FIRST RECORD OF THE INDO-WEST PACIFIC SPOTTED SCAT SCATOPHAGUS ARGUS (ACANTHURIFORMES, SCATOPHAGIDAE) FROM THE CANARY ISLANDS (EAST-CENTRAL ATLANTIC)

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ABSTRACT: The Indo-West Pacific spotted scat Scatophagus argus (Acanthuriformes, Scatophagidae) is reported for the first time in the Canary Islands (eastern-central Atlantic). This record is based on the sighting of an individual in 2017, which was photographed swimming in shallow waters off the northeastern coast of Gran Canaria. along a route with heavy maritime traffic. In addition to ballast water and organisms transported by oil platforms, the specimen may have been released from an aquarium. No further sightings or captures of this species have been recorded.

KEYWORDS: Spotted scat / non-native species / East Atlantic. **RESUMEN:** El pez pingo manchado Scatophagus argus (Acanthuriformes, Scatophagidae), originario del Indo-Pacífico occidental, se cita por primera vez en las Islas Canarias (Atlántico centro-oriental). Este registro se basa en el avistamiento de un ejemplar en 2017, que fue fotografiado nadando en aguas someras frente a la costa noreste de Gran Canaria, en una ruta que soporta tráfico marítimo intenso. Además de las aguas de lastre y los organismos transportados por las plataformas petrolíferas, es posible que el ejemplar haya sido liberado desde un acuario. No se tiene noticia de nuevas observaciones o capturas de esta especie.

PALABRAS CLAVE: Pingo manchado / pez exótico / Atlántico Este.

INTRODUCTION

Scatophagidae Gill, 1883 (scats) is an Indo-Pacific acanthuriform family, which includes two valid genera and three valid species (Eschmeyer & Fong, 2024; Fricke et al., 2024). These species grow to about 35 cm in maximum length and have compressed, deep bodies, similar in appearance to butterflyfishes. They feed on algae and feces and are commonly kept in freshwater aquariums (Nelson, 1994).

The genus *Selenotoca* Myers, 1936 is represented by *Selenotoca multifasciata* (Richardson, 1846), a brackish and marine species distributed in the southeastern Indian Ocean and the western Pacific. *Selenotoca papuensis* Fraser-Brunner, 1938 is considered a synonym of *S. multifasciata* (Kottelat, 2013: 439; Fricke **et al., 2024**).

The genus *Scatophagus* Cuvier, 1831 is represented by two tropical, shallow-water species, with their respective distribution and habitat details (Fricke et al., 2024; Froese & Pauly, 2024):

• *Scatophagus tetracanthus* (Lacepède, 1802) (Scatty). Distribution: Indo-West Pacific – Eastern Cape and KwaZulu-Natal (South Africa), East Africa, and Madagascar, extending east to Papua New Guinea and south to northern Australia. Habitat: freshwater, brackish, and marine environments. Benthopelagic; depth range 0–5 m.

• *Scatophagus argus* (Linnaeus, 1766) (Spotted scat). Distribution: Southern Red Sea (Yemen); Indo-West Pacific – Persian Gulf, east to the Society Islands (French Polynesia), north to Korea and central Japan, and south to northern Australia and New Caledonia. Habitat: freshwater, brackish, and marine environments. Demersal; depth range 0–5 m.

This ichthyological note reports for the first time the presence of the Indo-West Pacific Spotted scat, *Scatophagus argus* (Acanthuriformes, Scatophagidae), in the Canary Islands (eastern-central Atlantic).

MATERIAL AND METHODS

In 2017, the first author, an experienced diver and photographer, obtained an image of an acanthuriform fish that we confirmed as non-native to the waters of the Canary Islands and could not identify as any of the exotic species previously recorded (Brito, 1991; Brito et al., 2002; Báez et al., 2019; Freitas et al., 2019; Falcón et al., 2023) in the archipelago.

Although the specimen was unfortunately not available in our laboratory, its distinctive morphology and colour pattern prompted us to identify the species in

question, for which we sought the assistance of an expert in this group of fish. The identification of the unknown fish was made with the invaluable assistance of Dr Ronald Fricke (see Acknowledgements section). This non-native fish was identified as *Scatophagus argus*.

The material examined consisted of an uncollected adult *Scatophagus argus*, about 20 cm in total length, which was observed and photographed swimming off the north-east coast of Gran Canaria, off the locality of Taliarte, municipality of Telde, 27°59′19.1″N 15°22′12.59″W, swimming along the wall of a rocky cliff covered by algal turf, at a depth of 4 m, on 3 May 2017 (**Fig. 1**).

SYSTEMATIC ACCOUNT

This systematic account follows the classification of 'Eschmeyer's Catalog of Fishes' (Fricke et al., 2024, https://www.calacademy.org):

Class ACTINOPTERI Order ACANTHURIFORMES Family Scatophagidae Gill, 1883 Genus *Scatophagus* Cuvier, 1831 *Scatophagus argus* (Linnaeus, 1766) (Fig. 1)



Fig 1. Scatophagus argus (Linnaeus, 1766) from the Canary Islands.

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Etymology.- The generic name *Scatophagus* derives from the Greek root *scat*, -o (meaning dung; phaga, to eat), referring to its "singular taste for human excrement" (translation) [although it is said to opportunistically feed on human waste dumped into the water, this behaviour has not been confirmed in diet studies]. As for the specific term, *Argus* is the Latinised form of the Greek name *Argos*, which most often refers to *Argos Panoptes*, the mythical hundred-eyed guardian of Io, whose eyes after death were transformed into the feathers of a peacock, referring to the brown to red-brown spots on the body [fainter or restricted to upper body in adults] (this information was taken from https://etyfish.org/acanthuriformes2/ and other online sources).

Short description.- Body quadrangular, strongly compressed. Dorsal head profile steep. Eye moderately large, its diameter somewhat smaller than snout length. Snout rounded. Mouth small, horizontal. Dorsal fin deeply notched. Dorsal and anal fins spiny anteriorly, soft posteriorly. Ground colour greenish. Juveniles with a few large roundish blotches, about size of eye, or with about 5 or 6 broad, dark, vertical bars. In large adults, spots may be faint and restricted to dorsal part of flanks (Kottelat, 2001). The main photograph by Dr. J. E. Randall, selected to illustrate adult specimens of the species in the FishBase global database (Froese & Pauly, 2024), clearly matches the chromatic pattern described by Kottelat (2001). The image of the specimen examined in this study closely corresponds to these descriptions.

Remarks.- Scatophagus argus is a tropical species, ranging between 35°N and 33°S, and 48°E to 171°W (Froese & Pauly, 2024). It is an Indo-West Pacific species found demersally in shallow waters between the coastline and 5 m depth, amphidromous in freshwater, brackish, and marine environments (Fricke et al., 2024; Froese & Pauly, 2024), typically in water temperatures between 20°C and 28°C (Riehl & Baensch, 1996). It inhabits harbours, natural embayments, brackish estuaries, and the lower reaches of freshwater streams, frequently occurring among mangroves. The maximum recorded length is 45 cm TL (Froese & Pauly, 2024), and it is known to be a multiple spawner (Cai et al., 2010). It feeds on worms, crustaceans, insects, and plant matter (Mills & Vevers, 1989; Kuiter & Tonozuka, 2001; Allen et al., 2002). The dorsal, anal, and pelvic spines are believed by Philippine fishers to be venomous and capable of inflicting painful wounds (Herre, 1935). It is used in Chinese medicine (Tang, 1987) and found in live fish markets in Hong Kong (Lee & Sadovy, 1998). The species is also marketed fresh (Rainboth, 1996).

DISCUSION

The discovery of this specimen of *Scatophagus argus* marks the first recorded occurrence of the family Scatophagidae, the genus *Scatophagus*, and this tropical Indo-West Pacific species in the Canary Islands.

In fact, it is also the first record of this species for the Atlantic Ocean, although its presence as an invasive species in the Maltese Islands (central Mediterranean) since at least 2007 has been reported by Zammit & Schembri (2011). Given that this species has also been regularly imported into Malta by the aquarium trade since at least 1986, an escape or deliberate release by an aquarist seems to be the most probable mode of introduction. It is surprising that this euryhaline species, which requires brackish water to complete its life cycle, has become established in Malta, where there is a lack of such habitats (Zammit & Schembri, 2011).

A question arises as to how *S. argus* managed to reach the Canary Islands. The only plausible hypothesis explaining its occurrence involves human-mediated introduction. One possibility is the transport of fish larvae through ship ballast water (e.g., Lockett & Gomon, 2001; Galil et al., 2011). Another could be the transport of juvenile, subadult, or adult fish on oil platforms (e.g., Friedlander et al., 2014). However, we have been able to confirm that *S. argus* is a relatively common species in the aquarium trade in the Canary Islands and, given its status as an invasive species in Malta (Zammit & Schembri, 2011), the scenario of an escape or deliberate release by an aquarist seems quite likely.

What could the presence of *S. argus* mean for the coastal fauna of Gran Canaria in the future? No new sightings or captures of this species have been recorded since 2017, and as far as we know, this has been the occurrence of a single individual (and therefore limited to a specific locality). However, the documented invasion in Malta, where occasional catches of some individuals in gillnets and their commercialisation in the fish market have been reported, is both unexpected (Zammit & Schembri, 2011) and concerning. Therefore, short, medium, and long-term studies and observations are needed to understand the dynamics of fish establishment or invasions, particularly those species with demonstrated or potential invasive characteristics.

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Dr Ronald (Ron) Fricke is currently employed at the Department of Zoology, State Museum of Natural History Stuttgart, where he serves as the senior curator for the Section Ichthyology. In this role, he conducts research on the taxonomy, distribution, and evolution of fishes. His major projects include editing Eschmeyer's Catalog of Fishes online and creating an electronic archive of ichthyological literature. The authors are grateful for their valuable help in the identification of the acanthuriform fish studied in this Note.

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