

On the association of the unihorn octopus *Scaevargus unicolorrhus* with white corals (Anthozoa-Madreporearia) in the Sicilian Channel

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The madreporarian formations (also know as the "white coral") which characterize some bathyal bottoms of the Mediterranean basin (PERES & PICARD, 1964) have been implicitly looked at as a possible habitat for the productive activity of some bathyal cephalopods (MANGOLD-WIRZ, 1963). Among them is the unihorn octopus *Scaevargus unicolorrhus* Orbigny, 1840, whose vertical distribution goes from shallow waters to 800 m depth (MANGOLD-WIRZ, 1963; SANCHEZ & ALVAREZ, 1988).

Data collected during two years (May 1985 to February 1987) of seasonal, randomly stratified trawl surveys carried out in the Sicilian Channel (daily hauls of 1 hour duration; cod-end mesh size 20 mm/side; see LEVI, 1990 for further details), evidenced a wider distribution and a greater abundance of this species within the area investigated than previously believed. Information from the literature (BOURGOIS & FARINA, 1961 and others) as well as from the local fishermen, indicate that the white coral formations are quite common and rather widespread within the Sicilian Channel.

In this context it seemed interesting to investigate the association of the unihorn octopus with the madreporite reefs (mainly *Madrepora oculata* and *Lophelia pertusa*), which seemed to be supported by direct as well as indirect evidence.

As direct evidence, data collected showed :

a) - *S. unicolorrhus* catches were more abundant on rough bottoms, where the hauls could not be repeated;

b) - shelf borders, continental slopes and slopes of submerged mounts ("guyots") seem to be the preferred habitat both for the unihorn octopus and the madreporites ;

c) - females in advanced maturity stages (i.e., with "large" but still "striated" eggs of about 2-2.5 mm length in the ovary) were frequently observed (pers. obs.), but only 6 specimens of the 206 examined carried some "smooth" eggs, indicating a fully mature condition (MANGOLD-WIRZ, 1963);

d) - the percentage of females in the catches decreased linearly (from 70% to -0) with the increasing size of the specimens which, together with point c), suggests a decreasing probability of mature females to be captured;

e) - an attempt of cluster-analysis among some specific "biocenosis indicators" showed a relation between *S. unicolorrhus* and *Cidaris cidaris*, an echinoderm closely associated with the white coral community (PERES & PICARD, 1964);

Among indirect evidence, the following information is presented :

a) - although eggs of this species were never recorded in nature, laboratory experiments indicate that females lay their eggs on hard substrata (BOLETZKY, 1984);

b) - juveniles are supposed to be planktonic but their occurrence in plankton samples is extremely rare (ROPER, 1977);

c) - newly hatched juveniles have 4 suckers on the arms instead of the 3 typical for other octopuses with a planktonic stage, and they can show very early the "sedentary" behavior of the adults.

These observations allow us to hypothesize on the following life cycle scheme (see also the Fig.):

1 - *Scaevargus unicolorrhus* mature females choose the madreporian reefs to spawn and subsequently care for the eggs;

2 - Once the young hatch, juveniles spend a moderately long period of time on the same bottom, where it is presumably easier to minimize predation pressure;

3 - sub-adult individuals spread over wider areas and different bottoms, where they continue to grow and approach sexual maturity.

Although other kinds of information are needed to confirm the above mentioned hypothesis (i.e., underwater films, experimental "bow-net" fishery on the "rough" bottoms), this is likely to explain the peculiar distribution observed for the unihorn octopus within the Sicilian Channel.

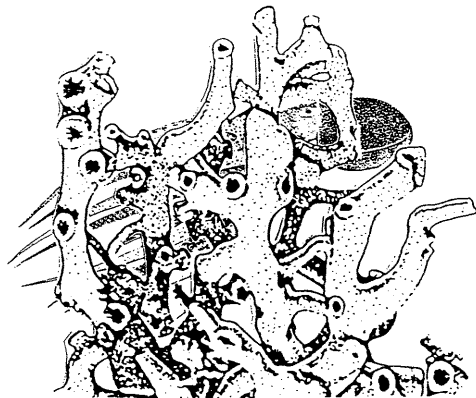


Fig.- An hypothetical reconstruction of the association of *S. unicolorrhus* and madreporian reefs (*Lophelia pertusa*). Drawings are not to scale.

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