



Short Communication

First Record of Balashark, *Balantiocheilos melanopterus* (Bleeker, 1850), in the Muara Angke Wildlife Reserve, North Jakarta, Indonesia

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ABSTRACT

Balashark, *Balantiocheilus melanopterus* (Bleeker, 1850), has been discovered for the first time in the swamp inside Muara Angke Wildlife Reserve, Jakarta, Indonesia. Balashark in Indonesia is originally distributed in Sumatra and Kalimantan. However, the fish was collected in the public waters of Java which is not its distribution areas. Fishing gear used was gill net with a diameter of 2 inches. The characteristics, morphometric and meristic records are supplemented with water quality information to supplement existing data.

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Authors' Contribution

GW, RD and SL designed the topic and method of this research. SA and SS assisted in the field work and data collection. GW, RD and H processed the data and compiled articles. RD and SL helped improve the manuscript.

Key words

Balantiocheilus melanopterus, Balashark, Fish, Muara Angke wildlife reserve, Indonesia

Balashark fish (*Balantiocheilus melanopterus*) is known by several local names including buo, baro, gatata, ketutung, drifting butts, ridiangus and tutung (Sukmono *et al.*, 2013; Haryono *et al.*, 2015; Wahyudewantoro *et al.*, 2020). This fish is already relatively rare in nature, and has been included in The IUCN Red List of Threatened Species with vulnerable status (VU), and is not included in the CITES Appendix (Lumbantobing, 2020). Nationally, this species of fish is fully protected through the Regulation of the Minister of Environment and Forestry Number P.106/MENLHK/SETJEN/KUM.1/12/2018 and also the Decree of the Minister of Marine Affairs and Fisheries of the Republic of Indonesia Number 1 of 2021. The fish is mainly used as an ornamental fish because of its attractive body shape and color. Balashark population is rarely found in its natural habitat and threatened allegedly as a result of overexploitation as aquarium ornamental fish (Barras *et al.*, 2007; Chumaidi *et al.*, 2008; Humprey and Bain, 2018).

Balantiocheilus genus has 2 species in the world, namely *Balantiocheilus ambusticauda* and *B. melanopterus* (Kottelat, 2001). Although the morphology between the two species looks almost similar, there are some specific

characters to distinguish them. *B. ambusticauda* has a shorter and rounder snout than *B. melanopterus*. While the black border on the pelvic and anal fins is thicker for *B. melanopterus* (Kottelat *et al.*, 1993; Ng and Kottelat, 2007). Previously, balashark used scientific names *Puntius melanopterus* and *Barbus melanopterus*. Current valid scientific name, *Balantiocheilus melanopterus* was determined after comprehensive taxonomy studies (Kottelat, 2013; Froese and Pauly, 2021).

Balashark fish have an elongated flat body shape with a maximum total length of 35 cm. A unique identifying feature is that there is no knob or bulge on the lower lip. A pocket that opens to the back is formed while the upper lip looks curvy. The dorsal fin rays are hard with serrated sides, and all fin color, except the pectoral fin with black edges (Kottelat *et al.*, 1993; Kottelat, 2001). Another character is the absence of protrusion and murmuring at the tip of the lower jaw of the mouth. Then the dorsal fin is located closer to the front than the tail. Anal fin with 5 to 6 forked rays. The body color is silvery with the outline of the back more dark. Edges of dorsal fin, pelvic fin, anal fin and caudal fin with black margins. On the lateral line there are 34 to 35 rows of scales (Kottelat *et al.*, 1993; Wahyudewantoro *et al.*, 2014).

In general, this fish is resident of a river with a medium to large size lakes and swamps. Usually found swimming not far from the vegetation of aquatic plants. As for the food are several types of insects, worms, shellfish, crustaceans,

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algae and parts of plants (Haryono *et al.*, 2015; Froese and Pauly, 2021). In terms of reproduction, balashark fish experience gonad maturity which is influenced by rainfall which causes low water temperature, then after maturity the female fish gonads will release eggs and will be fertilized by males. The fish eggs produced are around 3,000 to 12,000 eggs which hatch in about 13 h (Baras *et al.*, 2007). Furthermore, the distribution of the balashark was recorded in Asia, namely in Peninsular Malaysia, Thailand, Cambodia, Laos, and Indonesia in Sumatra and Kalimantan (Kottelat *et al.*, 1993; Froese and Pauly, 2021). However, this species was recorded in swampy waters within the Muara Angke Wildlife Reserve area of Jakarta. Whereas in terms of local distribution, Java and especially DKI Jakarta are not included in the natural distribution of this fish.



Fig. 1. Muara Angke Wildlife Reserved (David, 2010).

Materials and methods

Balashark fish sample was collected in the Angke Swamp, Muara Angke Wildlife Reserve, Kapuk Muara Village, Penjaringan Subdistrict, North Jakarta City, Indonesia, on April 3, 2021 (Fig. 1). The coordinates of the location where this fish species was found are S 6°06'52.4" and E 106°46'01.7". The fishing gear used was a gill net with a mesh size of 2 inches, which was plugged in using bamboo stakes at a depth of $\pm$ 3 meters, and for 2 h, from 9.00 to 11.00. The fish sample was fixed with 10% formalin solution and labeled collection. Furthermore, at the fish Laboratory in Bogor Zoological Museum, Research Center for Biology BRIN, the fish was washed with running water and preserved in 70% alcohol, after which it was identified based on Kottelat *et al.* (1993). Morphological characters such as morphometrics and meristics were analyzed with

Affandi *et al.* (1992) and Turan (1999). The measurement process uses the Mitutoyo brand digital funnel with a precision of 0.01 mm.

Measurements of water quality were carried out using the YSI Water Quality Checker and some chemical parameters were analyzed at the Hydrodynamic Laboratory, Research Center for Limnology-BRIN.

Results

The swamp where this study was conducted have overflowing water from the Angke river and depth of 1 to 3 meters. The physical conditions of the swamp included turbid, greenish water color, smelly and surrounding api-api trees *Avicennia* spp., bakau *Rhizophora* spp., nipah *Nypha fruticans*, nyamplung *Calophyllum inophyllum*, pidada *Sonneratia caseolaris* and waru laut *Hibiscus tiliaceu*.

Balashark fish collected along with several other species of fish namely bandeng *Chanos chanos*, belanak *Planiliza tade*, bulan-bulan *Megalops cyprinoides*, julung-julung *Dermogenys pussila*, paray *Rasbora lateristriata*, tawes *Barbonymus gonionotus*.

The collected balashark have a standard length of 142.24 mm and a total length of 180.71 mm (Fig. 2). Head length is 25.75% shorter than the standard length, body height is 37.59% shorter than standard length. The snout is 34.98% shorter than the head length. The eye diameter is 85.40% of the snout length and 73.07% of the distance between the eyes. The mouth is not equipped with barbels, protactile type, and is located inclined downwards. The lower lip is curved at the back to form a pouch that opened towards the back. The thickness of the pouch at the bottom of the mouth is 25.82% compared to the length of the snout. Starting from the tip of the snout to the top of the head straight, and slightly curved towards the dorsal fin. The dorsal fin is higher than the base length 54.48%. The dorsal fin lied on the 10th scale of the lateral line, and the pelvic fin on the 9th scale of the lateral line. There are 12 scales in front of dorsal fin. The dorsal fin is concave, equipped with 4 spines with a serrated back, and 8 soft rays. The pelvic fins are 88.99% longer than the pectoral fins. Pectoral fin has 1 spine and 16 soft rays. Pelvic fin is with 2 spines and 9 soft rays. The anal fin height is 54.48% compared to the length. The anal fin has 3 spines, with the third spine being thicker, and 6 soft rays. The perfect lateral line is 35 scales, and the distance from the beginning of the dorsal fin is 7½ / 1 / 5½ from the pelvic fin. The caudal peduncle is surrounded by 16 scales. Caudal fin is fork-shaped, generally silver in color, and yellow fins with black edges.

Furthermore, the observed physical parameters are a transparency of 30 cm, and the water depth ranging

from 100 to 300 cm. As for the observed water quality parameters are temperature 31.05°-31.15°C, pH 7.1-8.6, conductivity 0.282-6.76 mS/cm, DO 0.285-1.994 mg/L, COD 29.09 - 42.41 mg/L, ORP 48-51 mV, TDS 0.181-4.27 g/L, salinity 1-1.2 ppm, TSS 200 mg/L, TN 2.024 – 5.362 mg/L and TP 0.137 – 1.388 mg/L.



Fig. 2. Balashark from Muara Angke Wildlife Reserve.

Discussion

Based on the results obtained, that the balashark caught was in juvenile size, because the maximum recorded size was 350 mm (Kottelat *et al.*, 1993; Froese and Pauly, 2021). Groups of the genus *Balantiocheilos* were identified as having thick, fleshy lips, and forming a sac-like slit (Kottelat *et al.*, 1993; Ng and Kottelat, 2007). The snout of the fish is blunt and short and has no barbels. Meanwhile, Ng and Kottelat (2007) argue that *B. melanopterus* has a slightly longer snout to head length ratio than *B. ambusticauda*, which is 27.50 to 33.90%. The dorsal fin is elevated and tapered. The pectoral fins are shorter than the pelvic fins. On the edges of the dorsal, ventral, anal and caudal fins are black. Differences are also seen in *B. ambusticauda*, where the black on the edges of the pelvic and anal fins is thinner, or even the abdomen is often completely black (Ng and Kottelat, 2007).

Several reports have mentioned about declining population of balashark in the wild. The threat to balashark population in distribution areas such as Thailand, Cambodia, Malaysia and Laos is already very worrying (Barras *et al.*, 2007). In addition, there has been a population decline in the waters of Sumatra and Kalimantan, which are the distribution regions of the balashark in Indonesia (Wargasmita, 2002; Effendi *et al.*, 2008; Hui and Kottelat, 2009; Insan, 2011). This information was strengthened by field study in the Kapuas river and Mahakam tributaries in Kalimantan, and Lake Bedegum, Hutan Harapan Jambi, where only 1 to 4 individuals were found (Adjie and Utomo, 2011; Sukmono *et al.*, 2013; Jusmaldi *et al.*, 2019).

Furthermore, to preserve the balashark in nature, several laboratory studies have been carried out to domesticate the fish (Baras *et al.*, 2007; Effendi *et al.*, 2008; Insan, 2011), but have not obtained encouraging results. Meanwhile, the demand for ornamental fish, especially native to Indonesia tends to increase, so this is what makes fishing in nature quite high.

Meanwhile, cases of balashark fish found in public waters outside their habitat have been reported in the Temengor Reservoir, Perak Malaysia (Amirrudin and Ismail, 2014). Whereas in Indonesia, especially the Muara Angke Wildlife Reserve, data on fish species previously did not record the presence of balashark fish in these waters (Wahyudewantoro *et al.*, 2014; Mujadid *et al.*, 2020). The discovery of this species of fish in the waters of the Muara Angke Wildlife Reserve has two possibilities, that is because it spreads naturally or fish are released from the maintenance container. This is because the balashark is already a popular ornamental fish and the price is relatively affordable, so it is widely kept by hobbyists.

As a mangrove area, the presence of swamps observed in the Muara Angke Wildlife Reserve tends to be influenced by the flow of the Angke river at low tide. As for the Angke river, the information obtained is a river that has been polluted by several heavy metals (Oktavia *et al.*, 2018; Mujadid *et al.*, 2020). Therefore, the results of observations and analysis of water quality conditions in this area are noted to have a relatively high level of pollution, both organic and inorganic pollutants. Meanwhile, in their natural habitat, the balashark lives in waters that tend to be clear and have fast currents, with a water temperature of 27 °C to 32 °C (Adjie and Utomo, 2011; Jusmaldi *et al.*, 2019). In addition, the balashark is known to be a freshwater fish species, while at the sampling location the influence of salinity in these waters was recorded.

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Statement of conflict of interest

The authors have declared no conflict of interest.

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