

Two new records of moray eels representing genera *Gymnothorax* and *Strophidon* (Actinopterygii: Anguilliformes: Muraenidae) from the Philippines

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<https://zoobank.org/2E55CF5D-1C86-4BC8-8AA4-E61D2F8F0E6B>

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Academic editor: Ronald Fricke ♦ **Received** 30 June 2023 ♦ **Accepted** 29 September 2023 ♦ **Published** 24 November 2023

Citation: Cabebe-Barnuevo RA, Obar EAA, Penuela DFA, Motomura H, Babaran RP, Malay MCD (2023) Two new records of moray eels representing genera *Gymnothorax* and *Strophidon* (Actinopterygii: Anguilliformes: Muraenidae) from the Philippines. *Acta Ichthyologica et Piscatoria* 53: 217–226. <https://doi.org/10.3897/aiep.53.108838>

Abstract

In this study, we report the collection of moray eel species *Gymnothorax nudivomer* (Günther, 1867) and *Strophidon dorsalis* (Seale, 1917) from the Western Visayas region, Philippines. Both represent new records for the country. A single specimen of *G. nudivomer* measuring 619 mm total length (TL) was collected from Iloilo Fish Port Complex, Iloilo and a specimen of *S. dorsalis* measuring 777 mm TL was collected from the fish market of Batan, Aklan. Detailed morphological descriptions and mitochondrial cytochrome oxidase I (*COI*) barcode sequences are provided. A comprehensive list of geographic records for both species, as well as a list of all species representing the genera *Gymnothorax* and *Strophidon* reported in the Philippines is also provided in this report.

Keywords

new country records, moray eel, morphology, Panay Island, taxonomy

Introduction

The family Muraenidae is considered one of the more diverse eel groups, having 228 valid species belonging to 16 genera (Fricke et al. 2023). Muraenids, commonly known as moray eels, are distinct from other eels by having 1 or 2 lateral-line pores before the gill opening, posterior nostril high on the head and usually positioned before or above the eye, small and rounded gill openings, and lack of pectoral and pelvic fins (Böhlke et al. 1999).

Moray eels are widely distributed in tropical and subtropical seas. The majority of species are found in coral reefs, shallow-water rocky areas, and moderately deep habitats down to 500 m, while a few species inhabit brackish coastal waters, rivers, or anchialine caves (e.g., Chen et al. 1994; Böhlke et al. 1999; Tsukamoto et al. 2014; Quindo and Bucol 2019; Böhlke and Smith 2002; Huang et al. 2023a). In the Philippines, 83 species representing 10 genera have been reported (Jordan and Seale 1907; Herre 1923; Herre 1953; Allen and Erdmann 2012; Smith 2012; Kottelat 2013;

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Motomura et al. 2017; Huang et al. 2021; Smith and Böhlke 2022; Huang et al. 2023a, 2023b; Fricke et al. 2023). Recent studies described new muraenid species from Palawan (Huang et al. 2020), Cagayan (Huang et al. 2021), Negros Oriental (Huang et al. 2021), Cebu (Huang et al. 2023b), and Bohol (Huang et al. 2023a). Taking into account the abundance of reef and shallow-water habitats in the Philippine archipelago, many more new species and new records are expected to be found through ichthyological surveys.

Two new Philippine records of moray eels and their partial cytochrome oxidase I (*COI*) DNA sequences are reported in this study. One of the new records, *Gymnothorax nudivomer* (Günther, 1867), belongs to a large genus (143 valid species; Fricke et al. 2023) known for having variable body color patterns and teeth structure, anus near mid-length of the body, and dorsal fin originating before or above gill opening (Smith et al. 2019). The second new record, *Strophidon dorsalis* (Seale, 1917), belongs to a small genus (only five valid species; Huang et al. 2020; Fricke et al. 2023) characterized by having an extremely long, uniformly brown or variegated body, infraorbital pores 3–5, branchial pores 1–8, and a total vertebrae count of 155–213 (Huang et al. 2020). To our knowledge, 36 species of *Gymnothorax* and two species of *Strophidon* have been reported from the Philippines prior to this study (i.e., Jordan and Seale 1907; Herre 1923; Herre 1953; Smith and Böhlke 1997; Böhlke 2000; Allen and Erdmann 2012; Motomura et al. 2017; Smith et al. 2019; Huang et al. 2020, 2021; Smith and Böhlke 2022). Therefore, this study updates the inventory of marine eel species in the country and contributes to the establishment of a *COI* gene-sequence library for Philippine marine fishes.

Materials and methods

Fish specimens were bought directly from the Iloilo Fish Port Complex (IFPC), Iloilo Province, and the fish market in Batan, Aklan Province (Figs. 1, 2). The type of fishing gear was noted if available. Curatorial protocols followed Motomura and Ishikawa (2013). Measurements were taken using digital calipers to the nearest 1 mm following the method of Böhlke and Randall (2000) and expressed as percentages in total length (TL) and head length (HL). Meristic characters were determined following the diagram of Böhlke and Randall (2000) and Huang et al. (2020). All specimens are deposited at the Museum of Natural Sciences, University of the Philippines Visayas, Miag-ao (UPVMI).

The fish muscle tissue samples were collected from the nape area on the right side of the body and preserved in absolute ethanol. DNA extractions were carried out according to the instructions of the GF-1 Nucleic Acid Extraction Kit (Vivantis Technologies Sdn. Bhd, Malaysia). The combination of the forward and reverse primers below designed by Ward et al. (2005) was used to amplify the mitochondrial cytochrome c oxidase subunit I (*COI*) gene:

FishF1-5'TCAACCAACCACAAAGACATTGGCAC3'
FishR1-5'TAGACTTCTGGG TGGCCAAAGAATCA3'

The 25 µL PCR reaction was composed of 18.4 µL nuclease-free water, 2.25 µL 10× buffer, 1.25 µL MgCl₂ (25 mM), 0.5 µL dNTP mix (10 mM), 0.25 µL of each primer, 0.1 µL Taq DNA polymerase (Vivantis Technologies Sdn. Bhd, Malaysia), and 2 µL DNA template. The PCR thermocycling conditions used are as follows: initial step at 95°C for 2 min, 35 cycles of 94°C for 30 s (denaturation), 54°C for 30 s (annealing), and 72°C for 1 min (extension), with a final extension at 72°C for 10 min. The PCR products were visualized using 1% agarose gel with gel red. Purification of PCR products was carried out using GF-1 PCR Clean-up Kit. The genomic DNA was quantified using a MultiSkan™ Skyhigh Microplate Spectrophotometer (Thermo Fisher Scientific). The PCR products were sent to Macrogen Inc. (South Korea) for sequencing. The forward and reverse sequences were checked, trimmed, and realigned using Unipro UGENE software (Okonechnikov et al. 2012).

Results and Discussion

Family Muraenidae Rafinesque, 1810 Genus *Gymnothorax* Bloch, 1795

Gymnothorax nudivomer (Günther, 1867)

English common name: yellowmouth moray

(Fig. 3; Table 1)

Material examined. UPVMI-03157, 619 mm TL, Iloilo Fish Port Complex (IFPC), Iloilo City, Panay Island, Philippines, 8 June 2022, R. Cabebe-Barnuevo and R.P. Babaran leg.

Morphological diagnosis and description. Body elongated, large; tapering towards caudal area. Head large; eyes moderate in size, and situated slightly closer to snout (19% of HL) than rear of lower jaw (22% of HL, see Table 1). Mouth large; snout short and blunt; anterior nostril short, tubular, and located at snout tip; posterior nostril large, elliptic, and located above and before anterior margin of eye; upper and lower jaws subequal; teeth not visible when mouth closed; teeth on both jaws uniserial, sharply pointed; anterior teeth large and triangular; posterior teeth short and serrated. Dorsal-fin base very long; its origin anterior to gill opening. Anal-fin base shorter; its origin just behind anus. Caudal fin confluent with dorsal and anal fins. Pectoral and pelvic fins absent. Gill opening moderately large and elongated; located on middle side of body. Anus moderate in size, circular, and positioned anterior to midpoint of body. Supraorbital pores 3: first pore located on snout tip, small and circular; second pore located above anterior nostril, largest in size, circular; third located above first infraorbital pore, equal in size with first pore, circular. Infraorbital pores 4, along upper jaw; first pore located below base of anterior nostril; second pore between anterior nostril and anterior margin of eye; third pore before anterior margin of eye; fourth pore located beyond posterior margin of eye. Preoperculo-mandibular pores 6, along lower jaw;

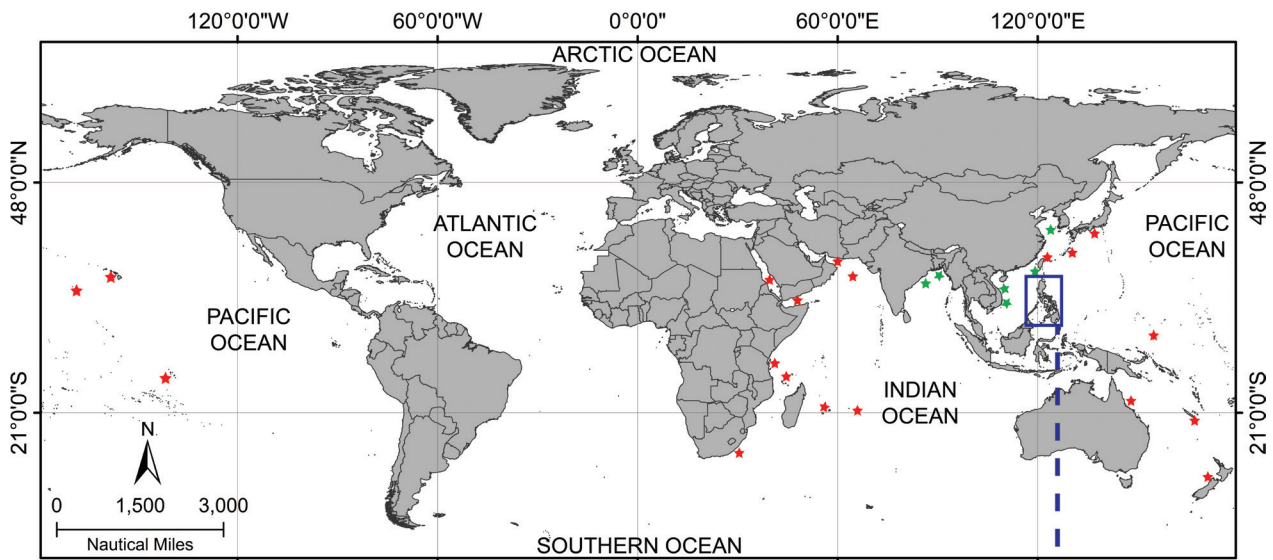


Figure 1. Global geographic distribution of *Gymnothorax nudivomer* (red star) and *Strophidon dorsalis* (green star).

all pores positioned anterior to rictus. Branchial pore 1, located along posterodorsal head anterior to gill opening, posterior to dorsal-fin origin. Teeth pointed and uniserial; intermaxillary teeth 7; median intermaxillary teeth 1; vomerine teeth absent.

Fresh coloration. Body yellow to light brown, becoming darker on caudal area; covered entirely with white spots of varying sizes; white spots on head and anterior body area very small, becoming large towards caudal area; white spots on dorsal and anal fins similar in body spots; white spots on caudal area composed of both rounded and irregular in shape; posterior margin of caudal fin white; eyes with vertical black bar; inner mouth bright yellow; gill opening black.

Color of preserved specimen. Body light brown, becoming darker on caudal area; white spots still visible; posterior margin of caudal fin white; inner mouth white; gill opening black.

Distribution. Widely distributed across the Indo–Pacific Ocean. Specific reports are summarized in Table 2.

DNA Barcode. A *COI* sequence fragment measuring 605 basepairs (bp) was submitted to GenBank under accession number [OR214978](#).

Remarks. *Gymnothorax nudivomer* was originally described as *Muraena nudivomer* from the Zanzibar Archipelago by Günther (Playfair and Günther 1867). It was then widely reported as *G. nudivomer* distributed across the Indo–Pacific Ocean at depths of 2–271 m (Mundy 2005; Fricke et al. 2009). This species can reach up to 1800 mm in length (Böhlke and Randall 2000). In Böhlke et al. (1999), *G. nudivomer* was listed as one of the moray eels occurring within the western central Pacific but it was not stated if the species was collected specifically within Philippine waters. Furthermore, according to the list of reef fishes by Allen and Erdmann (2012) from the East Indies (which includes the countries of Myanmar, Thailand, Indonesia, Singapore, Malaysia, Brunei, Papua New Guinea, Solomon Islands, and the Philippines), *G. nudivomer* was not known to exist in the

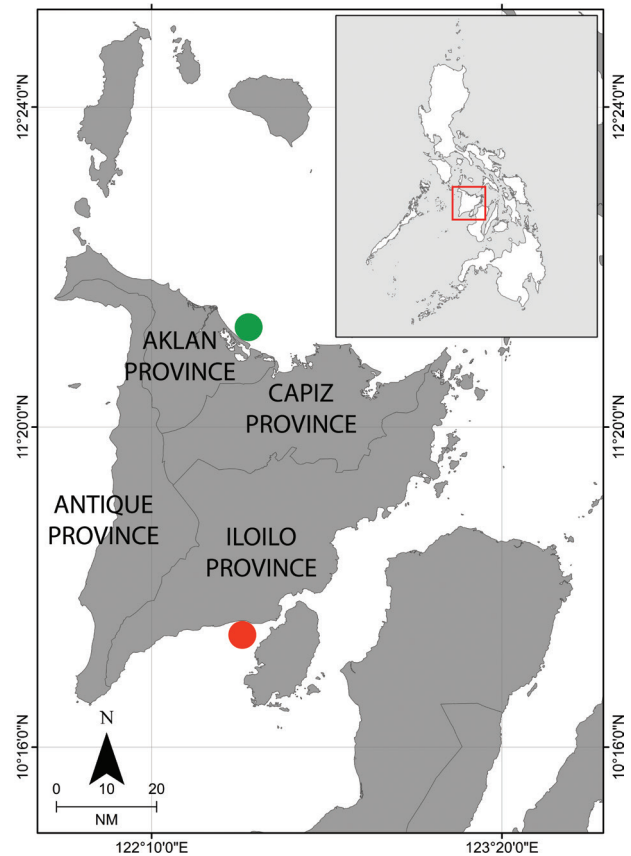


Figure 2. Geographic distribution of *Gymnothorax nudivomer* (red dot) and *Strophidon dorsalis* (green dot) in Western Visayas, Philippines (the inset to Fig. 1)

country. Finally, Herre (1953) provided a list of approximately 2145 Philippine species, however, this species was not among them. Hence, the presently reported study treats the specimen collected from Iloilo as the first report (new country record) from Philippine waters. Table 2 and Figs. 1, 2 provide the geographic distribution of the species while Table 3 includes other species within the genus *Gymnothorax* reported in the country. Reports that

did not clearly specify that the data collection occurred within the Philippines have been excluded from the list.

This fish is commonly known as the yellowmouth moray and can be easily identified by its tapering body form, white spots scattered throughout the body, and yellow coloration inside the mouth. *Gymnothorax elegans* and *G. nudivomer* are closely related species (Smith et al. 2019), but can easily be distinguished based on their color patterns. *Gymnothorax elegans* Bliss, 1883 has larger and distinct patterns of white markings throughout the body that forms into bars towards the caudal fin (i.e., fig. 13, Smith et al. 2019), in contrast to *G. nudivomer*, which has relatively smaller, rounded spots on the body, that becomes a larger and elongated circle towards the caudal fin (i.e., Fig. 3, this publication; fig. 24, Smith et al. 2019).

Family Muraenidae Rafinesque, 1810
Genus *Strophidon* McClelland, 1844

***Strophidon dorsalis* (Seale, 1917)**

English common name: three-pore moray

(Fig. 4; Table 1)

Material examined. UPVMI-03151, 777 mm TL, off Batan, Aklan Province, Panay Island, Philippines, bottom set gillnet, 31 May 2021, Sunshine Sugang leg.

Morphological diagnosis and description. Body elongated and cylindrical, becoming compressed behind anus towards tail area. Head moderately long with wrin-

Table 1. Morphological counts and measurements of *Gymnothorax nudivomer* and *Strophidon dorsalis* expressed in absolute and relative values.

Character	<i>G. nudivomer</i>	<i>S. dorsalis</i>
	UPVMI-03157	UPVMI-03151
Counts		
Supraorbital pores	3	3
Infraorbital pores	4	4
Preoperculo-mandibular pores	6	6
Branchial pores	1	2
Vomerine teeth	Absent	4
Intermaxillary teeth	7	6
Median Intermaxillary teeth	1	3
Inner maxillary teeth	—	5
Inner dentary teeth	—	4
Measurements. Absolute values [mm]		
Total length (TL)	619	777
Head length (HL)	78	95
Measurements. Relative values [%TL]		
Head length	14	12
Body depth at gill opening	10	4
Body depth at anus	8	4
Pre-dorsal length	10	8
Pre-anal length	43	43
Measurements. Relative values [%HL]		
Length of upper jaw	45	32
Length of lower jaw	45	30
Snout length	19	11
Eye diameter	8	6
Interorbital width	15	7
Distance between eye and snout	19	11
Distance between eye and rear of lower jaw	22	18

Note: All measurements were rounded off to the nearest 1 mm.

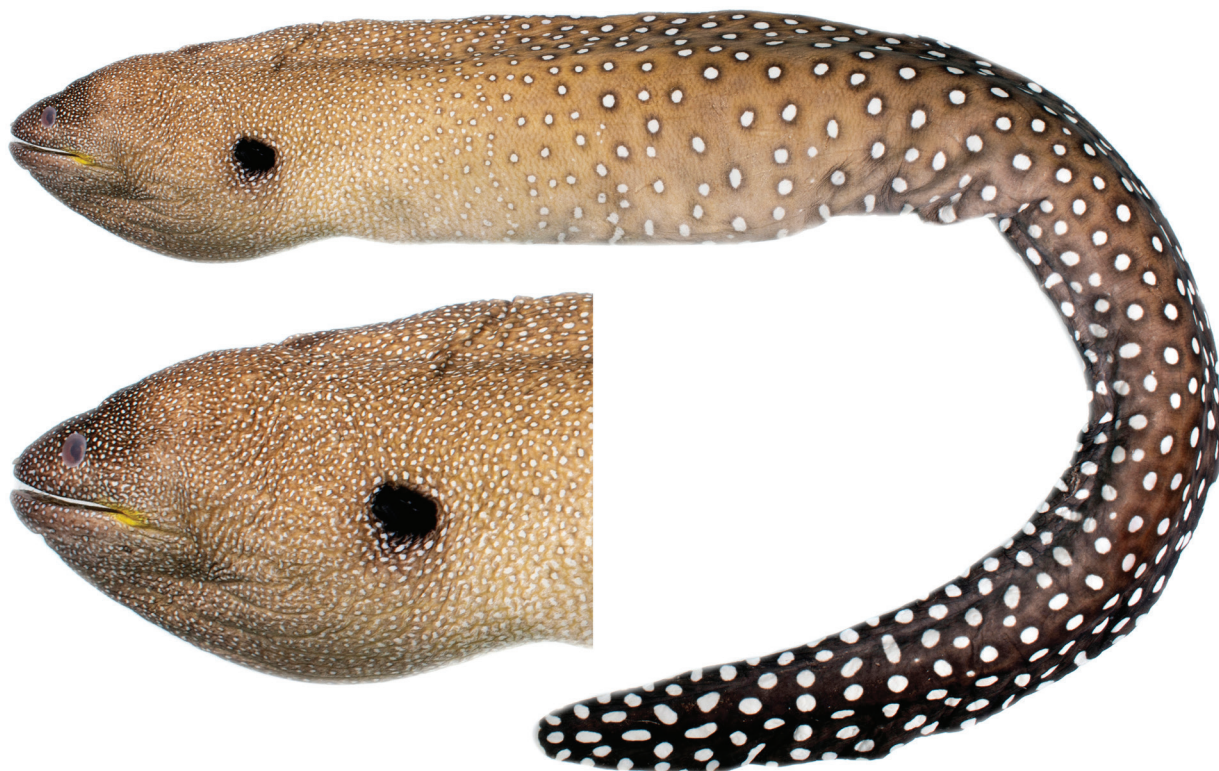


Figure 3. *Gymnothorax nudivomer*, UPVMI-03157, 619 mm TL, Iloilo Fish Port Complex (IFPC), Iloilo City, Philippines.

Table 2. Published reports on the occurrence of *Gymnothorax nudivomer* and *Strophidon dorsalis* along with their synonyms, organized chronologically by year of publication.

Species	Status	Location	Reference		
<i>Gymnothorax nudivomer</i>					
<i>Muraena nudivomer</i>	Original name	Zanzibar	Playfair and Günther 1867		
<i>Lycodontis nudivomer</i>	Junior synonym	Red Sea	Dor 1984		
		Mozambique (Inhaca)	Smith 1962		
<i>Gymnothorax xanthostomus</i>	Junior synonym	Hawaiian Islands	Snyder 1904		
<i>Gymnothorax insignis</i>	Junior synonym	Mauritius	Seale 1917		
<i>Gymnothorax nudivomer</i>	Valid name	Red Sea	Goren and Dor 1994; Randall and Golani 1995; Fowler and Steinitz 1956; Castle and McCosker 1986; Khalaf and Disi 1997; Golani and Fricke 2018; Smith et al. 2019		
		North Pacific Ocean (Hawaii; Johnston Islands)	Randall et al. 1981; Uchida and Uchiyama 1986; Castle and McCosker 1986; Chave and Mundy 1994; Böhlke and Randall 2000; Mundy 2005; Randall 2007		
		Taiwan (Nanfangao, Hualien and Taitung counties)	Chen et al. 1994; Ramos-Castro et al. 2020		
		Indian Ocean (Mauritius and East Africa from Zanzibar to Transkei, Mascarene Islands, Mayotte)	Quéro and Saldanha 1995; Fricke 1999; Laboute and Grandperrin 2000; Böhlke and Randall 2000; Fricke et al. 2009; Fricke et al. 2011; Allaria 2016; Eudeline 2022; Smith and Böhlke 2022		
		Gulf of Oman	Randall 1995; Böhlke and Randall 2000		
		New Caledonia	Böhlke and Randall 2000		
		South Pacific Ocean (Marquesas Islands)	Böhlke and Randall 2000		
		Australia (From Cape York to the southeastern border of Queensland)	Böhlke and McCosker 2001;		
		Japan (Kochi Prefecture, Okinawa Islands, Osumi Islands (Iwo-jima Island and Yakushima Island), Amami-oshima Island)	Nakabo 2002; Motomura et al. 2013; Jeong and Motomura 2021; Motomura and Harazaki 2017; Nakae et al. 2018; Motomura et al. 2019		
		Marianas Islands	Myers and Donaldson 2003		
		Arabian Sea (Coast of Oman, Gulf of Aden, Eastern Coast of Somali)	Manilo and Bogorodsky 2003		
		Tonga Island	Randall et al. 2004		
		Yemen (Socotra Archipelago)	Zajonz et al. 2019		
		Philippines (Iloilo Province)	Presently reported study		
		<i>Strophidon dorsalis</i>			
		<i>Gymnothorax dorsalis</i>	Original name	Hongkong	Seale 1917
				Malaysia	Böhlke 1997
Taiwan	Böhlke 1997; Loh et al. 2011				
South China Sea	Randall and Lim 2000				
Thailand (Prachuap Khiri Khan)	Yoshida et al. 2013				
Indian waters (Bengal Bay, West coast of India)	Ray et al. 2015; Kumar et al. 2020				
Pakistan	Psomadakis et al. 2015				
<i>Strophidon dorsalis</i>	Valid name	Taiwan (Pingtung County, Kaohsiung City)	Ho et al. 2015; Huang et al. 2020		
		Vietnam (Nha Trang, Da Nang, Thua Thien-Hue Province)	Loh et al. 2015; Huang et al. 2020		
		India (West Bengal Coast, Odisha)	Mohapatra et al. 2016; 2021		
		Korea (Jindo Island)	Kang et al. 2020		
		Philippines (Aklan Province)	Presently reported study		

kled skin. Eyes moderate in size, and situated closer to snout (11% of HL) than rear of lower jaw (18% of HL, see Table 1). Mouth large; snout short and blunt; anterior nostril located at snout tip, short and tubular; posterior nostril located above anterior margin of eye, large and circular; upper jaw slightly more pronounced relative to lower jaw; teeth on both jaws sharply pointed. Dorsal-fin base very long; origin anterior to gill opening. Anal-fin base shorter; origin just behind anus. Caudal fin slightly damaged but still visibly connected with dorsal and anal fins. Pectoral and pelvic fins absent. Gill opening moderately large and

elongated; located on lower portion of body. Anus moderate in size, circular, and positioned anterior to midpoint of body. Supraorbital pores 3: first pore located on snout tip, small and circular; second pore located above anterior nostril; third located above first infraorbital pore, largest in size and somewhat elongated circular pore. Infraorbital pores 4, located along upper jaw; first pore located below base of anterior nostril; second pore between anterior nostril and anterior margin of eye; third pore below ventral margin of eye; fourth pore located beyond posterior margin of eye. Preoperculo-mandibular pores 6, located

Table 3. List of species under the genera *Gymnothorax* and *Strophidon* reported in Philippine waters.

Species	Reference
Genus <i>Gymnothorax</i>	
<i>G. angusticauda</i> (Weber et de Beaufort, 1916)	Smith et al. 2018
<i>G. annulatus</i> Smith et Böhlke, 1997	Smith and Böhlke 1997; Allen and Erdmann 2012; Smith 2012
<i>G. castlei</i> Böhlke et Randall, 1999	Allen and Erdmann 2012
<i>G. chilospilus</i> Bleeker, 1864	Herre 1923, 1953; Smith 2012
<i>G. chlamydatus</i> Snyder, 1908	Allen and Erdmann 2012
<i>G. enigmaticus</i> McCosker et Randall, 1982	McCosker and Randall 1982
<i>G. favagineus</i> Bloch et Schneider, 1801	Herre 1923, 1953; Allen and Erdmann 2012
<i>G. fimbriatus</i> (Bennett, 1832)	Motomura et al. 2017
<i>G. flavimarginatus</i> (Rüppell, 1830)	Herre 1923, 1953
<i>G. fuscomaculatus</i> (Schultz, 1953)	Allen and Erdmann 2012; Smith and Böhlke 2022
<i>G. herrei</i> Beebe et Tee-Van, 1933	Allen and Erdmann 2012; Smith 2012; Smith and Böhlke 2022
<i>G. isingteena</i> (Richardson, 1845)	Balisco et al. 2023
<i>G. kidako</i> (Temminck et Schlegel, 1846)	Herre 1923, 1953
<i>G. margaritophorus</i> Bleeker, 1864	Herre 1953
<i>G. meleagris</i> (Shaw, 1795)	Herre 1923, 1953
<i>G. microstictus</i> Böhlke, 2000	Allen and Erdmann 2012; Böhlke 2000
<i>G. minor</i> (Temminck et Schlegel, 1846)	Wagey et al. 2015
<i>G. monochrous</i> (Bleeker, 1856)	Allen and Erdmann 2012
<i>G. monostigma</i> (Regan, 1909)	Allen and Erdmann 2012; Smith and Böhlke 2022
<i>G. nudivomer</i> (Günther, 1867)	Presently reported study
<i>G. phasmatodes</i> (Smith, 1962)	Allen and Erdmann 2012; Smith and Böhlke 2022
<i>G. philippinus</i> Jordan et Seale, 1907	Jordan and Seale 1907; Herre 1923; Allen and Erdmann 2012; Smith 2012
<i>G. pictus</i> (Ahl, 1789)	Herre 1923, 1953; Smith and Böhlke 2022
<i>G. pindae</i> Smith, 1962	Böhlke 2000
<i>G. polyuranodon</i> (Bleeker, 1854)	Herre 1923, 1953; Smith and Böhlke 2022
<i>G. prionodon</i> Ogilby, 1895	Wagey et al. 2015
<i>G. pseudoherrei</i> Böhlke, 2000	Allen and Erdmann 2012; Smith 2012; Böhlke 2000; Smith and Böhlke 2022
<i>G. pseudokidako</i> Huang, Loh et Liao, 2021	Huang et al. 2021
<i>G. pseudothyrsoides</i> (Bleeker, 1853)	Herre 1953; Allen and Erdmann 2012; Motomura et al. 2017; Smith and Böhlke 2022
<i>G. punctatofasciatus</i> Bleeker, 1863	Herre 1923, 1953; Allen and Erdmann 2012
<i>G. richardsonii</i> (Bleeker, 1852)	Herre 1923, 1953; Smith and Böhlke 2022
<i>G. robinsi</i> Böhlke, 1997	Allen and Erdmann 2012; Smith and Böhlke 2022
<i>G. rueppelliae</i> (McClelland, 1844)	Herre 1953
<i>G. thyrsoides</i> (Richardson, 1845)	Herre 1923, 1953
<i>G. tile</i> (Hamilton, 1822)	Herre 1923, 1953; Allen and Erdmann 2012
<i>G. undulatus</i> (Lacepède, 1803)	Herre 1923, 1953
<i>G. zonipectis</i> Seale, 1906	Herre 1923, 1953; Smith 2012
Genus <i>Strophidon</i>	
<i>S. dorsalis</i> (Seale, 1917)	Presently reported study
<i>S. sathete</i> (Hamilton, 1822)	Motomura et al. 2017; Smith and Böhlke 2022
<i>S. tetraporus</i> Huang, Mohapatra, Thu, Chen et Liao, 2020	Huang et al. 2020

along lower jaw; all pores positioned anterior to rictus. Branchial pores 2, located along postero-dorsal head anterior to gill opening. Teeth on both jaws pointed; intermaxillary teeth 6; median intermaxillary teeth 3; inner maxillary teeth 5; vomerine teeth 4; inner dentary teeth 4.

Fresh coloration. Body brown becoming dark towards caudal area; margins of dorsal and anal fins dark brown; caudal fins dark brown to black.

Color of preserved specimen. Body uniformly dark brown; fins dark brown to black.

Distribution. Tropical to subtropical Indo–West Pacific Ocean. Specific reports are summarized in Table 2.

DNA Barcode. A 568 bp *COI* sequence fragment was submitted to GenBank under accession number [OR214977](https://doi.org/10.21203/rs.3.rs-214977).

Remarks. *Strophidon dorsalis* was originally placed in the genus *Gymnothorax* by Seale (1917) based on collections from Hong Kong. However, Loh et al. (2015)

suggested that *Gymnothorax dorsalis* belongs to the genus *Strophidon* based on molecular data and similarities in some morphological features. Following the work of Loh et al. (2015), *S. dorsalis* was reported from Taiwan (Ho et al. 2015; Huang et al. 2020), Vietnam (Loh et al. 2015; Huang et al. 2020), India (Mohapatra et al. 2016, 2021), and Korea (Kang et al. 2020). Based on the report of Böhlke (1997), this species can be found in depths down to 110 m. The largest recorded specimen, measuring 1262 mm TL, collected from Vietnam was reported by Huang et al. (2020). Randall and Lim (2000) included *Gymnothorax dorsalis* on their list of fishes from the South China Sea which covers Taiwan, the Philippines, and Borneo. However, it was not specified whether the specimen was collected in Philippine waters. As a result, this study confirms the presence of the species in the Philippine waters. Table 2 provides a list of all published geographic



Figure 4. *Strophidon dorsalis*, UPVMI-03151, 777 mm TL, off Batan, Aklan, Philippines.

records of the species while Table 3 includes other species within the genus *Strophidon* reported in the country.

This species can be distinguished from its congeners based on the following combination of characters: body uniformly brown, anus located anterior to the midpoint of the body, 3–4 infraorbital pores, 2–7 inner maxillary teeth, 3–5 inner dentary teeth, 62–73 pre-anal vertebrae, and 155–174 total vertebrae (Böhlke and Smith 2002; Huang et al. 2020). *Strophidon dorsalis* and *S. sathete* (Hamilton, 1822) are considered sister species (Loh et al. 2015). Based on the summarized morphological comparisons of the species under the genus *Strophidon* given by Huang et al. (2020), they have overlapping meristic counts which include infraorbital pores (both 3–4), supraorbital (both 3), preoperculo-mandibular (5–7 vs. 6–7), branchial pores (2–6 vs. 2–7), and pre-anal vertebrae (62–73 vs. 73–82). Moreover, these two species have unpatterned body coloration, short snouts, and an anus located before body mid-length. However, *S. dorsalis* can further be distinguished from *S. sathete* based on the number of teeth on the inner maxillary (2–7 vs. 10–15), teeth on the inner dentary (3–5 vs. 6–11), and total vertebrae (155–174 vs. 187–213). The specimen used in the study was initially identified as *S. dorsalis* based on the number of infraorbital pores (4) and fewer teeth on the lower jaw, and this was supported by the generated *COI* sequence.

Conclusions and recommendations

The presently reported study provides two new country records of moray eels, *Gymnothorax nudivomer* and *Strophidon dorsalis*, from Philippine waters. Additionally, a list of geographic records for both species is provided, along with the list of all species under the two genera *Gymnothorax* and *Strophidon* documented in the country.

The morphological descriptions and mitochondrial cytochrome oxidase I (*COI*) barcode sequences provided will aid in the more accurate identification of these species. Moreover, the findings expand our understanding of the distribution of these species and contribute to ongoing efforts to establish a comprehensive genetic library for marine fish species in the Philippines.

Due to a lack of studies, there are still many unreported marine fish species from the Philippines. Some of the recently reported species are presumed to have been overlooked because they share local names with similar-looking species. One of the best examples is the local name for all species of *Strophidon* found in Western Visayas, which is “*nipa-nipa*”. Therefore, we recommend assigning specific local names (standard names) to these newly-reported species to increase public awareness of their occurrence within the country, and help the scientific community distinguish between species. However, assigning Philippine local names requires additional research, including an updated compilation of all moray eels found in the country and their respective local names.

Acknowledgments

We gratefully acknowledge funding support from the UP System Emerging Inter-Disciplinary Research Program (OVPAE-EIDR-C08-011-R), the Leverage Fund from the Office of the Vice Chancellor for Research and Extension (OVCRE), University of the Philippines Visayas (2020-13-SP), and the Commission on Higher Education (CHED). We thank the Department of Agriculture, Bureau of Fisheries and Aquatic Resources (DA-BFAR), Provincial Government Unit, and the Office of Provincial Agriculture (PAO) from Aklan Province especially Ms. Gracean Villareal Perlas (Aklan PAO staff), Sunshine Sugang

(field enumerator of the project), and BFAR staff at Iloilo Fish Port Complex (IFPC) for their administrative support, generous assistance and contributions throughout project. We are also grateful to the Philippine Genome Center-Visayas Satellite Facility (PGC-VSF), the National Institute of Molecular Biology and Biotechnology (UPV-NIMBB), and the UPV Museum of Natural Sciences (UPV-MNS). Our gratitude and appreciation to E. Delloro Jr., K.D. Barnuevo, M.V. Aranjuez, N. Ylaron, D. Mediodia, L. Mooc, C. Garinggan, J. Ariñez, A.G. Deallo, N. Cartago, J. Velo,

S. Garcia, and C. Javier, for their generous help throughout the project. This study was supported in part by JSPS KAKENHI Grant Numbers 20H03311 and 21H03651; the JSPS Core-to-Core CREPSUM JPJSCCB20200009; and the “Establishment of Global Research and Education Network in the Amami Islands” project of the Kagoshima University adopted by the Ministry of Education, Culture, Sports, Science and Technology, Japan. We thank the two anonymous reviewers for their comments that helped improve the quality of our study.

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