

# First record of *Physalia physalis* in the Pelagie Islands (Strait of Sicily) and additional records in the Strait of Messina

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**Abstract:** Two colonies of the stinging siphonophore *Physalia physalis* were stranded at Capo Peloro (Strait of Messina) in March 2009 and one in March 2014; one more colony was stranded on a beach of Lampedusa Island (Strait of Sicily) in April 2009, representing the first record in the Pelagie Islands. Given the risk for human health associated to this species, the possibility to include it in monitoring protocols within early warning initiatives is discussed.

**Résumé :** Premier signalement de *Physalia physalis* dans les îles Pélages (détroit de Sicile) et signalements additionnels dans le détroit de Messine. Deux colonies du siphonophore urticant *Physalia physalis* ont été trouvées échouées à Capo Peloro (détroit de Messine) en mars 2009 et une autre en mars 2014; une autre colonie a été retrouvée échouée sur une plage de l'île de Lampedusa (détroit de Sicile) en avril 2009 et représente le premier signalement dans les îles Pélages. Compte tenu du risque pour la santé humaine associé à cette espèce, la possibilité de l'inclure dans les protocoles de surveillance dans les initiatives d'alerte précoce est discutée.

**Keywords:** Bluebottle • Hazardous species • Health risk • Mediterranean Sea • Pleuston

## Introduction

The Portuguese man-of-war *Physalia physalis* (Linnaeus, 1758), also known as bluebottle, is a surface-dwelling siphonophoran hydrozoan, a colonial organism easily

recognizable by its bluish pneumatophore, an air bladder developed from one of the polyps which can reach 30 cm in length (Kirkpatrick & Pugh, 1984), surmounted by a crest acting as a sail which helps it to navigate and float in the surface of the sea (Iosilevskii & Weihs, 2009). In addition to its typical morphology, this species is also known for its painful sting due to the hypnotoxin contained in its tentacles, which produces a series of symptoms, from local skin necrosis to neurological and cardiorespiratory

problems, and may even cause death (Labadie et al., 2012). For this reason the occurrence of such a venomous organism in coastal waters may represent a danger for human health as well as for tourism industry and coastal economy. *Physalia physalis* is distributed in the Indo-Pacific and Atlantic Oceans, usually found in tropical and subtropical areas (Wilson, 1947; Prieto et al., 2015). It is not a native species in the Mediterranean Sea and is sporadically reported mostly in the western basin, but may pass Sicily Strait and reach Malta (Boero, 2013) where it has been recorded a few times (Deidun, 2010). Herein, the first record of *P. physalis* in the Pelagian Islands (Italy) is reported together with additional records from the Strait of Messina.

### Materials and Methods

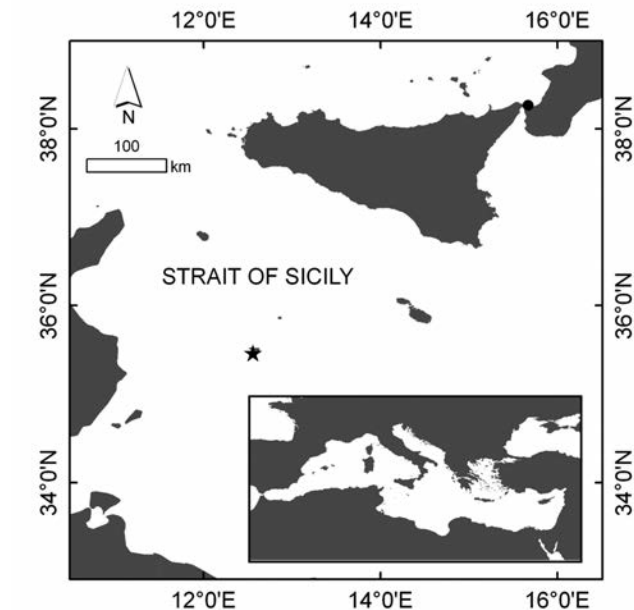
Three records of the Portuguese Man-of-War are reported from the central Mediterranean Sea (Fig. 1): in April 2009, one colony was stranded on the so-called Rabbit Beach in Lampedusa Island (Pelagic Islands, Straits of Sicily, 35.513284°N-12.557236°E); two more colonies were found stranded on 1<sup>st</sup> March 2009 and one on 21<sup>st</sup> March 2014 at Capo Peloro (Strait of Messina, 38.264997°N-15.651731°E). The colonies stranded in 2009 were photographed and preserved in alcohol while that found in 2014 was put in formalin, after measuring the length of their floats.

### Results

The individual colonies were found on the beach, still alive in the Strait of Messina or relatively undamaged (i.e. preserving the characters allowing species identification) in the Pelagic Islands, and exhibited the typical bluish colour of the species (Fig. 2a-c). The float of the colony from Lampedusa Island measured 8 cm in total length (Fig. 2a). The floats of the two colonies stranded in 2009 at Capo Peloro (Fig. 2b) measured 10 and 11 cm in total length while that of the colony stranded in 2014 measured 9 cm (Fig. 2c).

### Discussion

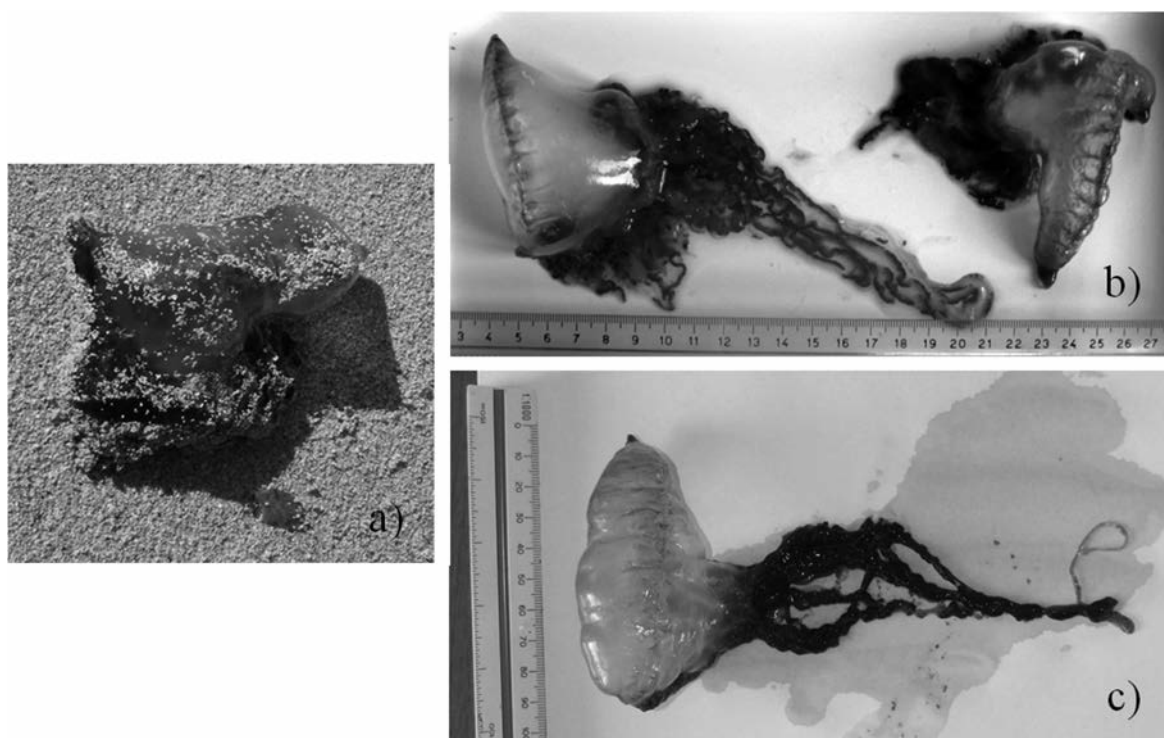
The Portuguese man-of-war found in Lampedusa Island in 2009 represents the first documented record of this species in the Pelagic Islands and since that date no other sightings of this species have been reported in this area. Considering that *P. physalis* may reach 30 cm of float total length, it is reasonable to hypothesize that all the colonies here recorded, ranging from 8 to 11 cm, were in the average size of the colonies collected in the Western Mediterranean Sea



**Figure 1.** *Physalia physalis*. Sighting sites at Lampedusa Island (Strait of Sicily) (★) and Capo Peloro (Strait of Messina) (●).

(Prieto et al., 2015), and possibly capable of further growth. The occurrence of *P. physalis* in the Mediterranean was considered sporadic till the last decade, as testified by the scarcity of documented records in the literature. A previous finding of a stranded individual colony in the Strait of Messina goes back to February 1980 (Berdar & Cavallaro, 1980). Although these Authors monitored the overall strandings in the same area for about 30 years (from 1949 to 1980), this was the only record of *P. physalis* throughout this period. In 2001 the occurrence of this species was documented in Maltese waters, even if local fishermen affirmed, but could not document, to have met such an organism long before (Calleja, 2009). In the last decade the sightings of this species started to increase considerably and a high number of Portuguese Man-of-War swarms have been recorded mainly in spring and summer. In Malta this species has been recorded again in 2008, in summer 2009 and from March to June 2010 (Calleja, 2009; Deidun, 2010). In 2009, 57 colonies have been recorded in the western Mediterranean Basin along the Spanish coast (Prieto et al., 2015) and in March of the same year one colony was found in the Strait of Messina (Mare Nostrum Italia, 2013). According to Prieto et al. (2015), such a recent episodic occurrence of *P. physalis* from the Atlantic Ocean to the western Mediterranean Basin is the result of an unusual combination of meteorological and oceanographic conditions during the previous winter.

In 2010 the western Mediterranean Basin experienced several swarms, recording hundreds of colonies in different



**Figure 2.** *Physalia physalis*. Colonies of Portuguese man-of-war recorded at: **A.** Lampedusa Island in April 2009. **B.** Capo Peloro in March 2009. **C.** Capo Peloro in March 2014.

sites of the Spanish coast and sightings in Corsica, Sardinia, Tyrrhenian Sea, Messina Strait and Sicily Strait (Focus, 2010). In the same year, the first human fatality, attributed to a sting of Portuguese Man-of-War, was recorded in Sardinia. In the following year, however, the number of sightings has fallen considerably: only 17 and 2 colonies were recorded in the same Spanish monitored sites in 2011 and 2012 respectively (Prieto et al., 2015).

Accidents caused by *P. physalis* have been previously reported also in other areas of the Atlantic Ocean, where serious manifestations and occasional deaths occurred (e.g. Burnett & Gable, 1989; Haddad et al., 2002). Given the potential risk for human health, the occurrence of *P. physalis* in Mediterranean waters should be considered for regular monitoring and public information campaigns (Montgomery et al., 2016; Piraino et al., 2016). It would be appropriate to include this species in monitoring protocols of early warning initiatives, as already done for other harmful organisms, such as the toxic fish *Lagocephalus sceleratus* (Gmelin, 1789), in Italy and other Mediterranean countries (Andaloro et al., 2016).

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