

# HARD BOTTOM ASSEMBLAGES IN THE STRAIT OF MESSINA: DISTRIBUTION OF *ERRINA ASPERA* L. (HYDROZOA: STYLASTERIDAE)

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## Abstract

Distribution of the stylasterid *Errina aspera* L. in the Straits of Messina has been surveyed by means GIS technology. The species is confined to a narrow rocky zone, prone to "intermediate" water upwelling. Potential risks of damage by an increased sedimentation rate are discussed.

*Keywords* : Biogeography, Endemism, Mapping, Western Mediterranean.

## Introduction

Seismic activity and strong tidal currents determine an erosive regime affecting the Straits of Messina at least down to 300-350 m [1]. The rocky seafloor of the straits is inhabited by rich benthic communities and some particular assemblages that are unknown in other Mediterranean regions [2, 3]. Since the geological and topographical study carried out in the late 1970s [4] no further work was conducted, so most of the continental slopes and related communities are still unexplored. A revision of literature and original data on the distribution of the stylasterid hydrocoral *Errina aspera* and its related community was studied, as part of a larger project investigating biodiversity in the Straits of Messina.

## Methods

In August 1995, a preliminary survey provided 25h of videotape recordings, and 183 bottom samples, from 10 to 220 m depth. The distribution of *E. aspera* was subsequently verified by means of grab and dredge samplings, ROV observations and direct scuba diver surveying, in additional 53 stations. The data was stored in a geo-database model, tailored specifically for the marine community, with a GIS platform. The coordinate system used was WGS84 UTM Zone 33N.

## Results and discussion

Surveys provided 35 records of *E. aspera*, located in the rocky bottoms of the sill and along a narrow area of the Sicilian part of the straits. A single finding was made on the south-eastern Calabrian coast (Capo dell'Armi), thus extending the known area of the species in the Straits of Messina [5]. Our findings suggest the coverage by *E. aspera* had been overestimated in previous surveys. Due to the erosive and depositional processes that asymmetrically affect seafloors, a narrow rocky zone extends exclusively south-west from the sill, gradually increasing in depth, from 90-150 m down to 150-220 m. Coarse sediment slumpings are responsible for the frequent discontinuities observed in the rocky zone, with a consequent patchy distribution of *E. aspera*. With regard to this distribution, we show how *E. aspera* populations, which need an erosive sedimentary regime, could suffer from an altered sedimentation rate. According to Giacobbe [5], *E. aspera* population density tends to a bipolar distribution, reaching a peak to the north of the sill, and a trough at the lowest depth, to the south. The first record of *E. aspera* in a deep-water sea cave was videotaped, in this latter area (Giaccone, personal communication). Given only a single finding of *E. aspera*, distribution on the south-eastern Calabrian side is not well known. Nevertheless, its occurrence near Capo dell'Armi, at 95 m depth, is in accordance with the hydrological regime in the Strait, representing a further indication of the prominent role of "intermediate" upwelling currents [6] in determining *E. aspera* distribution [5].

## References

- 1 - Colantoni P., 1995. Seafloor morphology and sediment dynamics in the Straits of Messina. *In: The Straits of Messina Ecosystem. Proceedings of the Symposium held in Messina, 4-6 April 1991.* Guglielmo L., Manganaro A. & De Domenico E. (eds.): pp 83-94.
- 2 - Drew E.A., 1972. Growth of a kelp forest at 60 meters in the Straits of Messina. *Memorie Biol. Mar. Oceanogr.*, 2 (6): 135-157.
- 3 - Arnaud P.M. and Zibrowius H., 1979. L'association *Pedicularia sicula* - *Errina aspera* en Méditerranée (Gastropoda Prosobranchia et Hydrocorallia Stylasterina). *Rapp. Proc. Réunion. Comm. Intern. Explor. Sc. Mer Médit.*, 25-26 (4) : 123-124.
- 4 - Selli R., Colantoni P., Fabbri A., Rossi S., Borsetti A.M. and Gallignani P., 1978. Marine Geological Investigation on the Messina Straits and its

Approaches. *Giorn. Geologia* (2), 42 (2): 1-70.

5 - Giacobbe S., 2001. Distribuzione areale e batimetrica della facies a *Errina aspera* L. (Hydrozoa, Stylasteridae) nello Stretto di Messina. *Biologia Marina Mediterranea*, 8 (1):246-251.

6 - De Domenico E., Cortese G. and Pulicanò G., 1995. Chemical characteristics of waters in the Straits of Messina. *In: The Straits of Messina Ecosystem. Proceedings of the Symposium held in Messina, 4-6 April 1991.* Guglielmo L., Manganaro A. & De Domenico E. (eds.): pp 155-168.