

First record of the angelfish *Pomacanthus maculosus* (Teleostei: Pomacanthidae) in the Mediterranean

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Abstract

The Western Indian Yellowbar Angelfish *Pomacanthus maculosus* is recorded for the first time from the eastern Mediterranean, in the coastal waters of Lebanon. Two individuals were observed underwater but only one specimen was obtained. These records suggest a very recent presence of the species in the Mediterranean. Because of the proximity to the Suez Canal, it is considered as a new case of Lessepsian migration. However, other means of introduction cannot be ruled out.

Zusammenfassung

Der westindische Sichel-Kaiserfisch *Pomacanthus maculosus* wurde erstmals für den östlichen Mittelmeerraum – in den Küstengewässern des Libanon – nachgewiesen. Zwei Exemplare wurden unter Wasser beobachtet, nur eines konnte gefangen werden. Die Beobachtung spricht für ein ganz neues Vorkommen im Mittelmeerraum. Wegen der Nähe des Suez-Kanals wird diskutiert, ob es sich um einen weiteren Fall von Lesseps-Migration handelt. Doch können andere Wege der Einwanderung nicht ausgeschlossen werden.

Résumé

Le poisson-ange de l'ouest de l'Océan Indien, *Pomacanthus maculosus*, a été mentionné pour la première fois à l'est de la Méditerranée, dans les eaux côtières du Liban. Deux spécimens ont été observés sous l'eau, mais un seul a été capturé. Ces relevés suggèrent une présence très récente de cette espèce en Méditerranée. Vu la proximité du canal de Suez, elle est considérée comme un nouveau cas de migration lessepsienne. Pourtant, on ne peut exclure d'autres causes d'introduction.

Sommario

Il pesce imperatore blu *Pomacanthus maculosus* diffuso nell'oceano Indiano occidentale è segnalato per la prima volta nel Mediterraneo orientale, lungo la costa del Libano. Durante un'immersione sono stati osservati due individui, uno dei quali è stato catturato. Questa segnalazione suggerisce che la presenza della specie nel Mediterraneo sia molto recente. A causa della vicinanza del canale di Suez,

l'evento è da considerare come un nuovo caso di migrazione lessepsiana, anche se non si può escludere che la specie sia stata introdotta attraverso altri meccanismi.

INTRODUCTION

The Pomacanthidae constitutes a family of marine tropical and subtropical Atlantic and Indo-Pacific fishes commonly known as angelfishes. This family is composed of about 82 different species characterized by a strong spine at the angle of preopercle and striking colour patterns (Nelson 2006). Most species feed on algae, sponges and encrusting invertebrates (Smith & Heemstra 1986, Nelson 2006).

The yellowbar angelfish *Pomacanthus maculosus* (Forsskal, 1775) is a reef-associated species inhabiting fringing reefs and lagoons and is regularly found over hard and soft bottoms (Randall, 1983; Carpenter et al. 1997, Taquet & Diringer 2007). It is found in the Red Sea and the north-western Indian Ocean from the Arabian-Persian Gulf to the eastern coast of Africa (Kenya-Zanzibar) (Randall 1983, Taquet & Diringer 2007). It is mainly solitary and can grow up to 50 cm long (standard length).

RESULTS

On 8 September 2009, two adult individuals of Yellowbar Angelfish were spotted south of Beirut, off the coast of Lebanon (33° 48'N; 35° 26'E). One specimen (Figure 1) was speared by an amateur diver at a depth of 25 m over a mixed coralligenous-soft bottom. The collected specimen was photographed by the diver and consumed. Distinctive characters and multiple photos allowed an accurate identification of the species. Typical diagnostic features are as follows: body compressed; strong spine at the angle of preopercle; dorsal and anal fins with elongate extensions on hind margin; purple-blue body with dark curved marking on its anterior part; and a large yellow verti-

cal blotch on sides characterising the adult of the species. The size and colour pattern both confirmed an adult specimen of *P. maculosus*. The estimated size based on the photo was approximately 30 cm in total length.

DISCUSSION

The Yellowbar Angelfish *P. maculosus* is here reported for the first time from the Mediterranean Sea. This species is relatively easy to identify and is distinguished from all other angelfishes by the uniformly purple-blue body colour and the yellow vertical blotch on its side, not reaching the dorsal fin. Its conspecific Arabian angelfish *P. asfur* (Forskål, 1775) is probably the closest in appearance and differs in having a yellow bar extending onto the dorsal fin and a black head. Had it been a juvenile of about 10 cm or less, the species could be easily mistaken for *P. asfur* as it displays similar colour patterns (Debelius 1998).

The connection between the Red Sea and the eastern Mediterranean, resulting from the digging of the Suez Canal, opened the way for various Indo-Pacific organisms to enter and colonize the Mediterranean. This phenomenon is generally referred to as Lessepsian migration. Several hundred species of Indo-Pacific origin have already been recorded from the eastern Mediterranean and the phenomenon seems to have increased considerably in the last decade (Bianchi 2007, Ben Rais & Mouillot 2008, Galil 2008, Belmaker et al. 2009). The impact of Lessepsian species on the Mediterranean ecosystem is relatively poorly documented, particularly considering that many species are displaying invasive patterns (Stefraris & Zenetos 2006, Galil 2008). Based on the Lessepsian migration magnitude and the proximity of the area of capture to the Suez Canal and the Red Sea, it is likely to suggest the entrance of *P. maculosus* via



Fig. 1. Specimen of the yellowbar angelfish *Pomacanthus maculosus* caught off Beirut, Lebanon.

the Suez Canal. However, other means of introduction, such as release from a private aquarium or larval transport by ship ballast water, cannot be ruled out. Various entry modes of exotic species to the Mediterranean have been documented (Zibrowius 1992, Wonham et al. 2000, Galil, 2006).

Finally, an exotic fish species is considered to be established in the Mediterranean Sea when it has been recorded at least three times from different localities or during different periods (Golani et al. 2002, <http://www.ciesm.org/online/atlas/index.htm>). Since only a single specimen has been captured and another one simply observed underwater so far, it is assumed that this presence is very recent and does not necessarily imply the establishment of a self-maintaining population of *P. maculosus* in the eastern Mediterranean. The two angelfish could be simply vagrant individuals and the species should be currently listed as an “unestablished alien” (*sensu* Occhipinti-Ambrogi & Galil 2004) until further evidence arises.

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ERRATA

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Biometric characteristics and some biological features of natural hybrids between Nile tilapia *Oreochromis niloticus* and blue tilapia *Oreochromis aureus* in Lake Edku, Egypt by Shnoudy A. Bakhoum, p. 191:

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Back cover:

The MS *Schismatogobius deraniyagalai* Kottelat & Pethiyagoda (F.7149 SRS/ZSI) by M. Arunachalam et al. and the extension in distribution of this freshwater goby, which was to be published in a future aqua issue has been rejected.