

BRIEF
COMMUNICATIONS

**New Record of the Golden Grouper *Saloptia powelli*
(Perciformes: Serranidae) from North Sulawesi, Indonesia¹**

A. I. Burhanuddin^{a,*}, S. Hardianty^a, A. C. Malina^a, N. K. D. Cahyani^b, and S. J. Tucker^b

^aMarine Biology Laboratory, Faculty of Marine Science and Fisheries, Hasanuddin University,
Jl. Perintis Kemerdekaan Km 10 Makassar, Indonesia, 90245

^bIndonesian Biodiversity Research Centre (IBRC), Jl. Raya Sesetan Gg. Markisa No. 6. Denpasar,
Bali, Indonesia, 80223

*e-mail: iqbalburhanuddin@yahoo.com

Received December 14, 2015

Abstract—One specimen (300 mm in standard length) of *Saloptia powelli*, belonging to the family Serranidae, was newly collected in a local fish market in Manado, North Sulawesi, constituting a new record for the species in the Indonesian archipelago. This species was diagnosed by the following morphological traits: dorsal rays VIII – 11, anal rays III – 8, well-defined opercular spines, pelvic fins below pectoral fins, caudal fin emarginate, mouth moderate in size, supplemental maxillary present, fine teeth in irregular rows on vomer and palatines. Head, body, and fins yellow in color. We suggest “kerapu emas”, a translation of its existing common name “golden grouper”, for the Indonesian species names.

Keywords: new record, *Saloptia powelli*, Serranidae, North Sulawesi, Indonesia

DOI: 10.1134/S0032945217020035

INTRODUCTION

The golden grouper *Saloptia powelli* belongs to the family *Serranidae*, which is comprised of five subfamilies of 73 genera, 522 species that are distributed in tropical and temperate seas worldwide (Heemstra et al., 2003; Nelson, 2006; Eschmeyer et al., 2010). Among the 163 grouper fish species of the subfamily Epinephelinae, 46 species have been reported from Southeast Asia and 39 species in 7 genera from Indonesia (Craig et al., 2011; Habibi et al., 2011).

Golden grouper (*Saloptia powelli*) was collected from Cook Islands in the South Pacific, and reported as a new species by Smith (1964). This species is now known to be distributed from the Western Pacific to French Polynesia, including Okinawa, Taiwan, South China Seas, Mariana Islands, Society Islands, Cook Islands, American Samoa, Fiji, and Tuamotus (Heemstra, Randall, 2001). Recently, one specimen of *S. powelli* was caught by hook and line from the coastal waters of North Sulawesi, Indonesia. Here, we describe the morphological characters of *Saloptia powelli* as an addition to the list of Indonesian fishes.

MATERIALS AND METHODS

One specimen of *Saloptia powelli* was found at the Bersih Hati local fish market, Manado, North Sulawesi. The specimen had been collected by hook

and line on vessels that frequently fish as far as the Northern Maluku Island, Halmahera (Fig. 1). Counts and measurements generally followed Heemstra, Randall (1991). Tissue was collected from the caudal fin of the specimen and preserved in 96% ethanol. The present tissue sample and specimen were deposited at the Indonesian Biodiversity Research Center (IBRC), Denpasar, Bali, Indonesia. Molecular identification of the specimen was conducted using the polymerase chain reaction (PCR) of a 651 bp DNA fragment of the mitochondria cytochrome oxidase subunit I (mtCOI). DNA was extracted using 10% Chelex solution (Walsh et al., 1991) and PCR performed using a M13-tailed universal fish primer cocktail (VF2_t1, FishF2_t1, Fishr2_t1 (Ward et al. 2005), FR1d_t1 (Ivanova et al., 2007)). The DNA sequence of the mtCOI gene obtained from the present specimen was compared to that of *Saloptia powelli* (Accession ID: JQ432090) deposited in the National Center for Biological Information data base (NCBI). The genetic variation among sequences was assessed by eye using the program *Molecular Evolutionary Genetic Analysis*-MEGA 5.1 (Tamura et al., 2011).

***Saloptia powelli* Smith, 1964** – new
Indonesian name – “kerapu emas”
(Fig. 2, Table)

Saloptia powelli Smith, 1964. Fig. 1. Type locality –
Cook Island.

¹ The article is published in the original.

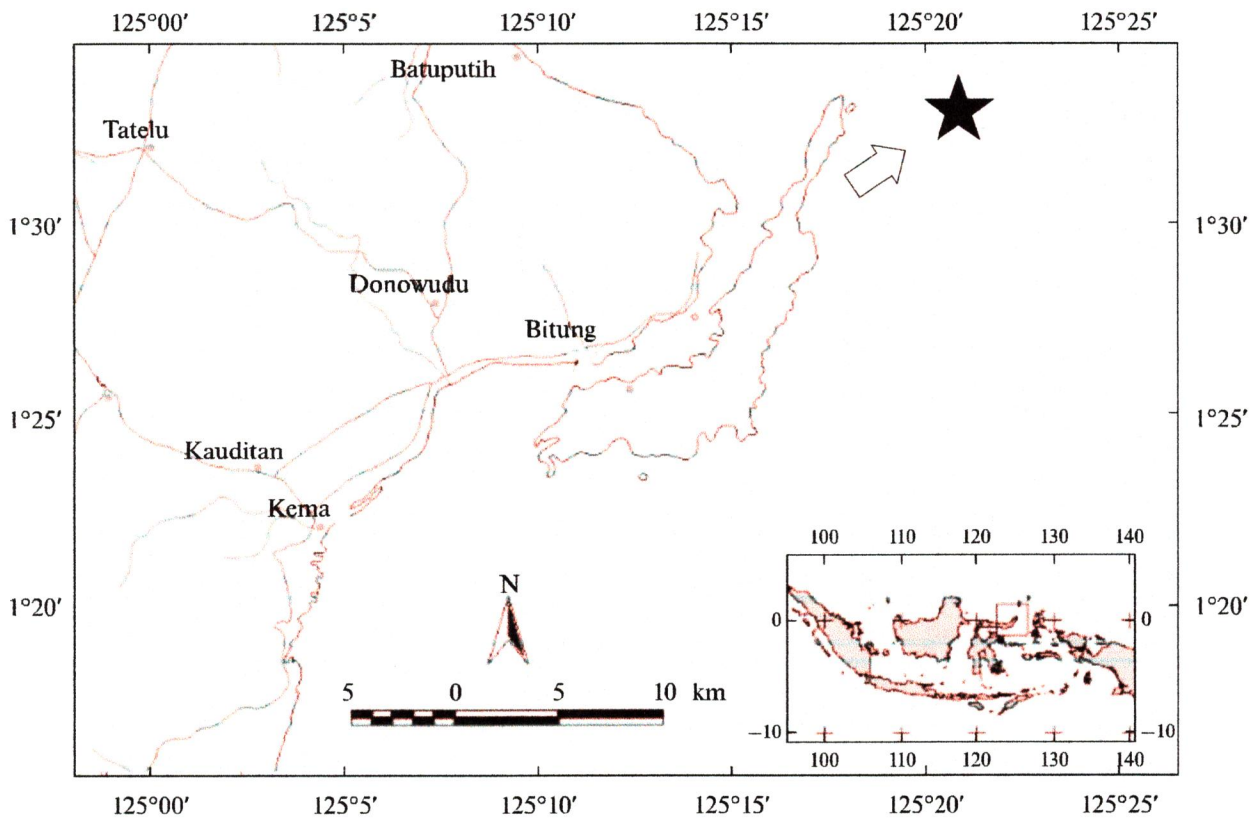


Fig. 1. Coastal waters of North Sulawesi, Indonesia, (★) – collected location of *Saloptia powelli*.

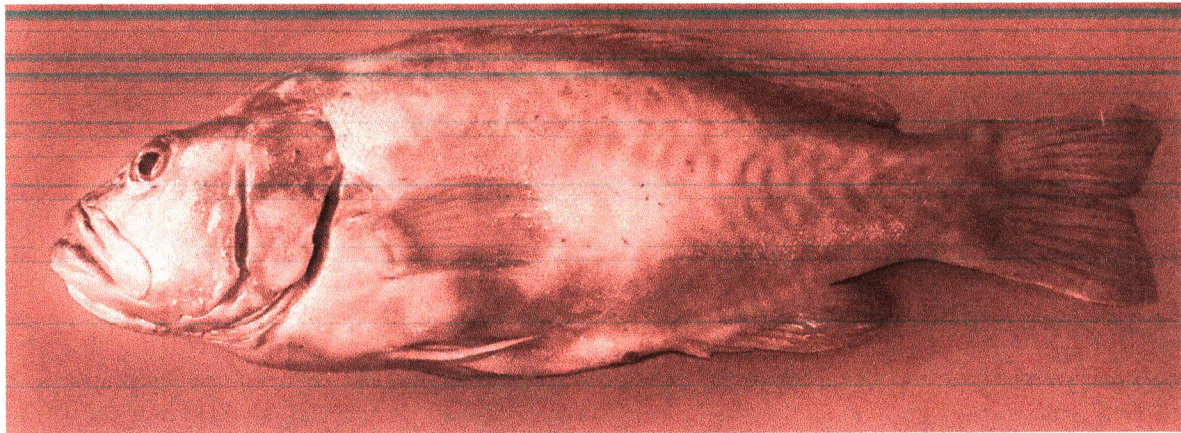


Fig. 2. *Saloptia powelli*, 300 mm *SL*, North Sulawesi, Indonesia.

Material examined. IBRC-100655, one specimen, 300 mm in *SL*, Manado Island, Indonesia, hook and line, 24 November 2014.

Description. Counts and measurements were shown in table. Body oblong, robust, its depth less than head length and 2.8 times in standard length. A pair of canines at front of both jaws; lower jaw with

2 rows soft teeth, but no enlarged canines at mid-side of jaw. upper edge of operculum distinctly convex; subopercle and interopercle serrate. Dorsal fin origin behind vertical at rear end of operculum, the fin membranes slightly incised between the spines, the third spine longest. Pectoral fins short and rounded, the middle rays longest, sub equal to pelvic fins, 2.4 times in head length.

Counts and proportional measurements expressed as percentages of standard length of the *Saloptia powelli*

| Morphological characters | Present study IBRC-100655 | Citation | |
|---------------------------------|------------------------------|-------------------------|-------------|
| | | Heemstra, Randall, 1991 | Smith, 1964 |
| Number of specimens | 1 | ? | 1 |
| Total length, mm | 370 | ? | ? |
| Standard length, mm | 300.0 | 250.9 | 340.0 |
| Counts: | | | |
| dorsal fin rays | VIII, 11 | VIII, 11 | VIII, 11 |
| anal fin rays | III, 7 | III, 8 | III, 7 |
| pectoral fin rays | 14 | 14 | 15 |
| Lateral line scales | 77 | 70–78 | 5 |
| First gill arch (upper + lower) | (9 + 17) | (8–9 + 16–17) | – |
| Measurements: | | | |
| head length | 38.3 | – | – |
| body Depth | 35.1 | – | – |
| body width | 14.7 | – | – |
| Dorsal fin base length | 41.6 | – | – |

Color. Body generally yellow. Dorsal side lighter in color with some areas turning rose. Some reddish blotches/blushes on the head and above the eye, fins yellow.

Distribution. This species is known to inhabit depths in the range of 140–367 m, from the Western Pacific to French Polynesia, Ryukyu Island, Okinawa, the Great Barrier reef, Taiwan Province of China, South China Sea, Marina Island, Society Island, Cook Islands, American Samoa, Fiji, Tuamotus, and the Philippine Sea (Heemstra, Randall, 2001; Arthur et al., 2013), and Indonesia (present study, Fig. 1).

Remarks. The morphological characteristics of the present specimen agreed well with those of *Saloptia powelli* in having a moderately oblong body with small scales that are strongly ctenoid, dorsal fin with VIII spines and 11 soft rays, anal fin with III spines and 8 soft rays, well-defined opercular spines, pelvic fins below pectoral fins, and caudal fin emarginated (Smith, 1964; Heemstra, Randall, 2001; Arthur et al., 2013). In addition, we adopted a molecular identification method based on mtCOI DNA sequences to ascertain the species identification. The result indicated that the mtCOI sequence of the present specimen was almost identical (99%) to that of *Saloptia powelli* from the National Center for Biological Information BLAST database, NCBI (data not shown).

One specimen of *Saloptia powelli* (Serranidae) which was presented in this study provides new knowledge about their specific distribution and gave a new country record for this species.

ACKNOWLEDGMENT

We are very grateful to Aji Wahyu Anggoro, Andrianus Sembiring, Eka Maya Kurniasih, Masriana and Elok Faiqoh (Indonesian Biodiversity Research Center) for provision of laboratory facilities and for useful guidance and discussion. This study was a collaboration research between laboratory of Marine Biology, Faculty of Marine Science and Fisheries of Hasanudin University with the Indonesian Biodiversity Research Center (IBRC), Denpasar-Bali, Indonesia. Research permits were granted to S. Tucker by RISTEK in Jakarta, Indonesia (42/EXT/SIP/FRP/SM/IX/2014).

REFERENCES

- Bos, A.R., and Girley, S.G., Seven new records of fish (Teleostei: Perciformes) from coral reefs and pelagic habitats in Southern Mindanao, the Philippines, *Mar. Biol. Ass. U.K.*, 2013, vol. 6, p. e95. doi 10.1017/S1755267213000614
- Craig, M.T., Sadovy Y., and Heemstra P.C., *Groupers of the World: A Field and Market Guide*, Grahamstown: Natl. Inquiry Serv. Centre, 2011. doi 10.1080/17451000.2012.703781
- Eschmeyer, W.N., Fricke, R., Fong, J.D., and Polack, D.A., Marine fish diversity: history of knowledge and discovery (Pisces), *Zootaxa*, 2010, vol. 2525, pp. 19–50.
- Habibi, A., Sugiyanta, and Yusuf, C., Groupers and snappers fisheries, in *Guides and Handling*, Jakarta: WWF-Indonesia, 2011, pp. 2–3.
- Heemstra, P.C., and Randall, J.E., *FAO Species Catalogue*, Vol. 16: *Groupers of the World (Family Serranidae, Subfamily Epinephelinae). An Annotated and Illustrated Catalogue of the Grouper, Rockcod, Hind, Coral Grouper, and Lyretail Species Known to Date*, Rome: Food Agric. Org., 1993, vol. 16.

- Heemstra, P.C., and Randall, J.E., Serranidae, groupers and sea-basses (also soapfishes, anthiines, etc.), in *FAO Species Identification Guide for Fishery Purposes. The Living Marine Resources of the Western Central Pacific*, Vol. 4: *Bony Fishes, Part 2: Mugilidae to Carangidae*, Carpenter, K.E. and Niem, V., Eds., Rome: Food Agric. Org., 2001, pp. 2442–2548.
- Heemstra, P.C., Anderson, W.D., Jr., and Lobel, P.S., Serranidae (1308–1369), in *The Living Marine Resources of the Western Central Atlantic. FAO Species Identification for Fishery Purposes and American Society of Ichthyologists and Herpetologists—Special Publication No. 5*, Carpenter, K.E., Ed., Rome: Food Agric. Org., 2003, vol. 2, Ivanova, N., Zemlak, T., Hanner, R., and Hebert, P., Universal primer cocktails for fish DNA barcoding, *Mol. Ecol. Notes*, 2007, vol. 7, no. 4, pp. 544–548. doi 10.1111/j.1471-8286.2007.01748.x10.1111/j.1471-8286.2007.01748.x
- Nelson, J.S., *Fishes of the World*, Hoboken, NJ: Wiley, 2006.
- Randall, J.E. and Heemstra, P.C., Revision of Indo-Pacific groupers (Perciformes: Serranidae: Epinephelinae), with descriptions of five new species, *Indo-Pac. Fish.*, 1991, vol. 20, pp. 1–332.
- Smith, J.L.B., A new Serranid fish from deep water off Cook Island, Pacific, *Ann. Mag. Nat. Hist.*, 1964, vol. 6, no. 72, pp. 719–720.
- Tamura, K., Peterson, D., Peterson, N., Stecher, G., Nei, M., and Kumar, S., MEGA5: molecular evolutionary genetics analysis using maximum likelihood, evolutionary distance, and maximum parsimony methods, *Mol. Biol. Evol.*, 2011, vol. 28, pp. 2731–2739.
- Walsh, P.S., Metzger, D.A., and Higuchi, R., Chelex-100 as a medium for simple extraction of DNA for PCR-based typing from forensic material, *Bio Tech.*, 1991, vol. 10, pp. 506–513.
- Ward, R.D., Zemlak, T.S., Innes, B.H., Last, P.R., and Hebert, P.D.N., DNA barcoding Australia's fish species, *Philos. Trans. R. Soc., B*, 2005, vol. 360, pp. 1847–1857.

SPELL: 1. ctenoid