

Naturalista sicil., S. IV, XXXIV (3-4), 2010, pp. 375-384

ALAN DEIDUN

NOTES ON THE RECENT OCCURRENCE OF UNCOMMON PELAGIC “JELLYFISH” SPECIES IN MALTESE COASTAL WATERS

SUMMARY

There is a dearth of published works on sightings of uncommon pelagic jellyfish species within Maltese coastal waters, with a handful of disparate published reports and with most other existing relevant information being carried in newspapers and other grey literature portals. This study seeks to address such a dearth by compiling the confirmed (through specimen collection in most cases, or simply through photography in some cases) sightings for the hydrozoans *Porpita porpita*, *Velella velella*, *Olindias phosphorica*, *Physalia physalis* and *Aequorea* sp. made within Maltese coastal waters during the August 2009-August 2010 period.

RIASSUNTO

Note su avvistamenti recenti di specie di Cnidari pelagici non comuni in acque costiere maltesi. Le pubblicazioni scientifiche relative ad avvistamenti di specie di Cnidari pelagici non comuni nelle acque costiere maltesi sono numericamente scarse; la maggior parte delle informazioni su tali avvistamenti è stata pubblicata su quotidiani e altri portali di letteratura grigia. Questo studio tenta di colmare tale mancanza tramite l'inventario di avvistamenti confermati (dalla collezione diretta di individui in molti casi, o semplicemente attraverso immagini fotografiche in alcuni casi) per le specie *Porpita porpita*, *Velella velella*, *Olindias phosphorica*, *Physalia physalis* e *Aequorea* sp., effettuati in acque costiere maltesi durante il periodo agosto 2009-agosto 2010.

INTRODUCTION

Over the last century, due to increased fishing pressure, anthropogenic eutrophication and global warming, many marine zooplankton communities have changed toward increasing dominance of harmful gelatinous species (SHIGANO-

VA & MALEJ, 2009). This, along with the occurrence of some spectacular outbreaks, has resulted in a greater degree of attention being devoted recently to jellyfish (PALOMARES & PAULY, 2009). Such an avid interest has generally revolved around stinging gelatinous species, in view of their impact on the bathing amenity of coastal areas, and around exotic, non-indigenous jellyfish species (e.g. *Cassiopea andromeda*, SCHEMBRI *et al.*, 2009; OZGUR & OZTURK, 2008; *Rhopilema nomadica*, GALIL *et al.*, 1990). Consequently, the occurrence of non-stinging jellyfish, both as individuals and as aggregations, has generally been overlooked.

Accordingly, very few studies on the occurrence of such species in Maltese coastal waters have been published to date, with most recent sightings being reported in media portals, mostly newspapers. In fact, only a handful of published works on gelatinous plankton from Maltese waters exists to date, with existing publications being staggered over an extensive timeline. Just four pelagic “jellyfish” species (*Pelagia noctiluca*, *Carybdea marsupialis*, *Rhizostoma pulmo* and *Cotylorhiza tuberculata*) have been recorded in these previous published studies, which include the ones by MICALLEF & EVANS (1968), LANFRANCO (1979, 1981), AXIAK (1983, 1984), AXIAK & CIVILI (1986) and AXIAK *et al.* (1991), with the last four publications simply focusing on the dynamics of *P. noctiluca* swarms in Maltese coastal waters in relation to surface currents and surface sea temperature (SST). EVANS (1968), in the only comprehensive census of zooplankton from Maltese coastal waters, also listed a number of siphonophore species (*Abylopsis tetragona*, *Bassia bassensis*, *Chelophyes appendiculata*, *Eudoxoides spiralis*, *Hippodius hippopus*, *Lensia multicristata* and *Lensia subtilis*).

The Spot the Jellyfish initiative was launched by staff at the IOI-Malta Operational Centre of the University of Malta in June 2010 as a citizen science initiative targeting the sighting by the public of “jellyfish” species in Maltese coastal waters. The majority of sightings of “jellyfish” species cited in this study have emerged from the Spot the Jellyfish initiative. The aim of this study is to compile confirmed reports of recent sightings within Maltese coastal waters for four relatively uncommon non-stinging hydromedusae species (the chondrophoran species *Porpita porpita* and *Velevella velevella*, the limnomedusa *Olindias phosphorica* and the leptomedusa *Aequorea* sp.) and for the stinging siphonophoran *Physalia physalis*.

RESULTS AND DISCUSSION

Table 1 provides details of the confirmed reports for the following hydromedusae: *Porpita porpita*, *Velevella velevella*, *Physalia physalis*, *Olindias phosphorica* and *Aequorea* sp.

Table 1
 Details of confirmed reports of selected hydromedusae from the Maltese Islands.

Species	Date of sighting	Location	Number of individuals observed - other notes
<i>Porpita porpita</i> (L., 1758)	12 th July 2010	Dwejra	1 – collected from the surface in water 15-20m deep
<i>Physalia physalis</i> (L., 1758)	9 th August 2009	Crystal Lagoon, Comino	1 – beached and badly decomposed
	3 rd March 2010	Cirkewwa	1 - beached
	3 rd May 2010	St. Thomas Bay	1 - beached
	5 th June 2010	Xlendi	1 - collected from the surface in water 10m deep, within an embayment
<i>Velevella velevella</i> (L., 1758)	25 th August 2010	Blue Lagoon	1
	3 rd June 2010	Golden Bay	Tens of individuals
	3 rd June 2010	Ghajn Tuffieha	Numerous
	5 th June 2010	Ghajn Tuffieha	Numerous
	6 th June 2010	Xlendi, Hondoq ir-Rummien, Mgarr ix-Xini	Numerous
	7 th June 2010	Wied iz-Zurrieq, Golden Bay, Mgarr ix-Xini	Numerous
	8 th June 2010	Ghadira	Numerous
	10 th July 2010	Ghadira	Numerous
	12 th July 2010	Sliema	Numerous
	17 th July 2010	Ghajn Tuffieha	Numerous
<i>Aequorea</i> sp.	21 st August 2010	Dahlet Qorrot	1
<i>Olinthias phosphorica</i> (Delle Chiaje, 1841)	18 th July 2010	Ghadira	1
	19 th July 2010	St. Paul's Bay	1
	13 th August	2010 Ghadira	1
	22 nd August 2010	Ghadira	1
	31 st August 2010	St. Thomas Bay	1

The first report of a *Physalia physalis* (Portuguese man o'war or blue bottle) from Maltese waters dates back to 2001, with three individuals of the species being recorded in 2009, from Golden Bay, Cirkewwa and Ghar Lapsi,

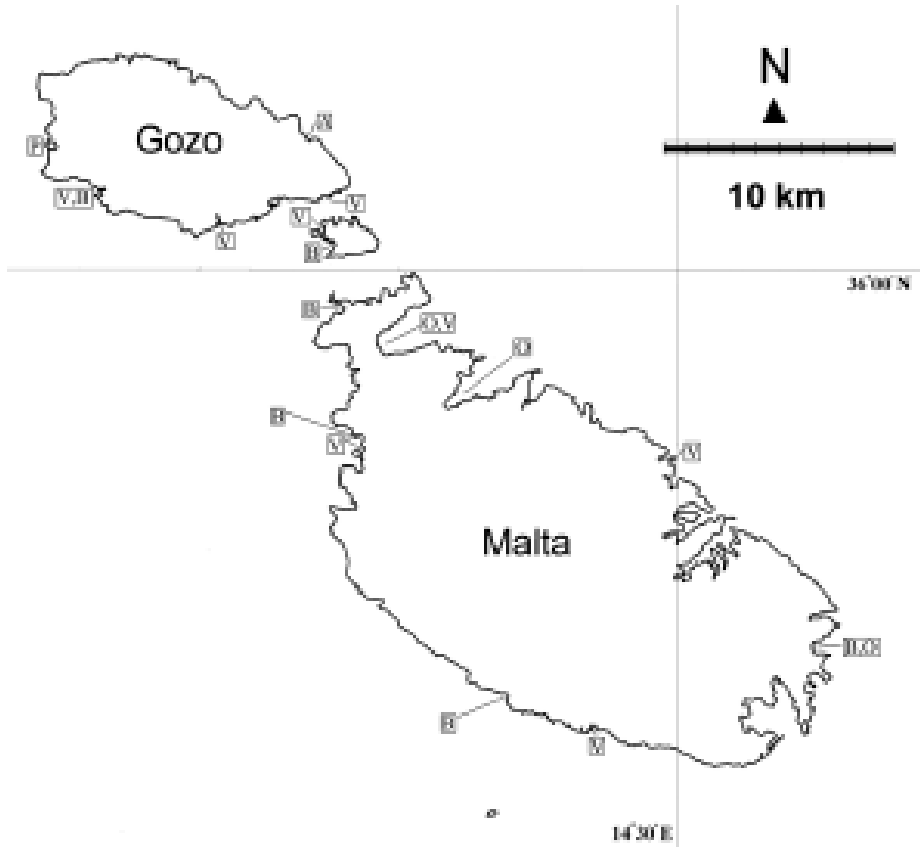


Fig. 1 — geographical distribution of sightings of *Porpita porpita* (P), *Physalia physalis* (B), *Olindias phosphorica* (O), *Aequorea* sp. (A) and *Verella verella* (V) within Maltese coastal waters during the June-September 2010 period.

with the largest individual collected that year having a diameter of 100mm. The sighting of these individuals was reported solely in newspapers, on the 11th and 13th of June, 2009. The largest *P. physalis* ever recorded from Maltese waters was recorded in August 2010, having a diameter of 210mm (refer to Fig. 4).

The reports for *Porpita porpita*, *Verella verella*, *Physalia physalis* and *Olindias phosphorica* documented in this study have been substantiated through the collection of voucher specimens. Since the taxonomic identification of *Aequorea* sp. was performed solely through examination of photographs taken in the field, identification could not proceed beyond the genus level. Fig. 1 illustrates the geographical distribution within Maltese coastal waters of the sightings of the hydromedusae species reported in this study.

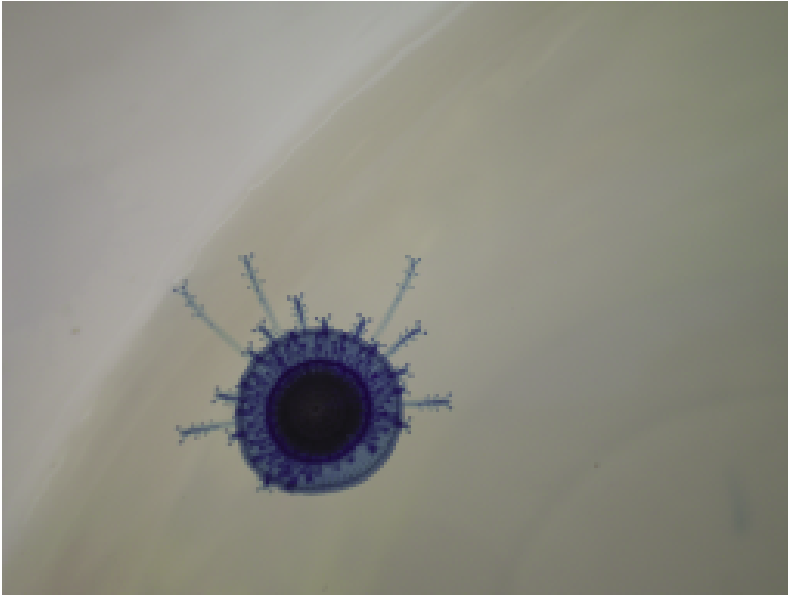


Fig. 2 — The single *Porpita porpita* individual recorded in July 2010 from Dwejra, Gozo (Maltese Islands), a first confirmed record for this species for the Maltese Islands.



Fig. 3 — *Velella velella* individual reported in June 2010 at Golden Bay, Malta (Maltese Islands).

The *Porpita porpita* and *Aequorea* sp. records represent the first such records for Maltese coastal waters, with the species not being listed in the first comprehensive marine census for the Maltese Islands by MICALLEF & EVANS (1968), nor in successive publications. Reports of *Velella velella* and *Olindias*



Fig. 4 — *Physalia physalis*, collected in June 2010 from Xlendi, Gozo (Maltese Islands).



Fig. 5 — *Olindias phosphorica*, recorded from Ghadira, Malta (Maltese Islands).

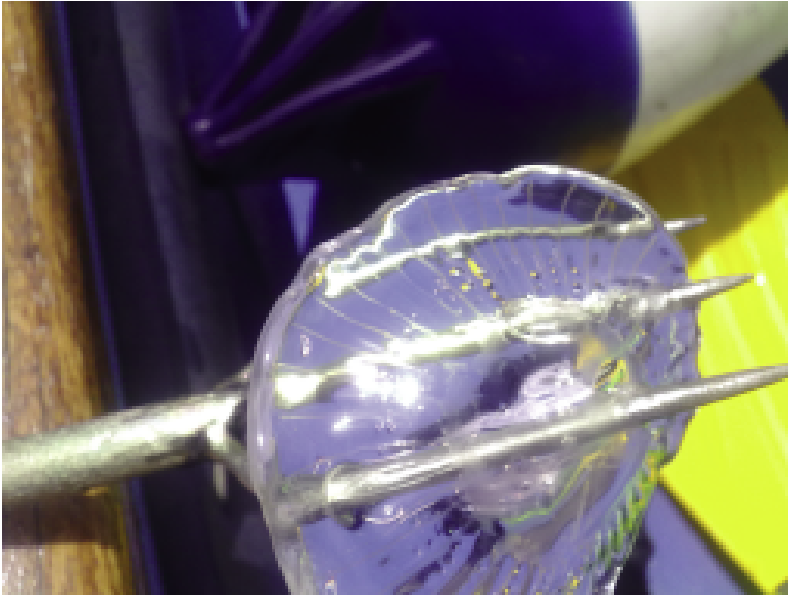


Fig. 6 — The first record of *Aequorea* sp. from the Maltese Islands, photographed at Dahlet Qorrot (Gozo) on the 21st of August 2010.

phosphorica sightings from Maltese coastal waters have been regularly published over the years in the grey literature, with all of the *Veleva veleva* sightings being concentrated annually over the late May-early July period.

Porpita porpita (synonymised with *Porpita pacifica*), the blue button, is a disc-shaped, colonial, pelagic hydrozoan, belonging to the siphonophore sub-order Chondrophora, for which only two genera are recognized (*Porpita* and *Veleva*). Chondrophoran species are small in dimension but have a widespread distribution and occur in large individual abundances. *Porpita* colonies are propelled on the surface of the water by the wind by means of a triangular, internal chitinous flap (the “sail”) having numerous concentric chambers, reaching a maximum diameter of 30mm. The colonies have an almost a circum-global distribution, being known from the Gulf of Mexico, New Zealand, the north-west Atlantic and the Mediterranean (BOUILLON & BOERO, 2000). *Aequorea* (Peron & Lesueur, 1810) is a multispecific genus of bioluminescent hydromedusae, commonly known as crystal jellyfish. Within the family Aequoreidae, medusae belonging to the genus *Aequorea* are characterized by numerous simple radial canals and the absence of sub-umbrellar gelatinous papillae (BOUILLON & BOERO, 2000). *Aequorea* species are known

from the Atlantic and European seas as well as from sub-tropical regions of the Pacific Ocean (van DER LAND, 2001).

Fig. 2 illustrates the single *P. porpita* individual recorded from Maltese coastal waters, which had a diameter of just 15mm, whilst Figs 3-6 illustrate individuals of the other jellyfish species of interest, recorded within the August 2009-August 2010 reporting period from Maltese coastal waters.

Due to the lack of a long-term, comprehensive database for the selected hydromedusae from Maltese coastal waters, one cannot infer any information on possible trends in fluctuations in the species' abundance in the same waters, but this study can act as a useful baseline for similar future attempts.

Scyphozoan species recorded from Maltese coastal waters during the June-September 2010 period as part of the Spot the Jellyfish initiative include *Pelagia noctiluca* (91% of all scyphozoan reports received), *Cotylorhiza tuberculata* (4% of all scyphozoan reports received) and *Carybdea marsupialis* (0.7% of all scyphozoan reports received), all of which have been previously recorded from Maltese waters, albeit solely in the grey literature.

Acknowledgements — The author is deeply indebted to Ferdinando Boero, University del Salento in Lecce, Italy, for his taxonomic identification of most of the species recorded in this paper and for his suggestions on the general outlay of the paper, to Patrick J Schembri, Department of Biology of the University of Malta, for sharing his *Physalia physalis* records and for providing useful literature references and to staff at IOI-Malta Operational Centre of the University of Malta, for assistance in developing the Spot the Jellyfish concept.

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Author's address — A. DEIDUN, International Ocean Institute, Malta Operational Centre (IOI-MOC), Room 315, Chemistry Building 3rd Floor, University of Malta, Msida - MSD 2080 MALTA; e-mail: alan.deidun@um.edu.mt

