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First record of *Aequorea globosa* Eschscholtz, 1829 (Cnidaria: Hydrozoa) in the coast of Syria

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Abstract

The Indo-Pacific jellyfish *Aequorea globosa* Eschscholtz, 1829 was reported last year for the first time in the Mediterranean Sea from Iskenderun Bay (S. Turkey). This jellyfish was observed in the coast of Syria, on 8 January 2012, during a regular monthly sampling program.

Keywords: Alien jellyfish, Hydrozoa, *Aequorea globosa*, Mediterranean Sea, Levantine Basin.

Introduction

The lack of data about jellyfish diversity along the Syrian coast has persuaded the Atomic Energy Commission of Syria and Tishreen University, High Institute Of Marine Research, to initiate a jellyfish monitoring program for surveying the Syrian coast (Northern Levantine Basin) at four sites (Tartous, Baniyas, Lattakia and Al-Basset) between February 2011 and January 2012. Last year numerous jellyfish swarm were observed among which the alien species *Phyllorhiza punctata* von Lendenfeld, 1884 (Durgham, 2011).

Three species of hydromedusae (Cnidaria), were caught by surface vertical haul with WP3 net (diameter 113 cm, mesh size 1000 µm), at three out of four monitoring sites (Table 1). The specimens were taken for further investigation in the laboratory, photographed, fixed in 4% formaldehyde and stored in the zooplankton laboratory, High Institute of Marine Research.

The observed hydromedusae (Fig. 1) were two Mediterranean native species namely *Geryonia proboscoidalis* (Forskål, 1775), *Aequorea forskalea* Péron & Lesueur, 1810, and the non native species determined as *Aequorea globosa* Eschscholtz, 1829 (Cnidaria: Hydrozoa: Leptomedusae: Aequoreidae) following the description of: Maas 1905; Stiasny 1928; Uchida 1947; Kramp 1968; Navas & Vannucci 1991; Buecher *et al.*, 2005; Turan *et al.*, 2011.

Aequorea globosa: 20-40 mm wide, umbrella almost hemispherical, mesoglea very thick. Stomach about half as wide as diameter of umbrella; velum narrow, mouth

simple, circular, gastric peduncle absent. 40-48 radial canals present, latter narrow, with smooth margin, gonads extending along almost entire length of the radial canals, same number of tentacles.

A single adult specimen of the alien jellyfish species *Aequorea globosa* Eschscholtz, 1829 was caught at Baniyas shallow water very close to the thermal power station (35° 10' 26.0" N, 35° 55' 13.3" E) on 8 January 2012, where the temperature and salinity at the sampling time were 24.3°C and 39‰ respectively. The average temperature and salinity for all sites were 18.6°C and 38.8‰ respectively.

Aequorea globosa Eschscholtz, 1829 is a tropical, temperate Indo-west Pacific and west Indian Ocean species (Navas & Vannucci, 1991; Buecher *et al.*, 2005). This alien species was first recorded in the Mediterranean basin in Iskenderun Bay in 2011 (about 100 nautical mile to the north of Baniyas) where the monthly observations suggested a probable establishment of its population (Turan *et al.*, 2011); however our monthly surveying along the Syrian coast did not reveal a settlement of this species.

Hydromedusae can widely disperse in the various oceans and seas, the absence of a given species from a certain area is due to its lack of adaptation to local conditions, not to its ability of reaching it (Boero & Bouillon, 1993). The presence of *A. globosa* in the Syrian coastal water may be due to transportation via ballast water of oil tankers from its origin, taking into consideration that the ephyra or scyphistoma stages of the jellyfish life cycle enable such migrations via ballast water to areas in

Table 1. The hydromedusae species caught along the Syrian coast 2011-2012

Species	Date	Location	Individual	Umbrella wide mm	radial canals
<i>Geryonia proboscidalis</i> (Forskål, 1775)	8 Jan. 2012	Banias	3	50	6
<i>Aequorea forskalea</i> Péron & Lesueur, 1810	31 Mar. 2011	Tartous	3	60-80	66
	27 Aug. 2011	Lattakia	4	35-70	64
<i>Aequorea globosa</i> Eschscholtz, 1829	8 Jan. 2012	Banias	1	60	44

which water temperatures resemble those of the Indo-Pacific (Carlton, 1985). Banias is a coastal city (55 km to the south of Lattakia), where an oil refinery, oil terminal with traffic of oil tankers, and thermal power station which discharges the hot cooling water directly to the sea water increasing the water temperature at this location about 2-5°C around the year (Durgham, 1998). Due to the lack of any information or records (especially from the southern Levantine basin), it is assumed that the potential pathway /vector of this new Indo-Pacific species in the Mediterranean Sea is shipping/ballasts via the Suez Canal.

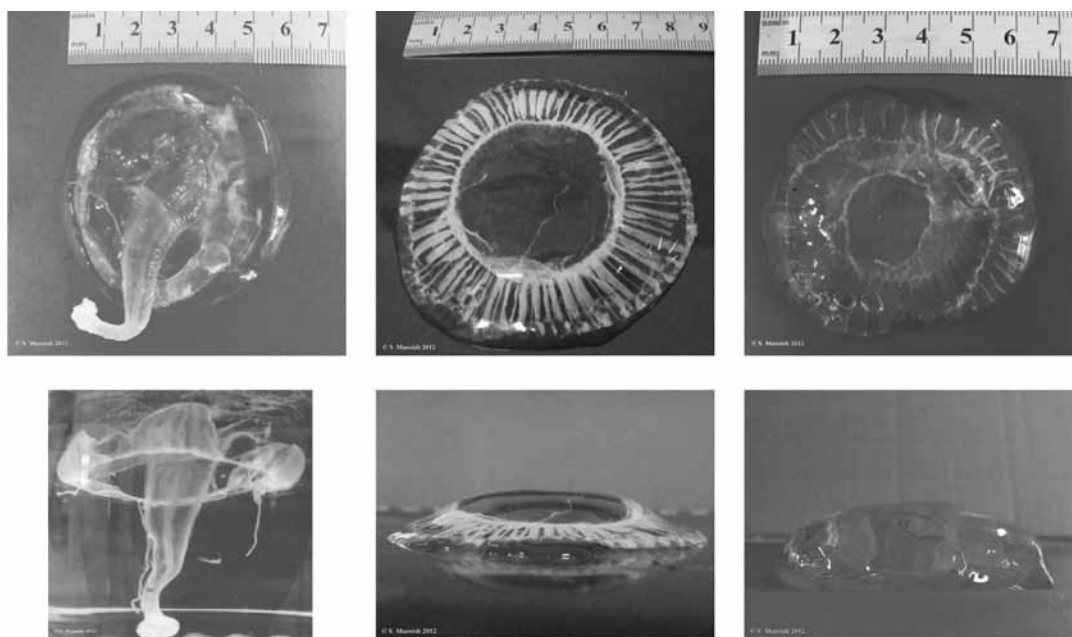
During the last decades, new arrivals and establishment of non-indigenous jellyfish species in the Mediterranean sea are mostly of Indo-Pacific and Red Sea origin (Zenetos *et al.*, 2010), a fact that may be attributed to the increasing warming trend of Mediterranean waters in recent years (Bianchi, 2007); if this is the case, then

further arrivals are to be expected, which makes monitoring the alien jellyfish in the Syrian coast of critical importance both as an indicator of climate change in the eastern Mediterranean marine environment, and for the ecological effects that such alien species may have on local species, communities and ecosystems.

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Geryonia proboscidalis (Banias) *Aequorea forskalea* (Lattakia) *Aequorea globosa* (Banias)

Fig. 1: *Geryonia proboscidalis*, *Aequorea forskalea* and *Aequorea globosa*.

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