

SHORT COMMUNICATION

**An old Mediterranean record of *Gaidropsarus granti* (Regan, 1903)**

**Carlo Pipitone<sup>1,2\*</sup>, Giovanni D'Anna<sup>2,3</sup>**

**ORCID IDs:** C.P. 0000-0002-7632-1228; G.D. 0000-0002-8644-8222

<sup>1</sup> CNR-IAS, Lungomare Cristoforo Colombo 4521, 90149 Palermo, ITALY

<sup>2</sup> NBFC, National Biodiversity Future Centre, Palermo, ITALY

<sup>3</sup> CNR-IAS, via Giovanni da Verrazzano 17, 91014 Castellammare del Golfo, ITALY

**\*Corresponding author:** carlo.pipitone@cnr.it

---

**Abstract**

Two individuals of a rare fish species, *Gaidropsarus granti*, were collected in 1991 in the central Mediterranean Sea at 450 m depth. This species is considered typical of seamounts and deep-coral habitats, although it has been occasionally collected on soft bottoms. The insufficient records do not allow to ascertain its biogeographical status, and it is generally considered as a cryptogenic species. The present finding should be considered chronologically the third record of *G. granti* from the Mediterranean.

**Keywords:** Grant's rockling, seamounts, fish fauna, Strait of Sicily

**Received:** 20.08.2024, **Accepted:** 08.10.2024

---

Seamounts are peculiar seabed structures that provide unique features and offer a suitable habitat to a vast array of pelagic and benthic organisms (Pitcher *et al.* 2007). While pelagic biota associated with such habitats is not qualitatively different from the surrounding water column, benthic organisms find conditions that allow for a high rate of endemism (Stocks and Hart 2007). Pelagic and benthopelagic fish tend to aggregate around seamounts and support valuable deep-sea fisheries that are the object of dedicated surveys and management actions (Morato and Clark 2007), but smaller sized benthic fish often remain overlooked and are much less known due to the difficulties inherent in sampling deep, rough-bottom habitats. Grant's rockling, *Gaidropsarus granti* (Regan, 1903) (Teleostei, Gaidropsaridae), is an example of this offshore benthic fish fauna. The genus *Gaidropsarus* currently includes 14 species, 9 of which occur in the northeastern Atlantic and the Mediterranean, and is considered a problematic group in need of taxonomic revision (Francisco *et al.* 2014; Barros-García *et al.* 2022). Until the mid-1980s *G. granti* was known only from the

Azores and Canaries (NE Atlantic), where it was depicted as “probably” living between 20 and 50 m depth (Svetovidov 1986). Almost 20 records published successively, most of which from the Mediterranean, come from a depth range between 120 and 900 m and from a variety of habitats on both soft and hard bottoms (see Bañón *et al.* 2020 for a map of NE Atlantic and Mediterranean findings until then).

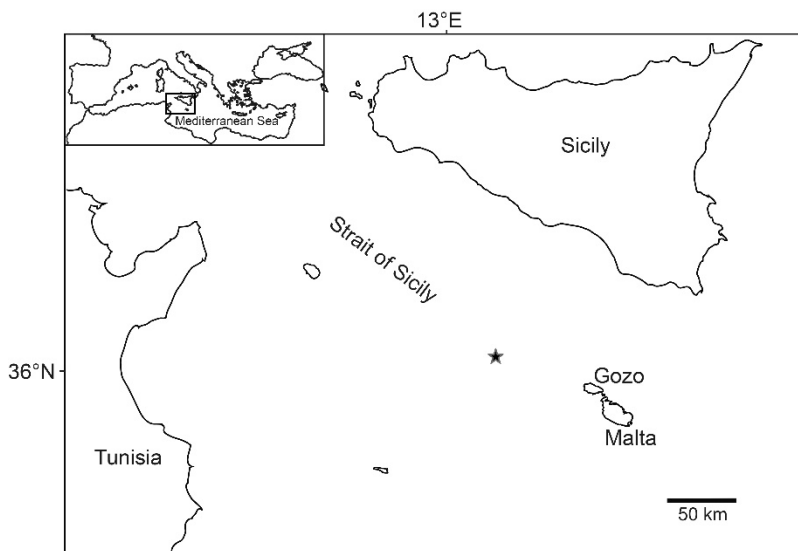
The present note reports a 1991 finding of *G. granti* from the central Mediterranean that remained overlooked and unpublished until now.

On March 12, 1991 two individuals of *Gaidropsarus granti* (Figure 1) were caught during a bottom trawl survey conducted by CNR-ITPP with the F/V Sant’Anna in the Strait of Sicily at about 450 m depth, 67 km NW of Gozo (36.244305°N 13.469280°E) (Figure 2). The habitat is unknown, but due to grasping and consequent damage to the trawl net during its hauling, it is very likely that there was a rocky formation of limited extension amid the surrounding muddy bottom.



**Figure 1.** *Gaidropsarus granti* collected in the Strait of Sicily. Specimen of 245 mm (total length).

The two specimens were measured 258 and 245 mm (total length), 238 and 222 mm (standard length), 129.8 and 112.8 g (total weight), respectively. Following Bañón *et al.* (2022) the principal morphometric measurements and meristic counts were collected on the 258 mm specimen (Table 1), but not on the 245 mm specimen because of partial body deformation after preservation. Most parameters fell within the known range for the species (Bañón *et al.* 2022), except for a few that diverged slightly.



**Figure 2.** Map of study area. The black star indicates the collection site of the specimens of *Gaidropsarus granti*.

Both individuals were fixed in 4% formalin and seawater solution, then preserved in 70% ethanol, until their recent rediscovery in the repository of the CNR-IAS laboratory in Castellammare del Golfo (Trapani), Italy.

Our record should be considered chronologically the third Mediterranean finding of *Gaidropsarus granti*, after two individuals caught in the Ligurian Sea in 1989 and 1990 (Orsi Relini and Relini 2014). Our finding actually preceded the first Mediterranean record of November 1995, i.e. one individual caught by a professional fisherman at 360–400 m depth on a sandy bottom off Rhodes, southeastern Aegean Sea and published four years later (Zachariou-Mamalinga 1999).

*Gaidropsarus granti* is associated with seamounts and offshore rocky bottoms (Bañón *et al.* 2010; Orsi Relini and Relini 2014; Bello 2018). Such habitats are difficult to investigate and hardly the object of scientific surveys. This could be the reason for the infrequent records of this species, generally found as single isolated individuals. It was yet noted that a part of the Mediterranean findings come from soft bottoms, generally coarse sand, gravel or detritus on the shelf break or the continental slope, which are generally target areas for commercial fishing; regardless, the records of *G. granti* are still very few and scattered in space and time. Indeed fishermen have been by far the most frequent source of samples and information about this species in the Mediterranean, with only one record from scientific fishing surveys (Mura and Cau 2003) and two from ROV (remotely operated vehicle) video-surveys (Aguilar *et al.* 2013; Bilan and Grinyó

2020), confirming the important role of citizen science, by fishermen in this case, in the monitoring of rare species at sea.

**Table 1.** Morphometric measurements and meristic counts in *Gaidropsarus granti* specimen collected in the Strait of Sicily. The specimen was 245 mm (total length) and 238 mm (standard length). Asterisks indicate parameters that diverge slightly from previous studies.

	As % of standard length
Head length	23.8
Third predorsal length	33.8
Second dorsal fin base length*	12.6
Anal fin base length*	40.9
Pectoral fin length	14.7
Pelvic fin length	19.5
Preanal length	53.6
Body depth*	15.9
Caudal peduncle height	6.1
	As % of head length
Snout length	24.0
Eye diameter	14.6
Postorbital length*	63.5
Interorbital space	15.5
Upper jaw length*	46.7
Lower jaw length*	43.9
Chin barbel length	26.6
First dorsal-fin ray length	13.8
	Meristic counts
Third dorsal fin rays	59
Anal fin rays	48
Pectoral fin rays	21
Pelvic fin rays	8

Due to the uncertain actual distribution area of *G. granti*, there is no agreement about its biogeographical status, i.e., an Atlantic species that has gradually extended its distribution range across the Mediterranean favored by unknown factors, or rather a native Mediterranean and eastern Atlantic species that is simply uncommon and difficult to catch or observe (Orsi Relini and Relini 2014). Both mentioned theories have some support (see Bello 2018 for a deep insight into this matter). Deidun *et al.* (2021) and Golani *et al.* (2021) consider it cryptogenic on the basis of the scanty data available. Mediterranean records, in fact, have slightly but gradually increased, with the latest published account regarding two individuals collected not far from our sampling site in May 2021 (Vella *et al.* 2021).

Morphological identification of individuals of the genus *Gaidropsarus* may be difficult due to the variable color pattern in juveniles, and to the highly conservative morphological characteristics within the genus (Bañón *et al.* 2022).

The morphometric measurements and meristic counts made on one of our specimens agree with previously published data and support the taxonomic identification (Knorrn *et al.* 2024). Also, the color pattern, which is very peculiar and recognizable (see Figure 1) is considered a good taxonomic characteristic for this species (“back brown, with irregular brown creamy blotches and spots and a whitish longitudinal sinuous band along upper flank” as described by Bañón *et al.* (2022), p. 11).

The systematics of the genus is still unclear, due to the scarcity of samples throughout their distribution range (Knorrn *et al.* 2024), although *G. granti* is currently accepted as a valid species closely related to the congeneric and partially sympatric *G. vulgaris* (Cloquet, 1824) (Barros-García *et al.* 2018).

### Acknowledgements

The authors wish to thank the fishing crew and the CNR technical staff that assisted during the trawl survey on F/V Sant’Anna. Mr. Giuseppe Di Stefano helped with the morphometric measurements and meristic counts.

**Competing Interest:** No potential conflict of interest was reported by the authors.

**Ethics Committee Approval:** There is no necessity for ethical approval for this research.

**Financial Disclosure:** This research did not receive any specific grant.

**Author Contribution:** G.D. collected the two specimens of *Gaidropsarus granti*. C.P. drafted the manuscript. Both authors edited and reviewed the manuscript.

### References

- Aguilar, R., Pastor, X., Garcia, S., Marin, P., Ubero, J. (2013) Importance of seamounts-like features for Mediterranean marine habitats and threatened species. *Rapports de la Commission internationale pour la Mer Méditerranée* 40: 716.
- Bañón, R., Baldo, F., Serrano, A., Barros-Garcia, D., De Carlos, A. (2022) *Gaidropsarus gallaeciae* (Gadiformes: Gaidropsaridae), a new Northeast Atlantic rockling fish, with commentary on the taxonomy of the genus. *Biology* 11: 860.
- Bañón, R., De Carlos, A., Ruiz-Pico, S., Baldó, F. (2020) Unexpected deep-sea fish species on the Porcupine Bank (NE Atlantic): biogeographical implications. *Journal of Fish Biology* 97: 908-913.
- Bañón, R., Villegas-Rios, D., Serrano, A., Mucientes, G., Arronte, J.C. (2010) Marine fishes from Galicia (NW Spain): an updated checklist. *Zootaxa* 2667: 1-27.
- Barros-Garcia, D., Bañón, R., Carlos Arronte, J., Fernandez-Peralta, L., Garcia, R., Iglesias, S.P., Sellos, D.Y., Barreiros, J.P., Sebastian Comesana, A., De

Carlos, A. (2018) New insights into the systematics of North Atlantic *Gaidropsarus* (Gadiformes, Gadidae): flagging synonymies and hidden diversity. *Marine Biology Research* 14: 17-29.

Barros-Garcia, D., Comesaña, A.S., Bañón, R., Baldo, F., Carlos Arronte, J., Froufe, E., De Carlos, A. (2022) Multilocus species delimitation analyses show junior synonyms and deep-sea unknown species of genus *Gaidropsarus* (Teleostei: Gadiformes) in the North Atlantic/Mediterranean Sea area. *Marine Biology* 169: 131.

Bello, G. (2018) Documented records of *Gaidropsarus granti* (Osteichthyes: Lotidae) in the Adriatic Sea and review of its Mediterranean occurrences: is it a native fish or a newly established one? *Acta Adriatica* 59: 111-122.

Bilan, M., Grinyó, J. (2020) First record of *Gaidropsarus granti* (Regan, 1903) in Blanes Canyon, Catalan margin. In: Bo, M., Al Mabruk, S.A.A., Balistreri, P., Bariche, M., Batjakas, I.E., Betti, F., Bilan, M., Canese, S., Cattaneo-Vietti, R., Corsinifoka, M., Crocetta, F., Deidun, A., Dulčić, J., Grinyo, J., Kampouris, T.E., Ketsilis-Rinis, V., Kousteni, V., Koutsidi, M., Lubinevsky, H., Mavruk, S., *et al.* New records of rare species in the Mediterranean Sea (October 2020). *Mediterranean Marine Science* 21(3): 608-630.

Deidun, A., Insacco, G., Galdies, J., Balistreri, P., Zava, B. (2021) Tapping into hard-to-get information: the contribution of citizen science campaigns for updating knowledge on range-expanding, introduced and rare native marine species in the Malta-Sicily Channel. *BioInvasion Records* 10: 257-269.

Francisco, S.M., Robalo, J.I., Stefanni, S., Levy, A., Almada, V.C. (2014) *Gaidropsarus* (Gadidae, Teleostei) of the North Atlantic Ocean: a brief phylogenetic review. *Journal of Fish Biology* 85: 473-487.

Golani, D., Azzurro, E., Dulcic, J., Massuti, E., Orsi Relini, L. (2021) Atlas of the Exotic Fishes in the Mediterranean Sea, 2nd Edition. CIESM, Monaco.

Knorrn, A.H., Beuck, L., Barros-Garcia, D., Fernandez-Peralta, L., Freiwald, A. (2024) *Gaidropsarus mauritanicus* (Gadiformes, Gaidropsaridae) a new three-bearded rockling from a deep-water coral ecosystem with a genetically verified biogeographical distribution of the genus and notes to its ecology and behavior. *Journal of Fish Biology* 105(6): 1643-1665.

Morato, T., Clark, M.R. (2007) Seamount fishes: Ecology and life histories. In: Seamounts: Ecology, Fisheries & Conservation, (eds., Pitcher, T.J., Morato, T., Hart, P.J.B., Clark, M.R., Haggan, N., Santos, R.S.), Blackwell Publishing, Oxford, UK., pp. 170-188.

Mura, M., Cau, A. (2003) Sulla presenza di *Gaidropsarus granti* (Regan, 1903) (Osteichthyes, Gadidae) nel Mediterraneo centro occidentale. *Biologia Marina Mediterranea* 10: 866-869.

Orsi Relini, L., Relini, G. (2014) *Gaidropsarus granti* from a Ligurian seamount: a Mediterranean native species? *Marine Ecology* 35 (Suppl. 1): 35-40.

Pitcher, T.J., Morato, T., Hart, P.J.B., Clark, M.R., Haggan, N., Santos, R.S. (Eds.) (2007) *Seamounts: Ecology, Fisheries & Conservation*. Blackwell Publishing, Oxford, UK.

Stocks, K.I., Hart, P.J.B. (2007) Biogeography and biodiversity of seamounts. In: *Seamounts: Ecology, Fisheries & Conservation*, (eds., Pitcher, T.J., Morato, T., Hart, P.J.B., Clark, M.R., Haggan, N., Santos, R.S.), Blackwell Publishing, Oxford, UK., pp. 255-281.

Svetovidov, A.N. (1986) Gadidae. In: *Fishes of the North-eastern Atlantic and the Mediterranean*, vol. II, (eds., Whitehead, P.J.P., Bauchot, M.L., Hureau, J.C., Nielsen, J., Tortonese, E.), Unesco, Paris, pp. 680-710.

Vella, A., Vella, N., Agius Darmanin, S. (2021) Grant's rockling *Gaidropsarus granti* (Regan, 1903) (Gadiformes: Gaidropsaridae) in the central Mediterranean, with new record from Malta. In: Tsagarakis, K., Agius Darmanin, S., Al Mabruk, S.A.A., Auriemma, R., Azzurro, E., Badouvas, N., Bakiu, R., Bariche, M., Battaglia, P., Betti, F., Borme, D., Cacciamani, R., Calì, F., Corsini-Foka, M., Crocetta, F., Dalyan, C., Deidun, A., Digenis, M., Domenichetti, F., Dragičević, B., *et al.* New records of rare species in the Mediterranean Sea (October 2021). *Mediterranean Marine Science* 22(3): 627-652.

Zachariou-Mamalinga, H. (1999) The occurrence of the Atlantic fish *Gaidropsarus granti* in the Mediterranean Sea (south-eastern Aegean Sea, Dodecanese, Greece, eastern Mediterranean). *Annales Musei Goulandris* 10: 261-266.