

# A checklist of cephalopods from continental shelf of Sarawak, Malaysian Borneo

WAN ZABIDII WAN MORNI<sup>1,✉</sup>, RUHANA HASSAN<sup>2</sup>, LIRONG YU ABIT<sup>1</sup>, KAMIL LATIF<sup>1</sup>

<sup>1</sup>Department of Animal Science and Fishery, Faculty of Agricultural and Forestry Science, Universiti Putra Malaysia, Bintulu Campus, 97008 Bintulu, Sarawak, Malaysia. Tel./fax.: +62-149-923458, ✉email: zabidii.morni@upm.edu.my

<sup>2</sup>Faculty of Resource Science and Technology, Universiti Malaysia Sarawak, Jl. Datuk Mohammad Musa, 94300 Samarahan, Sarawak, Malaysia

Manuscript received: 27 March 2022. Revision accepted: 29 May 2022.

**Abstract.** Morni WZW, Hassan R, Abit LY, Latif K. 2022. A checklist of cephalopods from continental shelf of Sarawak, Malaysian Borneo. *Biodiversitas* 23: 3203-3208. Cephalopods can be discovered in all the oceans of the world ranging from shallow to deep oceans. It is a naturally inhabited seawater medium and indirectly limits the number of research regarding the species composition of the cephalopods group. Previously, samples of cephalopods were collected from selected stations in Sarawak Exclusive Economic Zone (EEZ) using an otter trawl net with a stretch mesh size of 38 mm at the cod end. All samples used in this study were the by-catch of trawling activities during National Demersal Fish Resource Survey in Sarawak (16 August until 6 October 2015). Trawling operations were conducted beyond 12 nautical miles from the coast, and the area was divided into three depth strata, I) 20-50 m; II) 50-100 m; and III) 100-200 m. In total, 16 species of cephalopods were found to inhabit Sarawak waters, representing five families and eight genera. The present findings found that there was a higher number of species recorded in-depth strata I (14 species) in comparison to strata II (12 species) and III (11 species). Six species of the cephalopods captured in this study were the first recorded in Malaysian water, namely *Amphioctopus marginatus*, *Amphioctopus rex*, *Ommastrephes bartramii*, *Sepia brevimana*, *Sepia vietnamica* and *Sepia prashadi*. Thus, the information on cephalopod diversity and distribution at different depth strata will be useful for updating the current database on Malaysian marine species diversity.

**Keywords:** Cuttlefish, depth strata, first record, octopus, squid

## INTRODUCTION

Cephalopods are the third-largest molluscan class after gastropods and bivalves. There are more than 800 species distributed throughout the world's oceans (Arkhipkin et al. 2015). Cuttlefish, squid and octopus are the major groups of cephalopods. The diversity of this group is presumably higher than the current records, which are surprisingly low, despite Malaysia being part of the high biodiversity region of South East Asia (Shabdin 2014). This group of mollusks consists of a large number of taxa occurring exclusively in shallow to deep water marine environments (Hildenbrand et al. 2021). Cephalopods play a significant role as a source of nutrition for humans, fish, crustaceans and even other cephalopods. In terms of economic importance, cephalopods are a significant contributor to the fisheries industry in many countries across the globe with a collective net value in the billions of dollars (Ospina-Alvarez et al. 2022). The worldwide cephalopod trade industry is a multi-billion dollar business that centers on just 10 of the most commercially important cephalopod species. Cephalopod-based fisheries have expanded in size and economic importance over recent decades, although only 4 out of the 28 known taxonomic families are of any real commercial significance (Vieites et al. 2019). Cephalopods are generally not the main target species of commercial or recreational fishing gear (with the exception of squid jigs and nets), however, the development of specific harvesting techniques could in the future provide a

more consistent supply of high-quality cephalopod including currently under-exploited species of potential (Schickele et al. 2021). The shrinking of traditional marine resources and natural stock of targeted species would shortly prompt the need to diversify and seek new resources to exploit resulting in a wider range of cephalopod-based products tailored to meet market demands (Ospina-Alvarez et al. 2021). Currently, there is still a lack of regulation in large-scale fisheries operations in regard to cephalopods and little is known on the true status of cephalopod stocks in the wild (Pita et al. 2021).

The highest diversity in cephalopods occurs in the Pacific Ocean (213 cephalopod species), followed in descending order by the Indian ocean (146 cephalopod species), Atlantic (95 cephalopod species), Southern Ocean (15 cephalopod species) and finally the Arctic Ocean (12 cephalopod species) (Rosa et al. 2019). However, only 20 genera live exclusively in the tropics. Additionally, the highest number of genera is observed in the Indo-West Pacific tropical region (including the South China Sea). In the year 2000, Norman and Lu (2000) reported that about 31 families and 120 species of cephalopods were found in the South China Sea. However, in 2016, the number reported increased to 32 families and 153 species (Norman et al. 2016). This updated information is based on revisions and observation of all cephalopod studies from countries within the South China Sea: Philippines, Hong Kong, Thailand, China and Vietnam.