## Resting eggs from the bottom muds of the Mar Piccolo (Taranto - Italy)

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Many organisms of neritic and lagoon plankton in temperate areas overcome adverse environmental conditions as resting stages. A number of copepods disappear from the plankton during some periods. They produce resting eggs which ensure the species survival during the unfavourable periods. The hatch of the resting eggs gives again the planktonic population when the favourable conditions return (UYE, 1985).

Sediment cores (from 0 to -5 cm) were collected from different sampling stations in the Mar Piccolo of Taranto at September 1991. In all the stations the ratio sediment silt/ clay fraction (0 < 63.5 μm ) was ≥ 90 %. According to a tested method (QUARTA *et al.*, in press) the eggs were isolated from the sediment. They were subdivided in 10 morphological types. One of these was recognized as a *Scrippsiella* (Dinoflagellata) cyst. The 9 egg-types were reared in the laboratory under controlled conditions (21°C; 12hL:12hD) in filtered and sterilized seawater. The rearing units were supplied with *Isochrysis galbana* as algal food for hatch from which the species was recognized.

The 76.1 % of the 9 egg types were calanoid spiny eggs. In some cases (e.g., KASAHARA *et al.*, 1974) the spiny eggs were identified as resting stages of calanoid acartiids. In *Acartia latisetosa* the spiny eggs were of two types : with short spines (subitaneous), and with long spines (diapausal) (BELMONTE, 1970).

The hatched nauplii were easily identified as *Acartia* nauplii (SAZHINA, 1985). Those hatched from spiny eggs A and B of Fig.1 gave respectively *Acartia (Paracartia) latisetosa* (KRICZAGUIN) 1873, and *A. josephinae* CRISAFI 1976. For this last species this is the first description of the egg stage.

The egg density in the sediment diminished under the first cm (Fig.2) and in deeper layers the eggs with long spines were more abundant than in the surface layer. The chorion ornamentations are recorded also from other zoological groups (i.e., Rotifera and Tardigrada) which lay their eggs in the sediment. These structures probably favour the egg survival in the sediment keeping mud particles away from the egg surface and/or avoiding predation. Such ornamentations may be species-specific (e.g., among Tardigrada) and we think that more detailed morphological studies (e.g., at SEM) probably will allowe us to better identify also calanoid species.

It was not possible to correlate the egg position in the core with the age, e.g., the resting time of the eggs. For this purpose, some spiny egg from deeper layers of sediment were put under stressed conditions (4°C; in the dark) for 60 days. When these eggs were exposed to rearing conditions (21°C, 12hL:12hD) the most of them hatched after 1-20 days.

These resting eggs should restore the acartiid plankton populations in the Mar Piccolo once the adverse period ended. In fact this sediment "egg bank" holded up to 4,000,000 viable eggs per $m^2$ of sediment (within 5 cm of thickness), all potentially able to give nauplii.

The massive appearence of acartiids in some periods of the year and in some areas (swarms), and in general their population dynamics, must take in account the ecology of this "seed banks" (*sensu* ALLESSIO-LECK *et al.*, 1989).

Fig.1 Spiny eggs.
A: Acartia latisetosa.
B: Acartia josephinae.

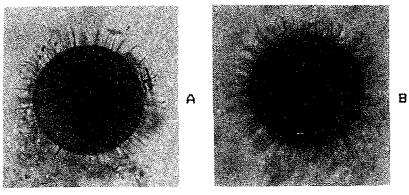
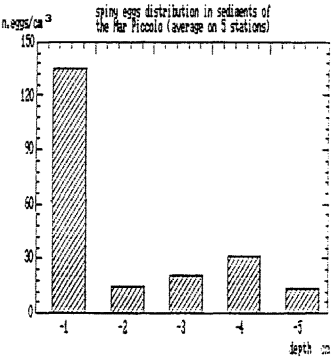



Fig.2

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