B-IV2

Note on the incidence of the Hydroid *Eugymnanthea inquilina* Palombi, in Mussels *Mytilus galloprovincialis* Lamarck, along the Eastern Adriatic Coast

Zelika LABURA and Mirjana HRS-BRENKO

"Rudjer Boskovic" Institute, Center for Marine Research, 52210 Rovinj (Yugoslavia)

According to Cerruti (1941), the hydroid *Eugymnanthea inquilina* (synonim of *Mytilhydra polimantii*) is often found on the mantle epithelium of the mussel *Mytilus galloprovincialis*, causing the loss of cilia from the mantle epithelium and other pathological alterations in mussels. Through a heavy infestation of hydroids, disturbances in normal filtering (Lauckner 1983), and probably in feeding activity could happen, decreasing the index of condition of the host.

In 1985 and 1986 along the Yugoslav Adriatic coast investigations were conducted to establish the intensity of hydroid infestation of natural and commercial mussel populations, and to indicate possible effects of hydroids on the host index of condition. The samples (20 to 50 mussels) were analyzed to establish the number of invaded mussels by hydroids, mussel length data, and index of condition was calculated using the Hopkins methos (MANN 1978).

We have obtained the following results (see Fig. 1):

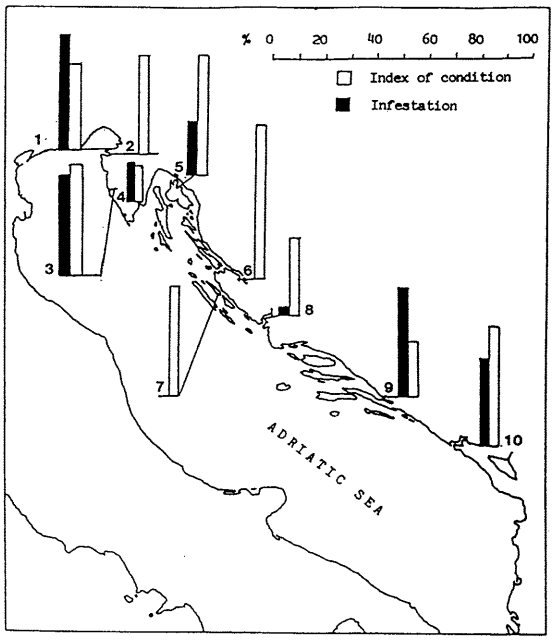

Fig. 1 - Incidence and intensity of *Eugymnanthea inquilina* infestation and index of condition of *Mytilus galloprovincialis* at sampling stations: Portoroz (1), Strunjan (Piran Bay, 2), Limski kanal (3), Rasa Bay (4), Soline (Krk Island, 5), Novigrad Sea (6), Mala Lamljana (Ugljan Island, 7), Martinska (Sibenik, 8), Mali Ston Bay (9), Kotor Bay (10).

1. The hydroid *Eugymnanthea* is a frequent species inhabiting the mantle cavity in mussels.
2. An abundance of hydroids occurred in the mantle cavity, especially near the mussel hinge zone. The hydroids were mostly individual, rare in colonies, which is in agreement with the findings of STJEPCEVIC (1974).
3. The infestation incidence ranged from 4% (Martinska, Sibenik, 8) to 46% (Strunjan, Piran Bay, 2). Hydroids were not observed in mussels from Strunjan (2), Novigrad Sea (6) and Mala Lamljana (Ugljan Island, 7). In Boka Kotorska about 30.0% of mussels (Kotor Bay, 10) were invaded, but, earlier, only 4-9% was registered by STJEPCEVIC (1974).
4. It seems that in Limski kanal (3) the intensity of infestation did not significantly change monthly. In January-March, July and November the infestation ranged as follows: 40.7, 20.0, 36.0, 40.0 and 49.7%, respectively. Hydroids were not observed in the June sample.
5. Mussels of various length frequency classes were invaded from 10.0 to 44.0% (Limski kanal, 3, Rasa Bay, 4).
6. It appears that the index of condition in mussels is not directly influenced by hydroid infestation. In Limsky kanal (3) and Mali Ston Bay (9) at almost the same level of infestation different index of condition were found.

In conclusion, our observations indicate that *Eugymnanthea* is frequent in the Adriatic Sea with a moderate infestation of mussels but it seems that the hydroid influence on the host is negligible.

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B-IV3

Changes in size and abundance of *Donax trunculus* related to depth and bottom characteristics

A. VOLIANI, R. AUTERI, R. BAINO and G. GIANNARDI

Consorzio Regionale di Idrobiologia e Pesca, Livorno (Italia)

INTRODUCTION: Sandy bottoms resources in shallow waters off Tuscany have been for a long time exploited by artisanal shell-fishing. These resources have been recently studied by an appraisal fishing survey. A wide series of quantitative and biological information has been collected, aimed at defining both population structure and geographical distribution.

MATERIAL AND METHODS: 141 tows have been performed with a professional boat-operated dredge on the sandy bottoms between Livorno and Viareggio. The 25 km coastline has been sampled by means of 4 systematic campaigns within the 1-5 meters depth range. Furthermore, 7 monthly collections have been carried out with a close-mesh net dredger to survey the presence of smaller individuals which had not yet recruited to the professional fishery. The catches have been used to define local species abundance and size distribution. The structural composition of the sediment has been determined in 21 sites by standard Weber sieves.

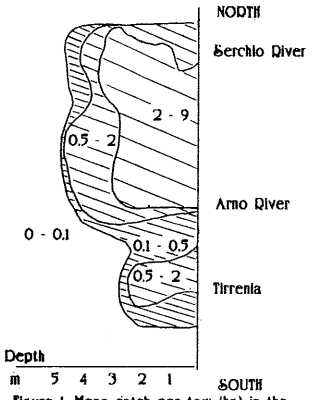

Figure 1. Mean catch per tow (kg) in the surveyed area.

RESULTS: The highest yields of Donax trunculus (more than 2 kg/tow) have been obtained to the north of the Arno River mouth within the 3.5 meters depth: Figure 1 illustrates the average annual catch per tow in the examined area in relation to geographical allocation and depth.

The analysis of the grain size reveals that sandy bottom is on the average quite uniform to the north of the Arno River mouth: 0.25-0.5 mm up to 3.5 meters depth and 0.12-0.25 mm from 3.5 to 5.5 meters; towards the south the sandy bottom is progressively finer from the Arno River mouth (>0.5 mm) to Calambrone (<0.25 mm).

These results are due to the solid outflow of Arno River and their differential dispersion by the coastal marine streams (Aiello et al., 1975).

The above mentioned highest yields have been found in the depth range of 1-3.5 meters and with a medium sandy ground (0.25-0.50 mm) in agreement with previous findings (Costa et al., 1987).

The mean weight of individuals is significantly related to the depth (Figure 2) and the resulting regression is linear and increases with the depth.

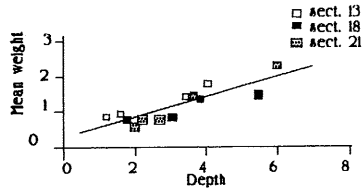

Figure 2. Relation between the individual mean weight (g) and the depth (m) in three sectors and the resulting regression line.

The increase in size with depth is also confirmed by the frequency distribution of age classes. In the histogram of Figure 3, the relative abundance of juveniles (between 15 and 22 mm length) and adults (over 23 mm length) is plotted on a depth axis.

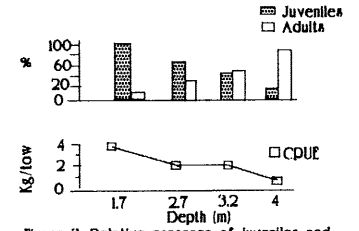

Figure 3. Relative presence of juveniles and adults, and CPUE at different depths.

CONCLUSION: Donax trunculus finds its optimum ground on medium sandy bottoms (grain size from 0.25 to 0.5 mm) and it represents a valid resource for the local fishing activity only in the northern area, from the Arno River mouth up to 3.5 m depth where this bottom sediment type is dominant.

The size distribution shows a positive trend with increasing depth. This is firstly due to the intense fishing effort which acts mainly on lower depths, where higher yields are common, secondly to the movement of the adult specimens also confirmed by the poor presence of young individuals at higher depths.

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