are studied.

MATERIAL AND METHODS

The specimens studied were captured by beach-seine nets at Fortaleza, during the period from 1967 to 1969.

The analysis of the stomacal contents of 110 specimens was made. These individuals ranged from 6.0 to 30.0 mm disk radius. The maximum food volume encountered was 8.0 ml.

After capture, the sea stars were preserved in 70% ethyl alcohol, and posteriorly opened for identification of the organisms encountered.

The occurrence method was adopted and the foods were estimated in terms of percentages of examined stomachs.

DISCUSSION AND CONCLUSIONS

Bivalves constituted the basic food of *Luidia senegalensis*, occurring in 82.7% of the studied stomachs, followed by gastropods, echinoids, crusta-

ceans, and anthozoans, in decreasing importance order (table I).

Higher frequency of occurrence in the stomachs, as well as higher participation in species number was presented by the bivalve mollusks (tables I and II). Among these, in decreasing importance order, *Mulinia portoricensis*, *Tellina punicea*, and *Strigilla carnaria* are outstanding.

The participation of gastropod mollusks was of 20.0% of the studied stomachs, the species *Olivella mutica* being outstanding, in frequency of stomach occurrence as well as in individuals (tables I and II).

As occasional food, in decreasing importance order, we found echinoids, crustaceans, and coelenterates (table I).

The high participation of bivalve mollusks in the feeding habits of the sea star induces us to believe that it is due to the predominance of that molluscan class in sandy or muddy bottoms, where *Luidia senegalensis* lives.

Among the bivalve mollusks that constituted the sea star food, young ones presented higher frequency of stomach occurrence, as well as higher participation of individuals (tables I and II). This fact suggests that the size of these bivalves is a factor of selectivity in the feeding habits of *Luidia senegalensis*.

The fact that one young individual of *Brachidontes solisianus* was found in the stomach of the sea star, can only be explained by the hypothesis that it has been torn away from one of the several nearby communities, living on hard substrate.

The bivalves *Tellina vesicolor* (Cozzens) De Kay and *Corbula aequivalvis* Philippi, found in the sea star stomachs, are here recorded in Brazil for the first time.

The small adult size of the gastropod mollusk *Olivella mutica*, a common item in the sea star diet.

TABLE I

Frequency of organisms found in 110 stomachs of the sea star *Luidia senegalensis* (Lamarck), captured at Fortaleza (State of Ceará, Brazil), during the period from 1967 to 1969.

Foods	Occurrence in number of stomachs					
	youngs	adults	both	fragments	total	
					n	%
Coelenterata: Anthozoa					1	0.9
<i>Renilla reniformis</i> (Pallas)	—	1	—	—	1	0.9
Arthropoda: Crustacea					2	1.8
Macrura:	—	—	—	1	1	0.9
Peneidae	1	—	—	—	1	0.9
Mollusca: Pelecypoda					91	82.7
<i>Brachidontes solisianus</i> (Orbigny)	1	—	—	—	1	0.9
<i>Ostrea</i> sp.	—	—	—	1	1	0.9
<i>Tellina punicea</i> Born	38	—	2	2	42	38.2
<i>Tellina similis</i> Sowerby	4	1	—	1	6	5.5
<i>Tellina vesicolor</i> (Cozzens) De Kay	2	—	—	—	2	1.8
<i>Tellina</i> sp.	1	—	—	4	5	4.5
<i>Strigilla carnaria</i> (Linnaeus)	12	3	—	—	15	13.6
<i>Strigilla mirabilis</i> Philippi	1	—	—	—	1	0.9
<i>Strigilla pisiformis</i> (Linnaeus)	4	2	—	—	6	5.5
<i>Abra equalis</i> Say	1	—	1	—	2	1.8
<i>Mactra alacta</i> Spengler	1	—	—	—	1	0.9
<i>Mactra fragilis</i> Gmelin	1	—	—	—	1	0.9
<i>Mulinia portoricensis</i> Shuttleworth	47	10	5	2	64	58.2
<i>Corbula equivalvis</i> Philippi	—	1	—	—	1	0.9
Mollusca: Gastropoda					22	20.0
<i>Olivella mutica</i> (Say)	7	14	—	1	22	20.0
? <i>Odostomia</i> Fleming	1	—	—	—	1	0.9
Echinodermata: Echinoidea					2	1.8
<i>Mellita</i> sp.	1	—	—	—	1	0.9
Scutellidae	—	—	—	1	1	0.9
Empty stomachs	—	—	—	—	15	13.6

TABLE II

Total number of individuals of the more frequent species found in 110 stomachs of the sea star *Luidia senegalensis* (Lamarck), captured at Fortaleza (State of Ceará, Brazil), during the period from 1967 to 1969.

Foods	Number of individuals		
	youngs	adults	total
<i>Tellina punicea</i> Born	120	2	122
<i>Strigilla carnaria</i> (Linnaeus)	33	4	37
<i>Mulinia portoricensis</i> Shuttleworth	188	33	221
<i>Olivella mutica</i> (Say)	13	22	35

explain the absence of life phase selectivity in the feeding of the sea star.

For the great majority of species belonging to the genus *Luidia*, referred to in the consulted literature, echinoderms and foraminifera constitute the principal food, while in the present species, mollusks were the basic diet.

The understanding of the factors that influence and bring about the possible variations in the composition of the food of the sea star *Luidia senegalensis* is difficult, without a parallel study of the faunae in the different places of its geographical distribution.

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SUMMARY

This paper deals with the feeding habits of the sea star *Luidia senegalensis* (Lamarck), in the State of Ceará, Brazil.

A total of 110 stomachs were examined.

Bivalve and gastropod mollusks were found to be the basic foods.

As food occasionally ingested, echinoids, crustaceans and anthozoans, were present in decreasing importance order.

Two bivalve mollusks, *Tellina vesicolor* (Cozzens) De Kay and *Corbula aequivalvis* Philippi, are recorded in Brazil for the first time.

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