J. Mar. Biol. Ass. U.K. (2004), **84**, 851–852
Printed in the United Kingdom

First record of the muzzled blenny (Osteichthyes: Blenniidae: *Omobranchus punctatus*) from the Mediterranean, with remarks on ship-mediated fish introduction

Daniel Golani

Department of Evolution, Systematics and Ecology, The Hebrew University of Jerusalem, 91904 Jerusalem, Israel.
E-mail: dgolani@cc.huji.ac.il

The muzzled blenny *Omobanchus punctatus* is recorded for the first time in the Mediterranean Sea, collected among fouling organisms covering the frame of aquaculture cages at the entrance to the port of Ashdod, Israel. Its presence there is most likely due to accidental introduction attributed to ship-mediated transfer.

On 28 July 2003, some 30 km south of Tel-Aviv, a 45.1 mm total length (39.3 mm standard length [SL]) specimen of a blenny previously unknown to this area was found (Golani, 1996). The specimen (Figure 1) was collected at depths of 20–50 cm, from fouling on the plastic frames of aquaculture fish cage platforms, located at the entrance to the port of Ashdod (Figure 2). This specimen was identified as *Omobranchus punctatus* (Valenciennes, 1836) and was deposited in the Hebrew University Fish Collection, receiving the catalogue number HUJ 18977.

Measurements and counts follow Hubbs & Lagler (1947). Counts and terminology of cephalic pores are according to Springer & Gomon (1975). Elements smaller than 4 mm were measured using a grid dissection microscope.

Description: D, XII + 22; A, II + 22; P, 13; V, 2; C, 13 + 2 upper and 2 lower procurrent rays. Body elongated and compressed. Head 19.8%, predorsal 22.4%, preanal 48.3%, depth at dorsal fin origin 13.7%; all of SL. Eye 25.6%, snout 26.9%, interorbital 16.7%; all of head length. Head profile steep without tentacles or crest. Mouth in lower part of head, reaching back to the interior 1/4 of eye. Close set of slender, slightly depressible, golden-brown tipped incisiform teeth, 26 in the upper jaw and 28 in the lower jaw. A stout, recurved canine tooth in the inner corner of the upper jaw; its length is 22.5% of eye diameter. A larger recurved canine tooth at the lower jaw corner is 45.0% of eye diameter. A small fleshy flap at the corner of lower lip. Small slit-like gill opening; its lower edge at level and slightly in front of the uppermost pectoral ray. The height of the gill opening is 73.7% of eye diameter. Anterior nostril tubular and located at the lower third of eye level; orifice pointed on its posterior side. Posterior nostril at the level of the upper third of the eye and its diameter is wider than the anterior nostril with a slightly raised rim. Cephalic sensory pores as follows: circumorbital pores, 7; interorbital pores, 3 (this count includes both sides); mandibular pores, 3; preopercular pores, 6; a single median supratemporal pore; the distance between it and the dorsal fin origin is half of the distance between it and the posterior margin of the eye. Supratemporal pores, 4, the last pore enlarged and located at the origin of the lateral line. Lateral line has 7 bipored tubes originating above gill opening and terminating below the 8–9 dorsal spines.

Long and continuous dorsal fin with shallow incisions between spinous and soft ray portions, the latter being slightly longer than the former. Long anal fin originates beneath the last dorsal spine. The last ray of both the dorsal and anal fins is bound by a membrane to the caudal peduncle. Pectoral fin round. Pelvic fin thoracic inserted in front of the pectoral fin base. Caudal fin rounded with delicate incisions between its rays.

Figure 1. *Omobranchus punctatus*, 39.3 mm SL, from the port of Ashdod, Israel. (HUJ 18977).

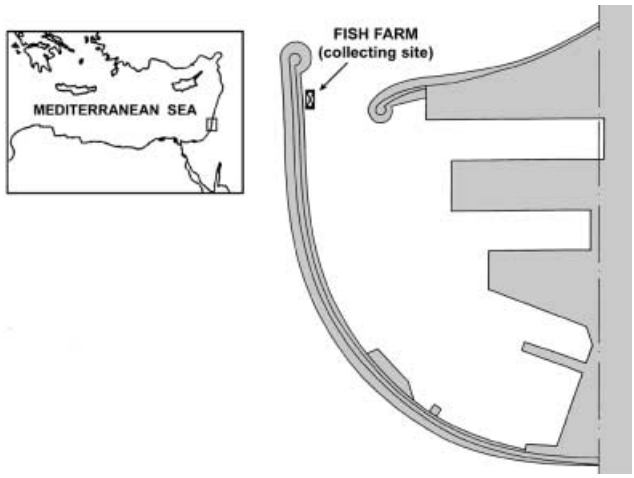

Figure 2. Map of the collecting site.

Colour: body greyish to light olive-green. A row of slanted dusky dashes running on the upper trunk along the dorsal fin base, starting under second dorsal spine and terminating under the 7th dorsal ray. A row of horizontal dusky dashes running along middle of flank. Dorsal spines and rays dark grey with a transparent to light grey membrane with a faintly-defined base. Anal fin rays dark grey with greyish-olive green membrane with a bright white tip on the first 17 rays. Pectoral fin rays grey to olive-green with transparent membrane. Pelvic fin rays greyish

with white tip. Three broad dusky bands on the head. The anterior band runs from just below of centre of eye to the mouth. The second band encircles the head from middle of the nape across posterior margin of eye to chin, halfway between the pelvic fin and the mouth. The third band also encircles the head running on the operculum; its posterior edge in front of gill opening running to slightly in front of pelvic fin insertion. A dark triangular blotch extends from the pelvic fin base to the pectoral fin base. The morphological, meristic counts and the colour pattern agree with the description of *Omobranchus punctatus* given by Springer & Gomon (1975); Bath (1980) and others.

The original distribution of *Omobranchus punctatus* is presumed to be Indo-Pacific, stretching from Japan and Australia to the Persian Gulf. A large population found in Trinidad has been attributed to the accidental transfer by slave boats in the early 19th Century from India to the West Indies (Springer & Gomon, 1975). The Trinidad population spread, presumably by ballast water, to the eastern entrance of the Panama Canal and to Venezuela. A population restricted to the area of Delagoa Bay, Mozambique, was described by the synonym *Omobranchus japonicus scalatus* by Smith (1959); and was also considered to be the result of ballast water transfer (Springer & Gomon, 1975). Bath (1980) reported a single specimen from Lake Timsah in the Suez Canal, and concluded its presence was due to introduction, because it was not found during intensive ichthyological collecting in the Red Sea and Suez Canal (Por et al., 1972).

The most likely possibility for the current finding is that it arrived either by ballast or bilge water or as a refugee hidden inside the fouling of a ship. The other possibility, which is less likely, is that this species has extended its distribution from an established population in the Suez Canal. Although the distance between Lake Timsah and Ashdod is less than 300 km, there is a lack of a continuous stretch of rocky substrate between these two areas which effectively prevents the spread of this site-attached and demersal spawning species (Ismail & Clayton, 1990; Kawaguchi et al., 1999). Wonham et al. (2000) attributed the world-wide invasive success of Blenniidae, *inter alia*, to their crevicolous nature which enables them to exploit the small openings in ballast-intake holes, thus excelling in surviving the route between the source and target areas.

Only one out of 90 exotic fish species in the Mediterranean has been considered to be the result of ballast water (Golani et al., 2002).

The author would like to thank Dr A. Diamant for assistance in collecting the specimen, H. Mienis for translating the German literature and Dr D. Darom for the photograph and the drawing.

REFERENCES

Bath, H., 1980. *Omobranchus punctatus* (Valenciennes 1836) neu im Suez-Kanal (Pisces: Blenniidae). *Senckenberiana Biologia*, **60**, 317–319.

Golani, D., 1996. The marine ichthyofauna of the eastern Levant—history, inventory and characterization. *Israel Journal of Zoology*, **42**, 15–55.

Golani, D., Orsi-Relini, L., Massuti, E. & Quignard, J.P., 2002. *CIESM atlas of exotic species in the Mediterranean*. Vol. 1. *Fishes* (ed. F. Briand). Monaco: CIESM Publishers.

Hubbs, C.C. & Lagler, K.F., 1947. Fishes of the Great Lakes region. *Bulletin of the Cranbrook Institute of Sciences*, **26**, VI+186 pp.

Ismail, W.A. & Clayton, D.A., 1990. Biology of *Omobranchus punctatus* (Blenniidae) on rocky shores in Kuwait. *Cybium*, **14**, 285–293.

Kawaguchi, T., Kohono, H., Fujita, K. & Taki, Y., 1999. Early morphological development of *Omobranchus fasciolatoceps* and *O. punctatus* (Bleniidae: Omobranchini) reared in an aquarium. *Ichthyological Research*, **46**, 163–170.

Por, F.D., Steinitz, H., Ferber, I. & Aron, W., 1972. The biota of the Red Sea and the eastern Mediterranean (1967–1972). A survey of the marine life of Israel and surroundings. *Israel Journal of Zoology*, **21**, 459–523.

Smith, J.L.B., 1959. Fishes of the Families Blenniidae and Salariidae of the Western Indian Ocean. *Rhodes University, Department of Ichthyology, Ichthyological Bulletin*, **14**, 229–252.

Springer, V.G. & Gomon, M.F., 1975. Revision of the blenniid fish genus *Omobranchus* with description of three new species and notes on other species of the tribe Omobranchini. *Smithsonian Contributions to Zoology*, **177**, 1–135.

Wonham, M.J., Carlton, J.T., Ruiz, G.M. & Smith, L.D., 2000. Fish and ships: relating dispersal frequency to success in biological invasions. *Marine Biology*, **136**, 1111–1121.

Submitted 27 November 2003. Accepted 30 April 2004.