

New episodes of stranding of *Corolla spectabilis* Dall, 1871 (Gastropoda Cymbuliidae) in the Messina Strait (Italy)

Alberto Villari¹ & Giovanni Ammendolia²

¹via Villa Contino 30, 98124 Messina, Italy; e-mail: villarialberto48@gmail.com

²via C. Pompea 3, 98168 Messina, Italy

ABSTRACT

There are two further strandings of pseudoconch of *Corolla spectabilis* Dall, 1871 (Gastropoda Cymbuliidae) on the Messina coast of the Strait of Messina. The color photo of one of the two specimens found and further information on the species are provided.

KEY WORDS

Messina Strait; Pseudotegosomata; Stranding.

Received 05.12.2021; accepted 21.01.2022; published online 22.03.2022

INTRODUCTION

One of the most interesting aspects, linked to the hydrodynamic system in the Strait of Messina, is the stranding of numerous species of marine organisms, which is a natural phenomenon that occurs in this area and consists in the finding of specimens belonging to different animal and vegetable phyla on the shoreline (Mazzarelli, 1909; Genovese et al., 1971; Battaglia et al., 2017; Ammendolia et al., 2018; Cavallaro et al., 2021).

There are several factors, in addition to the hydrodynamic regime and the tidal currents, which can favor or influence the beaching phenomenon: wind direction, lunar cycles, atmospheric pressure, seasonality, ecological and biological parameters (Battaglia et al., 2017). In particular, with regard to mesopelagic organisms, the habit of carrying out nocturnal migrations can amplify the phenomenon (Battaglia et al., 2017). In fact, the daily vertical migration of zooplankton towards the surface during the night (Marshall, 1960), triggers the movement of many mesopelagic species that for trophic reasons follow their prey in the superficial water layers. The ascent to shallower bathymetric layers exposes these species (very often of small size) to

the risk of being “intercepted” by the rising current (Battaglia et al., 2017).

MATERIAL AND METHODS

On the 26th of November 2021 with a moderate Scirocco wind, “Montante” current, that is, in a direction from South to North and slightly rough sea, at 06:50 local time, were found stranded in the locality Ganzirri (Messina) two pseudoconches of the Cymbuliidae mollusc *Corolla spectabilis* Dall, 1871.

One of the two pseudoconches was almost damaged by seagull pecks, while the other, found a little further away from the first, was in perfect condition. Morphometric data of the specimen in perfect condition, according to the observations provided by Gilmer (1972) are: maximum length 52 mm, maximum width 22 mm, maximum height 9 mm.

DISCUSSION

Like all other Pseudotegosomata, *C. spectabilis*

is characterized by the fusion of the parapods in a single wing plate used as a swimming tool and by the presence of a proboscis formed by the fusion of the lobes of the foot. In the Cymbuliidae the calcareous shell has been replaced by a gelatinous external pseudoconcha, which contains the visceral mass. The pseudoconcha can grow up to about 8 cm in length with the mollusc which can have a wingspan of 16 cm. Like all Pseudothecosomata, it swims by swinging the wing disc vertically, pushing the shell or pseudoconch through the water (Lalli & Gilmer, 1989).



Figure 1. Strait of Messina. The red arrow indicates the place of record's discovery area.



Figure 2. *Corolla spectabilis* Dall, 1871 beached in Ganzirri (Messina, Italy) on 11.26.2021.

One of the most interesting features of Pseudothecosomata is their feeding method, discovered by Gilmer (1972) in the 1970 on the basis of SCUBA observations. To entangle and trap planktonic food, these molluscs produce a much larger mucus web than the animal body. The net has usually the shape of a flattened funnel. In *C. spectabilis* the feeding net, produced by the mucous glands along the edge of the wing disc, can have a diameter of about 2 m. During feeding, the animal slowly sinks into the water entangling plankton and organic particles in the net. Then parts of this mucous web and the entangled food are ingested by the proboscis (Gilmer, 1972, 1974). Gastric contents of *C. spectabilis* found in California has provided indications on the diet conducted by this mollusc and in particular several species of Diatoms and Copepoda have been found (Heart & Spaulding in Lalli & Gilmer, 1989).

Dall (1871) established the taxon on specimens dredged in the Pacific Ocean at Latitude 42°, 50' North and 147°, 25' East, in July 1866. The studies and subsequent research, conducted to deepen the knowledge on the species, have highlighted that the species is present in the temperate zones, both of the Pacific, of the Atlantic Ocean and of the Mediterranean Sea (Berard et al., 1982; Giovine, 1983; Jensen, 1997; van der Spoel & Dalton, 1999; Cevic et al., 2006; Rosenberg et al., 2009).

CONCLUSIONS

For the first report in the Mediterranean Sea (Berard et al., 1982) and for the second Giovine (1983) it was possible to hypothesize a fortuitous transport of the mollusc, due to the Atlantic Ocean currents that flow throughout the Mediterranean basin, through the Strait of Gibraltar. These current two new findings, in addition to the five records for Turkey (Çevik et al., 2006) and the six for the Strait of Messina (Mondello & Rindone, 1990), confirm that the presence of this species in the Mediterranean Sea. As pointed out by these latter two authors, the occurrence of *C. spectabilis* inside the basin can be now considered established and we can no longer speak of sporadic retrievals. Therefore it is to be believed that this species is perfectly acclimatized and integrated in the Mediterranean Sea, with all its stages of development.

ACKNOWLEDGMENTS

We thank our friend Lino Micali for the revision of the present note and for always prompt advice.

REFERENCES

- Ammendolia G., Rao I., Cavallaro M. & Riccobono F., 2018. Le suggestioni del mare di Messina. EDAS Messina, 168 pp.
- Battaglia P., Amendolia G., Cavallaro M., Consoli P., Esposito V., Malara D. & Andaloro F., 2017. Influence of lunar phases, winds and seasonality on the stranding of mesopelagic fish in the Strait of Messina (central Mediterranean Sea). *Marine Ecology*, 38: 38: e12459.
- Berdar A., Giacobbe S. & Leonardi M., 1982. Prima segnalazione per il Mediterraneo di *Corolla spectabilis* Dall, 1871 (Thecosomata). *Bollettino Malacologico*, 18: 35–40.
- Cavallaro M., Amendolia G., Rao I., Villari A. & Battaglia P., 2021. Variazioni pluriennali del fenomeno dello spiaggiamento di specie ittiche nello Stretto di Messina, con particolare attenzione alle specie mesopelagiche. *Annales, Series Historia Naturalis*, 31: 69–84.
- CevikC., Kideys A., Toklu B., Ergüden G. & Saruhan E., 2006. New Pelagic Gastropoda Species Encountered on the Turkish coast of the Levant Sea. *Turkish Journal of Veterinary and Animal Sciences*, 30: 151–157.
- Dall W.H., 1871. Descriptions of sixty new forms of mollusks and brachiopods of the southeastern coast of North America and the North Pacific Ocean, with notes on others already described. *American Journal of Conchology*, 7: 93–159.
- Genovese S., Berdar A. & Guglielmo L., 1971. Spiaggamenti di fauna abissale nello Stretto di Messina. *Atti della Società Peloritana di Scienze Fisiche, Matematiche e Naturali*, 17: 331–370.
- Gilmer R.W., 1972. Free-floating mucus webs: A novel feeding adaptation for the open ocean. *Science*, 176: 1239–40.
- Gilmer R.W., 1974. Some aspects of feeding in the thecosomatous pteropod molluscs. *Journal of Experimental Marine Biology and Ecology*, 15: 127–144.
- Giovine F., 1983. Seconda segnalazione nel Mediterraneo di *Corolla spectabilis* Dall, 1871. *Bollettino Malacologico*, 19: 256.
- Jensen R.H., 1997. A Checklist and Bibliography of the Marine Molluscs of Bermuda. Unp., 547 pp.
- Lalli C.M. & Gilmer R.W., 1989. Pelagic snails. The biology of holoplanktonic molluscs. Standford, California, Standford University Press: I–VIII, 1–259.
- Marshall N.B., 1960. Swimbladder structure of deep-sea fishes in relation to their systematics and biology. *Discovery Reports*, 31: 3–122.
- Mazzarelli G., 1909. Gli animali abissali e le correnti sottomarine dello Stretto di Messina. *Rivista mensile di pesca e idrobiologia*, 11: 179–217.
- Mondello P. & Rindone A., 1990. Nuovi dati sul Genere *Corolla* nel Mediterraneo. *Bollettino Malacologico*, 25: 307–314.
- Rosenberg G., Moretzsohn F. & García E.F., 2009. Gastropoda (Mollusca) of the Gulf of Mexico. In: Felder D.L. & D.K. Gulf of Mexico-Origins, Waters, and Biota Camp (Eds.), Texas A & M Press, College Station, Texas, pp. 579–699.
- Spoel S. van der & Dalton J.R., 1999. Pteropoda. In: Boltovskoy D. (Ed.), *South Atlantic Zooplankton*. Backhuys Publishers, Leiden, pp. 649–706.

