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OCCURRENCE OF GIANT TUN, *TONNA GALEA* (LINNAEUS, 1758) (GASTROPODA: TONNIDAE) IN THE MARINE WATERS OFF SLOVENIA (NORTHERN ADRIATIC SEA)

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ABSTRACT

On 1st December 2018 a fisherman caught a specimen of the giant tun Tonna galea *(Linnaeus, 1758) in the bottom trammel net for flounders, approximately 1 Nm outside the town of Izola. The net was placed on a muddy bottom at 20 m of depth. This is the second record of* T. galea *in the Slovenian waters (Gulf of Trieste, northern Adriatic Sea). Another specimen (the first one) was previously reported in October 2015 in the waters off Piran. By including* T. galea *in the checklist of Slovenian marine malacofauna, at least 370 gastropod species were up to date recorded in the Slovenian part of the Adriatic Sea.*

Key words: Giant tun, *Tonna galea*, marine malacofauna, Gulf of Trieste, northern Adriatic Sea

PRESENZA DI DOGLIO, *TONNA GALEA* (LINNAEUS, 1758) (GASTROPODA: TONNIDAE), IN ACQUE MARINE AL LARGO DELLA SLOVENIA (ADRIATICO SETTENTRIONALE)

SINTESI

Il 1° dicembre 2018 un esemplare del gigantesco *doglio* Tonna galea *(Linnaeus, 1758)* è stato *catturato con una rete da posta, il tramaglio, a circa 1 Nm dalla cittadina di Izola. La rete è stata posizionata su fondo fangoso a 20 m di profondità. Questo è il secondo ritrovamento di* T. galea *nelle acque slovene (Golfo di Trieste, Adriatico settentrionale). Un altro esemplare (il primo) è stato segnalato a ottobre 2015 nelle acque di Pirano. Includendo* T. galea *nella lista della malacofauna marina slovena, almeno 370 specie di gasteropodi sono state registrate nella parte slovena dell'Adriatico.*

Parole chiave: Doglio, *Tonna galea*, malacofauna marina, Golfo di Trieste, Adriatico settentrionale

INTRODUCTION

Tonna galea (Linnaeus, 1758) is a large gastropod, widespread in the Atlantic and Pacific Oceans and in the Mediterranean Sea (de Simone, 1995). It is the second largest Mediterranean gastropod, which could reach more than 29 cm in size (Katsanevakis *et al.,* 2008*)*. It mainly inhabits sandy and muddy sediments and seagrass meadows (Katsanevakis *et al*., 2008). It is a carnivore which preys on sea cucumbers such as *Holothuria tubulosa, H. forskali, H. poli* and *H. sanctori* (Toscano *et al*., 1992; Francour, 1997), other echinoderms and mollusks. The basic life history of this species deserved only scarce scientific interest and many aspects of its biology and ecology still remains unknown (Doxa *et al*., 2011). Nowadays, this giant gastropod is endangered mostly by artisanal fishermen and collectors (Tunesi *et al*., 2006). It is a rare and protected species according to Annex II of the Bern convention (Council of Europe, 1979) and the Protocol of the Barcelona convention (Annex II) (European Community, 1999; UL RS, 2002). However, it is still sporadically collected in many Greek areas by divers (Katsanevakis *et al*., 2008) as a food delicacy or for shell collectors (Tunesi *et al*., 2006; Russo & Perini, 2016). The aim of this paper is to present data on the occurrence of this giant gastropod in the Slovenian part of the Adriatic Sea.

MATERIAL AND METHODS

Two individual giant tuns were found in recent years in the Slovenian part of the Adriatic Sea. The first was recorded on 24th October 2015 close (200 m distance northward) to the diffuser of the pipeline of the sewage outfall near Piran and the second on 1st December 2018 one Nm outside the town of Izola (45° 33′ 20.9″ N; 013° 38′ 19.6″ E). Both individuals were caught accidentally as by-catch in the bottom trammel net. In the first case the giant tun was kept in the Aquarium Piran still alive and then moved to the Shell museum Piran where it is now part of the exhibited collection. A note on this record was mentioned in the Piran municipal bulletin by Simič (2015).

Fig. 1: Specimen of Tonna galea, caught in the waters off Izola (Slovenia), kept in the Piran Aquarium (Photo: M. Rogelja).
Sl. 1: Primerek velikega sodca, ujetega v vodah okoli Izole (Slovenija) v piranskem akvariju (Foto: M. Rogelja).

In the second case, the specimen was caught in a trammel net for flounders, placed on muddy bottom at 20 m of depth overnight. The specimen was deposited still alive in the Piran Aquarium into a 3.400 l aquarium tank with sandy bottom (Fig. 1). The giant tun was photographed and the shell measured with a calliper to the nearest millimetre (Fig. 2). The specimen is housed in the collection of the Aquarium Piran.

RESULTS AND DISCUSSION

The species was easily recognized through external morphological characters such as shell, which is spiral in shape and globose, resembling a barrel. The colour is pale brown and homogenous. Shell aperture is large with its outside border damaged. The surface of the shell is covered with wide spiral ribs (Cossignani & Ardovini, 2011). Head and the muscular foot are rather large and beige coloured with irregular dark brown spots. The shell measured 155 mm and the oral aperture is 145 mm wide. The giant tun collected in 2015 measured 190 mm.

Published data on the occurrence of *Tonna galea* are very scarce in the Adriatic Sea. Stefano Chiereghin considered this species as very rare in the northern Adriatic already two centuries ago (Chiereghin, 2001). According to Coen (1933, 1937; in: Russo & Perini, 2016) *T. galea,* a species which used to be rather common, seems to face the threat of extinction.

More recently the giant tun was recorded in Montenegro (Petović *et al.,* 2017), in Croatia (*e.g.* Zavodnik *et al.,* 2006) and in Italy (Cossignani *et al.*, 1992). Even more rare is considered in its northern part. In fact, the majority of available faunistic surveys on mollusks or invertebrates did not mention this species for areas of northern Adriatic Sea (*e.g.* Zavodnik & Kovačić, 2000; Zavodnik *et al*., 2005; Kučić, 2016). In the eastern northern Adriatic, there are only few published records on this species. A specimen of *T. galea*, collected in August 1965 in waters off the island of Lošinj, is housed in the collection of the Natural History Museum of Rijeka (Croatia) (http://www.prirodoslovni.com/inventarna/). Another one was mentioned by Zavodnik *et al.* (2006) for the island of Pag. Other available data are known from local newspapers or social media. Those are dealing on cases of illegal hunting of giant tuns in the waters off Novigrad (Klobučar Opačak, 2013) and of finding of a specimen, stranded on a beach in Rovinj (Orlović Radić, 2016) which was after released back into the sea. In their comprehensive survey of mollusks in the Gulf

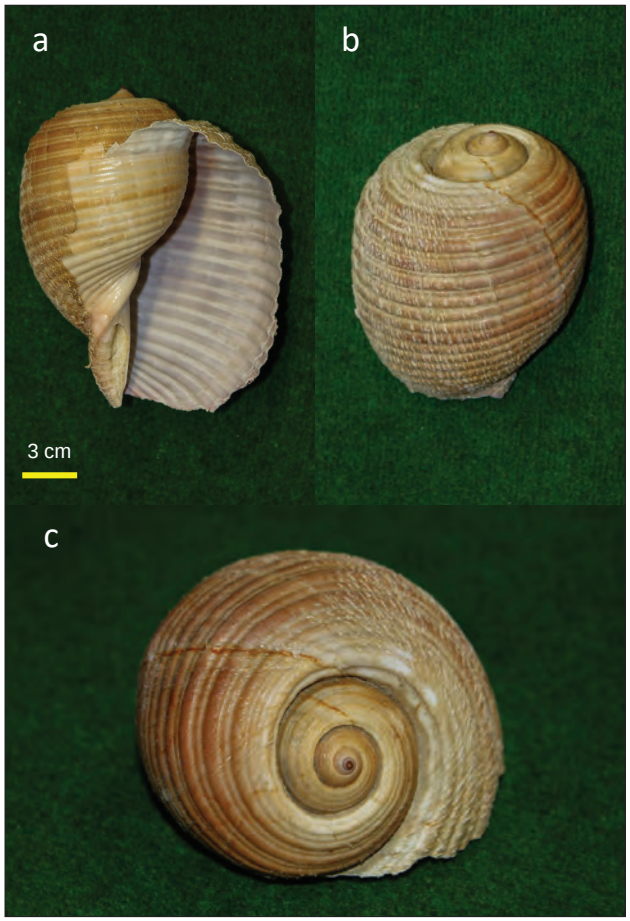

Fig. 2: Shell of the studied specimen of Tonna galea, caught in the waters off Slovenia (Photo: M. Rogelja).
Sl. 2: Lupina ujetega primerka velikega sodca, ujetega v vodah okoli Izole (Slovenija) v piranskem akvariju (Foto: M. Rogelja).

of Trieste, Vio & De Min (1996) mentioned an empty shell caught by a fisherman in waters off Savudrija (Istria peninsula), but without any precise data. In the western part of the north Adriatic Sea *T. galea* was recently found in waters of Caorle (Venezia), when a juvenile specimen was caught by fishermen in a depth range from 25 to 30 m (Russo & Perini, 2016). Unfortunately, authors did not provide any information about the date of capture.

According to De Min & Vio (1996), at least 232 species of gastropods were recorded in the waters of Slovenia. However, authors focused their research mostly on shelled gastropods, so many seaslugs were not mentioned in their text. In a recently published monography on marine opisthobranchs in Slovenia, Lipej *et al.* (2018) reported 141 species. By analysing both checklists and by including *T. galea* in the list, at least 370 gastropod species were up to date recorded in the Slovenian part of the Adriatic Sea.

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POJAVLJANJE VELIKEGA SODCA, *TONNA GALEA* (LINNAEUS, 1758) (GASTROPODA: TONNIDAE) V MORSKIH VODAH SLOVENIJE (SEVERNI JADRAN)

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POVZETEK

*Prvega decembra je lokalni ribič približno 1 Nm pred Izolo v ribiško mrežo ujel primerek velikega sodca (*Tonna galea*). Mreža je bila postavljena v globini 20 m nad muljastim dnom. To je drugi zabeležen primer pojavljanja velikega sodca v slovenskih vodah (Tržaški zaliv, severni Jadran). Pred tem je bil en primerek te vrste (prvi zapis o pojavljanju) ujet v vodah blizu Pirana oktobra 2015. Upoštevaje nov podatek je seznam morskih polžev v slovenskem delu Jadranskega morja bogatejši še za eno vrsto in zdaj šteje najmanj 370 vrst.*

Ključne besede: veliki sodec, morska malakofavna, drugi zapis o pojavljanju, Tržaški zaliv, Jadransko morje

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