

## Revision of the subgenus *Parapterygotrigla* (Pisces: Triglidae: *Pterygotrigla*)

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### Abstract

The subgenus *Parapterygotrigla* of the triglid genus *Pterygotrigla* is revised with a description of a new species. The subgenus comprises *P. hoplites*, *P. jacad* sp. nov., *P. megalops*, *P. macrorhynchus*, *P. multiocellata*, and *P. robertsi*. Two juvenile forms considered to be *incertae sedis* *Dixiphichthys ferculum* Whitley, and two larval triglids, are discussed together with *Trigla brandesii* (Bleeker). Members of the subgenus *Parapterygotrigla* are distributed in tropical waters of the western Pacific and Indian oceans. All species possess a nasal spine, have long and strong nuchal and cleithral spines and short opercular spines. A new species, *P. jacad*, found in the western Indian Ocean, has an unusually large eye. All members of the subgenus are rare in collections as they live on the bottom in deep water (>200 m) over rough terrain and are rarely taken by trawlers.

**Key words:** Pisces, Triglidae, *Pterygotrigla*

### Introduction

The genus *Pterygotrigla* (Triglidae: *Pterygotriglinae*) now comprises three subgenera that have at times been considered as separate genera. Richards & Jones (2002), in their preliminary classification, recognized *Pterygotrigla*, *Bovitrigla* and *Uradia* in the Indo-Pacific subfamily *Pterygotriglinae*. Subsequently Richards *et al.* (2003) revised the *Pterygotrigla* subgenus *Otohime*, Last & Richards (2012) and Richards & Yato (2012) revised the tropical species of the subgenus *Pterygotrigla*, and this paper revises the subgenus *Parapterygotrigla*.

All members of the subgenus *Parapterygotrigla* are deep dwelling benthic fishes (>200 m) and are mostly very rare in collections. Several species are known only from very few specimens, and a new species is described here based on 3 specimens. We provide a synonymy, diagnosis, and species key for the subgenus *Parapterygotrigla* and for each species we provide synonymies, illustrations, diagnoses, descriptions, and distributions. The group includes: *P. hoplites* (Fowler 1938), *P. jacad* sp. nov., *P. macrorhynchus* Kamohara 1936, *P. megalops* (Fowler 1938), *P. multiocellata* (Matsubara 1937), and *P. robertsi* del Cerro & Lloris 1997. *Trigla brandesii* Bleeker 1850 is herein tentatively assigned to the subgenus *Parapterygotrigla*, as it is known from a very brief description and the type is lost. An unassigned juvenile triglid taxa, *Dixiphichthys ferculum* Whitley 1952, and two undescribed larvae, are discussed. Color images of species are very rare so limited data on coloration are noted in the species accounts: a few color photographs have been published of *P. multiocellata* and one of *P. megalops*; a specimen of *P. multiocellata* in an unpublished color image from Saipan is described below. Future efforts should be made to obtain images of fresh material and make detailed notes on coloration, especially of the color of the inner surface of the pectoral fin which is diagnostic for many triglids.

### Material and methods

Counts and measurements follow Richards *et al.* (2003) and museum abbreviations follow Leviton *et al.* (1985). In some specimens the first D<sub>2</sub> and A fin elements appear spine-like, but are considered as rays as the determination is

## References

- Bleeker, P. (1850) Over eenige nieuwe soorten van Scleroparei van den Indischen archipel. *Natuurkundig Tijdschrift van Nederlandsch-Indië*, I, 1–16.
- De Beaufort, L.-F. & Briggs, J.C. (1962) Scleroparei, Hypostomides, Pediculati, Plectognathi, Opisthomii, Discocephali, Xenopterygii. In: Weber, M. & De Beaufort, L.F. (Eds.), *The Fishes of the Indo-Australian Archipelago*. Vol. 11. E.J. Brill, Leiden, pp. i–xi, 1–481.
- del Cerro, L. & Lloris, D. (1997) Gurnard fishes (Scorpaeniformes, Triglidae) from off New Caledonia, with descriptions of five new species. In: Séret, B. (Ed.), *Résultats des Campagnes Musorstrom*. Vol. 17. *Mémoires du Musée National d'Histoire Naturel*, 174, pp. 91–124.
- Fowler, H.W. (1938) Descriptions of new fishes obtained by the United States Bureau of Fisheries steamer "Albatross", chiefly in Philippine seas and adjacent waters. *Proceedings of the United States National Museum*, 85 (3032), 31–135.  
<http://dx.doi.org/10.5479/si.00963801.85-3032.31>
- Hutchins, J.B. (2001) Checklist of the Fishes of Western Australia. *Records of the Western Australian Museum Supplement No. 63*, 9–50.
- Kamohara, T. (1936) On a new fish of the Triglidae from Kochi, Japan. *Dobutsugaku Zasshi [Zoological Magazine Tokyo]*, v. 48 (nos. 8–10), 481–483. [in Japanese, English summary]
- Kamohara, T. (1938) On the offshore bottom-fishes of Prov. Tosa, Shikoku, Japan. *Maruzen Kobushiki Kaisha, Tokyo*. Pp. 1–86.
- Kamohara, T. (1952) Revised descriptions of the offshore bottom-fishes of Prov. Tosa, Shikoku, Japan. *Reports of the Kochi University Natural Science*, (3), 122 pp.
- Kamohara, T. (1958) A catalogue of fishes of Kochi Prefecture (Province Tosa), Japan. *Report of the Usa Marine Biological Station*, 5 (1), 1–76.
- Kamohara, T. (1961) Notes on the type specimens of fishes in my laboratory. *Report of the Usa Marine Biological Station*, 8 (2), 1–9, Pls. 1–7.
- Kamohara, T. (1964) Revised catalogue of fishes of Kochi Prefecture, Japan. *Report of the Usa Marine Biological Station*, 11 (1), 1–99.
- Kottelat, M. (2011) Pieter Bleeker in the Netherlands East Indies (10 March 1842, ca. 21 September 1860): new biographical data and a chronology of his zoological publications. *Ichthyological Exploration of Freshwaters*, 22 (1), 11–94.
- Kuronuma, K. (1939) A study of the Triglidae of Japan. *Bulletin of the Biogeographical Society of Japan*, 9, 223–260.
- Last, P.R. & Richards, W.J. (2012) Two new gurnards of the genus *Pterygotrigla* (Scorpaeniformes: Triglidae) from Australian seas. *Zootaxa*, 3195, 39–50.
- Leviton, A.F., Gibbs, Jr., R.H., Heal, E. & Dawson, C.E. (1985) Standards in herpetology and ichthyology: part I. Standard symbolic codes for institutional resource collections in herpetology and ichthyology. *Copeia* 1985, 802–832.
- Mandrytza, S.-A. & Manilo, L.-G. (1990) New records of scorpaenoid fishes in the Arabian Sea. *Novosti Faunistiki I Sistematički*. Kiev: Naukova Dumka, pp. 171–173.
- Manilo, L.G. & Bogorodsky, S.V. (2003) Taxonomic composition, diversity and distribution of coastal fishes of the Arabian Sea. *Journal of Ichthyology*, 43 (Supplement. 1): S75–S149.
- Masuda, H., Amaoka, K., Araga, C., Uyeno, T. & Yoshino, T. (1984) The fishes of the Japanese Archipelago. *Tokai University Press Fishes of the Japanese Archipelago* Text: i–xxii + 1–437, Atlas: Pls. 1–370.
- Matsubara, K. (1937) Studies on the deep-sea fishes of Japan. V. Diagnosis of a new mail-cheeked fish, *Parapterygotrigla multiocellata* n. g., n. sp., belonging to Triglidae. *Dobutsugaku Zasshi [Zoological Magazine Tokyo]*, 49 (7), 266–267.
- Myers, R.F. & Donaldson, T.J. (2003) The fishes of the Mariana Islands. *Micronesica*, 35–36, 98–652.
- Nakabo, T. (2000) (Ed.) Fishes of Japan with pictorial keys to the species. Second edition. *Tokai University Press. Fishes of Japan Pictures Keys Species*, 1: i–lvi + 1–866. [in Japanese]
- Nakabo, T. (2002) (Ed.) Fishes of Japan with pictorial keys to the species, English edition. *Tokai University Press. Fishes of Japan Pictures Keys Species*, 1: i–lxi + 1–866. [This edition has some nomenclatural changes from the 2000 Japanese edition.]
- Paxton, J.R., Hoese, D.F., Allen, G.R. & Hanley, J.E. (1989) Zoological Catalogue of Australia. Volume 7. Pisces. Petromyzontidae to Carangidae. *Australian Government Publishing Service, Canberra. Zoological Catalogue of Australia*, 7, i–xii + 1–665.
- Paxton, J.R., Gates, J.E., Bray, D.J., Gomon, M.F. & Hoese, D.F. (2006) Triglidae (288). In: Beesley, P.L. & Wells, A. (Eds.), *Zoological Catalogue of Australia*. Vol. 35. Part 2. Australian Government Publishing Service, Canberra, pp. 921–930.
- Richards, W.J. (1999) Triglidae. In: Carpenter, K.E. & Niem, V.H. (Eds.), FAO Species Identification Guide for Fishery Purposes. *The Living marine Resources of the Western Tropical Pacific*, 4 (2), pp. 2359–2382 [Distributed 2000]
- Richards, W.J. (2000) Family Triglidae, Family Peristediidae. In: Randall, J.E. & Lim, K.K.P. (Eds.), A Checklist of the fishes of the South China Sea. *The Raffles Bulletin of Zoology*, Supplement (8), pp. 606–607.
- Richards, W.J. & Jones, D.L. (2002) Preliminary classification of the gurnards (Triglidae: Scorpaeniformes). *Marine and Freshwater Research*, 53, 275–282.
- Richards, W.J. & Yato, T. (2012) The tropical species of the subgenus *Pterygotrigla* (Pisces: Triglidae: *Pterygotrigla*) with description of a new species. *Zootaxa*, 3484, 53–64.

- Richards, W.J., Leis, J.M. & Trnski, T. (2000) Triglidae — Gurnards, Sea Robins. In: Leis, J.M. & Carson-Ewart, B.M. (Eds.), *The larvae of Indo-Pacific coastal fishes. An identification guide to marine fish larvae. (Fauna Malesiana Handbooks 2)*. E.J. Brill, Leiden, pp. 255–260
- Richards, W.J., Yato, T. & Last, P.R. (2003) Revision of the gurnard fish subgenus *Otohime* (Triglidae, *Pterygotrigla*). *Smithiana Bulletin*, 2, 1–18.
- Shen, S.C. (1984) *Coastal Fishes of Taiwan*. National Taiwan University, Taipei, Taiwan, 190 pp.
- Shinohara, G., Endo, H., Matsuura, K., Machida, Y. & Honda, H. (2001) Annotated Checklist of the Deepwater Fishes from Fishes from Tosa Bay, Japan. *National Science Museum Monographs*, [20], 283–343.
- Shinohara, G., Sato, T., Aonuma, Y., Horikawa, H., Matsuura, K., Nakabo, T. & Sato, K. (2005) Annotated checklist of deep-sea fishes from the waters around the Ryukyu Islands, Japan. Deep-sea fauna and pollutants in the Nansei Islands. *National Science Museum Monographs*, (29), 385–452.
- Smith-Vaniz, W.F., Kaufman, L.S. & Glowacki, J. (1995) Species-specific patterns of hyperostosis in marine teleost fishes. *Marine Biology*, 121, 573–580.  
<http://dx.doi.org/10.1007/bf00349291>
- Spinger, V.G. (1982) Pacific Plate biogeography, with special reference to shorefishes. *Smithsonian Contributions in Zoology*, No.367, 1–182.  
<http://dx.doi.org/10.5479/si.00810282.367>
- Suzuki, T. & Hosokawa, M. (1994) First recorded fish species from the Sea of Japan. *I.O.P. Division of News*, 5 (4) [Apr.], 2–6. [in Japanese; English abstract]
- Whitley, G.P. (1952) Some noteworthy fishes from eastern Australia. *Proceedings of the Royal Zoological Society of New South Wales* [1950–51], 27–32.
- Whitley, G.P. (1953) Gurnards. *The Australian Museum Magazine*, March 15, 1953, pp. 24–29.
- Yatou, T. (1982) In: Okamura, O., Amaoka, K. & Mitani, F. (Eds.) Fishes of the Kyushu-Palau Ridge and Tosa Bay. The intensive research of unexploited fishery resources on continental slopes. *Japan Fisheries Resource Conservation Association, Tokyo. Fisheries Kyushu-Palau Ridge and Tosa Bay*, 435 pp. [In Japanese and English; various authors.]
- Yatou, T. (1985) In: Okamura, O., Machida, Y., T. Yamakawa, Matsuura, K. & Yatou, T. (Eds.) Fishes of the Okinawa Trough and the adjacent waters. Vol. 2. The intensive research of unexploited fishery resources on continental slopes. *Japan Fisheries Resource Conservation Association, Tokyo. Fisheries Okinawa Trough*, 2, 418–781, Pls. 206–418. [in Japanese, English summary]