

## A review on the gobioid fishes (Gobiiformes: Gobioidae) of the andaman and nicobar islands (india) with two new records

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### Abstract

The Andaman and Nicobar Islands consist of 572 islands, islets etc., covering almost 800 km distance in North-South direction, with a coastline of 1962 km, have shelf topography of frequent rises supporting coral reefs. Besides coral reefs, the shore is composed of rocky and sandy areas and vast stretches of mangrove swamps. Owing to the varied marine habitats, ichthyofauna of these islands is observed to be one of the most diverse in the world. Zoo-geographically this region is the confluence of the Andaman Sea with the Western Pacific and the Indian Ocean that adds to its higher fish diversity. Recent update on ichthyofauna of these islands comprises a total of 1657 species of fishes belonging to 692 genera, 205 families and 55 orders. The order Gobiiformes forms the largest group among the fishes reported from the Andaman and Nicobar Islands containing 177 species belonging to 76 genera in previously treated four families (Trichonotidae, Eleotridae, Gobiidae and Microdesmidae). This paper reports first incidence of two more species of gobies (Gobiidae), namely *Pleurosicya mossambica* Smith, 1959 and *Parioglossus rainfordi* McCulloch, 1921, with pictorial evidence which are not only new additions to Andaman and Nicobar Islands but also to Indian waters. The paper also reviews status of few species earlier reported.

**Keywords:** Diversity, ichthyofauna, Gobiidae, Oxudercidae, mangrove gobies.

### Introduction

Andaman and Nicobar islands, situated in the Bay of Bengal between 6°45'–13°45'N and 92°10'–94°15'E, consist of 572 islands, islets, rocks and spread over a distance of almost 800 km in North-South direction, with a coastline of 1962 km, and bring in for India an Exclusive Economic Zone (EEZ) of 600 thousand square kilometers. The shelf topography of these islands shows frequent rises supporting coral reefs, which are characterised by fringing reefs on the eastern side and barrier reefs off west coast; and depressions in form of passages and straits. Besides coral reefs, the shore is composed of rocky and sandy areas and vast stretches of mangrove swamps. Owing to the varied marine habitats, ichthyofauna of these islands is observed to be one of the most diverse in the world. The fish diversity in these waters also receives special attention in terms of marine zoo-geography, because the area forms a confluence of Andaman Sea fishes with the western Pacific and the Indian Ocean.

The fish fauna of Andaman and Nicobar Islands are still not thoroughly known and new species or new records are being discovered every now and then. Blyth (1846) was first to publish a small note on 'Fauna of Nicobar Islands', in which he named only eight species of fishes. Day (1871) gave a comprehensive account of fishes from Andamans comprising 255 species, which include only 15 species of gobies. Although Koumans (1940) could have collected only 16 species from Andamans, Koumans (1941) in his work on 'Gobioid fishes of India' studied 37 species of gobioid fishes from Andaman and Nicobar Islands. However, Herre (1941) reported 54 species of gobioid fishes from these islands. Talwar's (1990) list on the fishes from Andaman and Nicobar Islands, compiled largely from literature, included 68 species of gobioids. Kamla Devi (1991) added 11 more names to this list. Rao *et al.* (2000) in their monograph "An account of Ichthyofauna of Andaman and Nicobar Islands" studied 539 species of fishes including 35 species of Gobies. Ramakrishna *et al.* (2010) gave a list of 127 gobioid fishes

including 20 new records. Rajan and Mishra (2020) in an updated checklist of fishes of Andaman and Nicobar Islands enlisted 169 species of gobioid fishes, while two names, *Eleotris feliceps* Blyth 1860 and *Kraemicus smithi* Menon & Talwar 1973, were kept aside as ‘status uncertain’ and *Priolepis eugenius* (Jordan & Evermann 1903) reported earlier (Menon and Talwar, 1973) from the Nicobars was considered as ‘unlikely to occur’.

The present paper is aimed at reviewing gobioid fishes (Gobiiformes: Gobioidae) occurring in the waters of Andaman and Nicobar Islands. Currently, the order Gobiiformes contains two suborders: Trichonotoidei (one family) and Gobioidae (eight families). In Andaman waters, the suborder Trichonotoidei is represented by the family Trichonotidae with just one species and the suborder Gobioidae by four families, i.e. Eleotridae, Butidae, Oxudercidae and Gobiidae. In current classification (Scharpf, 2023), the family Oxudercidae includes taxa previously placed in the gobiid subfamilies Amblyopinae, Gobionellinae, Oxudercinae and Sicydiinae. And, the family Gobiidae includes taxa formerly included in the suborder Gobiinae and the families Kraemeriidae, Microdesmidae and Schindleriidae. The same classification is followed in this paper. Further, two gobiid fishes, namely *Pleurosicya mossambica* Smith, 1959 and *Parioglossus rainfordi* McCulloch, 1921, are reported for the first time from Andamans as well as from India with pictorial evidence. The paper also discusses status of few more species earlier reported but not considered for the list presented here.

### Materials and Methods

This study was carried out to assess the species diversity of gobiiform fishes of Andaman and Nicobar Islands. The use of SCUBA-diving equipment and underwater camera is responsible for a quantum leap in our knowledge of reef fishes over the past 25 years. With this knowledge underwater camera was used for fish sampling while diving with SCUBA. *In situ* photograph of *Pleurosicya mossambica* was taken in the coral reef areas of Swaraj dweep (Havelock Island) at about 10m depth and that of *Parioglossus rainfordi* from submerged mangroves near Chidiya Tapu, Port Blair at about

2m depth using the Canon EOS 5D Mark III camera. Identification of the fishes was carried out following relevant literatures, such as Rennis & Hoese (1985), Larson (1990), Allen & Erdmann (2012). Taxonomic classification and nomenclature follows Scharpf (2023). The review was done on the basis of published literature till date.



*Pleurosicya mossambica* Smith, 1959



Adult (up) and Juvenile (down)

*Parioglossus rainfordi* McCulloch, 1921

### Results and Discussion

In a recent update by the authors it is ascertained that a total of 1657 species of fishes belonging to 692 genera, 205 families and 55 orders were reported from Andaman and Nicobar Islands (Table 1). Of which, 176 species

belonging to 75 genera are Gobioids (suborder Gobioidae) distributed in four families: Eleotridae (05 genera, 08 species), Butidae (03 genera, 08 species), Oxudercidae (26 genera, 45 species) and Gobiidae (41 genera, 115 species) (Table 2). In the recent past sea-change have been occurred in the field of ichthyotaxonomy. Several new orders have been erected. Particularly the largest

order Perciformes have been divided into many smaller orders. Hence, though Rajan & Mishra (2020) have shown presence of only 38 orders, it is now raised to 55 orders in Andaman waters. In the current classification, among the marine fishes in the world, after Perciformes (3304 species), the order Gobiiformes contain maximum number of fishes (2370 species) distributed in nine families (Scharpf 2023).

**Table 1. Major orders of fishes from Andaman and Nicobar Islands**

S.No.	ORDERS	No. of families	No. of Genera	No. of Species	% of species richness
1	Gobiiformes	05	76	177	10.68
2	Acanthuriformes	15	45	155	9.35
3	Perciformes	13	52	130	7.78
4	Cichliformes	07	24	117	7.06
5	Carangiformes	20	58	116	7.00
6	Labriformes	01	27	80	4.83
7	Lutjaniformes	02	17	79	4.77
8	Tetraodontiformes	08	40	74	4.46
9	Blenniiformes	02	26	68	4.10
10	Syngnathiformes	09	28	67	4.04
11	Anguilliformes	10	32	55	3.32
12	Kurtiformes	01	19	53	3.20
13	Total 12 orders	93 families	444 genera	1171 species	70.67
14	Rest 43 orders	112 families	248 genera	486 species	29.33
TOTAL	Orders 55	Families 205	Genera 692	Species 1657	100.00

The gobioid fishes form the dominant portion of the small fishes inhabiting benthic tropical reefs around the world. Additionally, the gobies are usually the most abundant freshwater fish on oceanic islands. This group is poorly known due to their cryptic and secretive nature and so, about 50–60 new species are described each year worldwide [676 new species in last 10 years (Fricke, Eschmeyer & Fong 2023)], making them the group with the greatest number of newly described species. Gobies are found worldwide in fresh, brackish and saltwater. They are concentrated in the tropics and subtropics, mainly of the Indo-Pacific region. Coral

reef, Mangrove, Seagrass and Freshwater ecosystems are the most important habitats that provide values and benefits in various aspects. Their environment regime and characteristics are suitable for extensive assemblages of a vast variety of aquatic organisms encompassing over a wide spectrum of forms from autotrophs to heterotrophs, from tiny invertebrates to mammals, from juveniles to adults, from sedentary inhabitants to highly migratory ones, or from dependent residents to transitory ones. More specifically these habitats have been frequently referred as an important nursery area. In the socioeconomic point of view, these ecosystems provide significant commercial



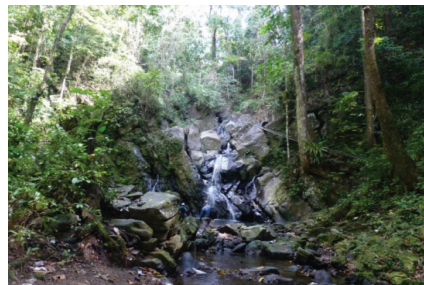
values to local fishermen and onto tradesmen by fishery products gained either directly from fishing or indirectly from aquaculture. Each habitat has its own characteristic and most cases they are interconnected or associated. Fish utilizing these habitats also basically share species pool of inshore fish. The results however can be served as an aid for baseline information for monitoring purposes and could also prompt interest for future researches emphasizing the population dynamic or community structures of fish in these ecosystems.

Gobioids are extremely successful in their ability to exploit microhabitats inaccessible to most other fishes. They are found from plain streams to mountain streams on islands to ocean. On coral reefs, they can be found in the numerous cracks and crevices or out in the open among corals. Others build burrows or use the burrows of invertebrates, ranging from polychaete worms to shrimps and clams. Gobies have uniquely adapted to tide-pools, mudflats and mangrove swamps, where some even climb out of the water for extended periods to forage. Still others build numerous holes along sandy beaches or compose a large part of the fishes in estuaries, inland seas and continental shelf environments. Gobioid fishes are extremely successful in freshwater habitats. Some species have a short marine life-stage while others have evolved to live completely within freshwater environments. Gobioids include some of the smallest known vertebrates

with several species reaching a minuscule adult length of 8-10 mm total length. The majority of species are less than 10 cm in total length. For example, the numerous species of *Eviota* and *Trimma* typically reach maturity at 2-4 cm in total length. A large number of gobies form commensal relationships with alpheid shrimps. The shrimp partner excavates and continuously maintains the burrow, the entrance of which is often reinforced with rubble or shell fragments. The fish share the burrow with shrimp, which is also its nesting chamber. Such shrimp-associates are mostly of the genera *Amblyeleotris*, *Ctenogobiops*, *Cryptocentrus*, *Mahidolia*, *Stonogobiops*, *Tomiyamichthys*, and *Vanderhorstia*. Members of the genera *Bryaniops*, *Phyllogobius*, and *Pleurosicya* are closely associated with sea-whips, gorgonian fans, tunicates, sponges, algae and corals, both hard and soft. These fishes are very small and largely transparent, and therefore difficult to detect as they blend in remarkably well with the texture of the host invertebrate. Branching hard corals, especially *Acropora* species, form a safe place for species of *Gobiodon* and *Paragobiodon* as well as few species of *Pleurosicya*. Many reefs of the Andaman and Nicobar Islands are very unique habitat conditions, where mangrove and silty bottom habitat is frequently mixed with coral reefs. The genera *Acentrogobius* and *Oxyurichthys* are found in non-reef habitats, frequently in turbid estuaries or among mangroves.



**Coral Reef**



**Freshwater Stream**



**Mangrove**

Gobioids are usually recognized by their small size, the existence of one long or two separate dorsal fins and a blunt round head with large eyes. Some have prominent head barbels as well. Most gobioid fishes have pelvic fins united to form an adhesive or sucking disc. However, some reef species and sleepers have highly

variable degree of separated pelvic fins. The scales may be cycloid, ctenoid, or absent and the lateral line is absent. Coloration in gobies ranges from vivid, especially in reef species like the brilliantly marked gobies, to drab, as in many estuarine species. Still others may be pallid or translucent. Although most reef gobies are sexually

monomorphic in terms of permanent coloration and gross morphology, temporary sexual dichromatism, colour differences between the sexes has been observed during

courtship and spawning on reefs and other habitats. When permanent sexual dimorphism does occur, it may vary even within a genus.



**Pelvic fins united to form an adhesive or sucking disc in majority of the gobies**

Gobioid fishes are classified as zooplanktivores, omnivores, and carnivores, as they feed on a wide variety of small organisms and egg of various invertebrates and fishes. Many of these fishes are quite selective in their feeding habits, favoring an individual prey item, such as a minute algae or small invertebrate. Others have evolved unusual adaptations to allowing feeding in habitats formerly off-limits to fish. Due to their small size, gobioids have many predators, such as sea snakes, shore birds and larger fishes. It's no surprise that they have developed a wide range of behaviors to defend themselves. Perhaps the most characteristic feature of gobioids is their secretive nature. They rarely leave their burrows and display a wide range of colouration for camouflage. Some gobies are translucent and have only a few coloured spots to match their surroundings. Some species are shrimp-associates forming symbiotic relationships with shrimp. Others live within sponges, sea urchins, the branches of corals for protection. Gobioid fishes are extremely important in almost any ecosystem they occupy because their relative abundance makes them an essential part of the food chain. They have the greatest impact on the benthic environment since most reside there. Gobioids may be the keystone species (dominant in the food chain) in the freshwaters of

small oceanic islands because they are often one of the few species of fish that exist in these areas. In the Andaman and Nicobar Islands few gobies form a small portion of the catch as they migrate upstream in freshwater creeks. These small fishes can be successfully bred in captivity for aquarium trade. Habitat destruction, pollution, agricultural practices and the introduction of non-native species are some important causes for the decline of many gobies. This is not surprising considering the diversity of this family and the fact that many are confined to a single river system, or one or few islands. Some may go extinct before humans become aware of their existence.

No comprehensive work has so far been made on gobioid fishes of Andaman and Nicobar Islands except for some scattered information. There have been considerable changes in the systematic, taxonomy and nomenclature of species belonging to the gobioids during last two decades. The present contribution on the Gobioid fishes (suborder Gobioidi) of Andaman and Nicobar Islands deals with 176 species comprising 75 genera distributed in four families, namely Eleotridae (05 genera, 08 species), Butidae (03 genera, 08 species), Oxudercidae (26 genera, 45 species) and Gobiidae (41 genera, 115 species) (Table 2).

**Table 2. Genera of gobioid fishes from Andaman and Nicobar Islands**  
(Number of species is within parentheses)

<b>Order: GOBIIFORMES: SUBORDER GOBIOIDEI</b>			
<b>ELEOTRIDAE (Spinycheek Sleepers) (8)</b>			
<i>Belobranchus</i> (2)	<i>Bunaka</i> (1)	<i>Eleotris</i> (3)	<i>Giuris</i> (1)
<i>Hypseleotris</i> (1)			
<b>BUTIDAE (Butid Sleepers) (8)</b>			
<i>Bostrychus</i> (1)	<i>Butis</i> (5)	<i>Ophiocara</i> (2)	
<b>OXUDERCIDAE (Mudskipper Gobies) (45)</b>			
<i>Awaous</i> (4)	<i>Boleophthalmus</i> (1)	<i>Caragobius</i> (1)	<i>Gnatholepis</i> (1)
<i>Gobiopterus</i> (1)	<i>Hemigobius</i> (1)	<i>Lentipes</i> (1)	<i>Mugilogobius</i> (1)
<i>Odontamblyopus</i> (1)	<i>Oligolepis</i> (2)	<i>Oxuderces</i> (1)	<i>Oxyurichthys</i> (4)
<i>Parapocryptes</i> (1)	<i>Paratrypauchen</i> (1)	<i>Periophthalmodon</i> (2)	<i>Periophthalmus</i> (7)
<i>Pseudapocryptes</i> (1)	<i>Pseudogobius</i> (1)	<i>Pseudogobiopsis</i> (1)	<i>Redigobius</i> (4)
<i>Scartelaos</i> (1)	<i>Sicyopterus</i> (2)	<i>Stenogobius</i> (1)	<i>Stigmatogobius</i> (1)
<i>Taenioides</i> (2)	<i>Trypauchen</i> (1)		
<b>GOBIIDAE (Gobies) (115)</b>			
<i>Acentrogobius</i> (5)	<i>Amblyeleotris</i> (6)	<i>Amblygobius</i> (5)	<i>Arcygobius</i> (1)
<i>Asterropteryx</i> (4)	<i>Aulopareia</i> (1)	<i>Bathygobius</i> (2)	<i>Bryaninops</i> (5)
<i>Callogobius</i> (4)	<i>Cryptocentrus</i> (6)	<i>Ctenogobiops</i> (2)	<i>Drombus</i> (1)
<i>Eviota</i> (11)	<i>Exyrias</i> (1)	<i>Favonigobius</i> (1)	<i>Fusigobius</i> (4)
<i>Glossogobius</i> (3)	<i>Gobiodon</i> (4)	<i>Gobiopsis</i> (3)	<i>Gunnelichthys</i> (1)
<i>Istigobius</i> (4)	<i>Koumansetta</i> (1)	<i>Mahidolia</i> (1)	<i>Lobulogobius</i> (1)
<i>Nemateleotris</i> (2)	<i>Oplopomus</i> (2)	<i>Parachaeturichthys</i> (1)	<i>Paragobiodon</i> (1)
<i>Parioglossus</i> (2)	<i>Phyllogobius</i> (1)	<i>Pleurosicya</i> (2)	<i>Priolepis</i> (4)
<i>Psammogobius</i> (1)	<i>Pteroeleotris</i> (4)	<i>Stonogobius</i> (1)	<i>Sueviota</i> (1)
<i>Tomiyamichthys</i> (2)	<i>Trimma</i> (4)	<i>Valenciennesa</i> (6)	<i>Vanderhorstia</i> (3)
<i>Yongeichthys</i> (1)			

**Species of gobies (Oxudercidae and gobiidae) in six major groups**

**Mangrove Gobies**

- Aulopareia koumansii* (Herre 1937)
- Hemigobius hoevenii* (Bleeker, 1851)
- Odontamblyopus rubicundus* (Hamilton, 1822)
- Oligolepis acutipennis* (Valenciennes, 1837)
- Oligolepis dasi* (Talwar, Chatterjee & Dev Roy, 1982)
- Oxuderces nexipinnis* (Cantor 1849)
- Parachaeturichthys polynema* (Bleeker, 1853)
- Parapocryptes serperaster* (Richardson 1846)
- Paratrypauchen microcephalus* (Bleeker, 1860)



10. *Parioglossus rainfordi* McCulloch, 1921
11. *Parioglossus raoi* (Herre, 1939)
12. *Periophthalmodon schlosseri* (Pallas, 1770)
13. *Periophthalmodon septemradiatus* (Hamilton, 1822)
14. *Periophthalmus argentilineatus* Valenciennes, 1837
15. *Periophthalmus kalolo* Lesson, 1830
16. *Periophthalmus kallopterus* Bleeker 1854
17. *Periophthalmus malaccensis* Eggert, 1935
18. *Periophthalmus minutus* Eggert 1935
19. *Periophthalmus novemradiatus* (Hamilton, 1822)
20. *Periophthalmus variabilis* Eggert, 1935
21. *Psammogobius biocellatus* (Valenciennes, 1837)
22. *Pseudogobius poicilosoma* (Bleeker 1849)
23. *Scarteloas cantor* (Day, 1871)
24. *Stigmatogobius sadanundio* (Hamilton, 1822)
25. *Taenioides anguillaris* (Linnaeus, 1758)
26. *Taenioides cirratus* (Blyth, 1860)

#### SHRIMP GOBIES

1. *Amblyeleotris aurora* (Polunin & Lubbock, 1977)
2. *Amblyeleotris diagonalis* Polin & Lubbock, 1979
3. *Amblyeleotris downingi* Randall, 1994
4. *Amblyeleotris fontanesii* (Bleeker, 1853)
5. *Amblyeleotris latifasciata* Polunin & Lubbock, 1979
6. *Amblyeleotris steinitzi* (Klausewitz, 1974)
7. *Cryptocentrus cinctus* (Herre, 1936)
8. *Cryptocentrus fasciatus* (Playfair & Gunther, 1867)
9. *Cryptocentrus octofasciatus* Regan, 1908
10. *Cryptocentrus pavoninoides* (Bleeker, 1849)
11. *Cryptocentrus sericus* Herre, 1932
12. *Cryptocentrus strigiliceps* (Jordan & Seale, 1906)
13. *Ctenogobiops maculosus* (Fourmanoir, 1955)
14. *Ctenogobiops pomastictus* Lubbock & Polunin, 1977
15. *Mahidolia mystacina* (Valenciennes, 1837)
16. *Tomiyamichthys oni* (Tomiyama, 1936)

17. *Vanderhorstia ambanoro* (Fourmanoir, 1957)
18. *Vanderhorstia dorsomacula* Randall, 2007
19. *Vanderhorstia phaeosticta* (Randall, Shao & Chen, 2007)

#### COMMENSAL GOBIES

1. *Bryaninops amplus* Larson, 1985
2. *Bryaninops earlei* Suzuki & Randall, 2014
3. *Bryaninops loki* Larson, 1985
4. *Bryaninops tigris* Larson, 1985
5. *Bryaninops yongei* (Davis & Cohen, 1969)
6. *Gobiodon citrinus* (Ruppell, 1830)
7. *Gobiodon erythrospilus* Bleeker 1875
8. *Gobiodon histrio* (Valenciennes, 1837)
9. *Gobiodon rivulatus* (Rüppell, 1830)
10. *Lobulogobius morrighu* Larson, 1983
11. *Paragobiodon echinocephalus* (Ruppell, 1830)
12. *Phyllogobius platycephalops* (Smith, 1964)
13. *Pleurosicya bilobata* (Koumans, 1941)
14. *Pleurosicya boldinghi* Weber, 1913
15. *Pleurosicya mossambica* Smith, 1959

#### MICROGOBIES

1. *Asterropteryx atripes* Shibukawa & Suzuki, 2002
2. *Asterropteryx bipunctata* Allen & Munday 1995
3. *Asterropteryx ensifera* (Bleeker, 1874)
4. *Asterropteryx semipunctatus* Ruppell, 1830
5. *Eviota cometa* Jewett & Lachner, 1983
6. *Eviota distigma* Jordan & Seale, 1906
7. *Eviota guttata* Lachner and Karnella, 1978
8. *Eviota prasina* (Klunzinger, 1871)
9. *Eviota parasites* Jordan & Seale, 1906
10. *Eviota queenslandica* Whitley, 1932
11. *Eviota sebreei* Jordan & Seale, 1906
12. *Eviota sigillata* (Jewett & Lachner, 1983)
13. *Eviota storthyx* (Rofen, 1959)
14. *Eviota zebrina* Lachner & Karnella, 1978
15. *Eviota zonura* Jordan & Seale, 1906
16. *Priolepis cincta* (Regan 1908)
17. *Priolepis compita* Winterbottom, 1985
18. *Priolepis profunda* (Weber 1909)
19. *Priolepis semidoliatus* (Valenciennes, 1837)

20. *Trimma griffithsi* Winterbottom, 1984
21. *Trimma naudei* Smith, 1957
22. *Trimma sanguinellus* Winterbottom & Southcott, 2007
23. *Trimma striatum* (Herre, 1945)

#### SAND AND MUD GOBIES

1. *Acentrogobius caninus* (Valenciennes, 1837)
2. *Acentrogobius janthinopterus* (Bleeker, 1853)
3. *Acentrogobius madraspatensis* Day, 1868
4. *Acentrogobius suluensis* (Herre, 1927)
5. *Acentrogobius viridipunctatus* (Valenciennes, 1837)
6. *Amblygobius albimaculatus* (Ruppell, 1828)
7. *Amblygobius bynoensis* (Richardson, 1844)
8. *Amblygobius decussatus* (Bleeker, 1855)
9. *Amblygobius nocturnes* (Herre, 1945)
10. *Amblygobius semicinctus* (Bennett, 1833)
11. *Arcygobius baliurus* (Valenciennes, 1837)
12. *Bathygobius coalitus* (Bennett 1832)
13. *Bathygobius fuscus* (Ruppell, 1830)
14. *Boleophthalmus boddarti* (Pallas, 1770)
15. *Callogobius andamanensis* Menon & Chatterjee, 1974
16. *Callogobius hasselti* (Bleeker, 1851)
17. *Callogobius mannarensis* Rangarajan 1970
18. *Callogobius trifasciatus* Menon & Chatterjee, 1974
19. *Caragobius urolepis* (Bleeker, 1852)
20. *Drombus triangularis* (Weber, 1909)
21. *Exyrias puntang* (Bleeker, 1851)
22. *Favonigobius reichei* (Bleeker, 1854)
23. *Fusigobius duospilus* Hoese & Reader, 1985
24. *Fusigobius inframaculatus* (Randall, 1994)
25. *Fusigobius neophytus* (Gunther, 1877)
26. *Fusigobius signipinnis* (Hoese & Obika, 1988)
27. *Glossogobius bicirrhosus* (Weber, 1894)
28. *Glossogobius giuris* (Hamilton, 1822)
29. *Gnatholepis cauerensis* (Bleeker, 1853)
30. *Gobiopsis arenaria* (Snyder, 1908)
31. *Gobiopsis quinquecincta* (Smith, 1931)
32. *Gobiopsis woodsi* Lachner & Mc. Kinney, 1978
33. *Gobiopterus smithi* (Menon & Talwar 1975)
34. *Gunnellichthys viridescens* Dawson, 1968
35. *Istigobius decoratus* (Herre, 1927)
36. *Istigobius diadema* (Steindachner, 1876)
37. *Istigobius goldmanni* Bleeker, 1852
38. *Istigobius ornatus* (Ruppell, 1830)
39. *Koumansetta hectori* (Smith, 1957)
40. *Nemateleotris decora* Randall & Allen, 1973
41. *Nemateleotris magnifica* Fowler, 1938
42. *Oplopomus caninoides* (Bleeker, 1852)
43. *Oplopomus oplopomus* (Valenciennes, 1837)
44. *Oxyurichthys microlepis* (Bleeker, 1849)
45. *Oxyurichthys ophthalmonema* (Bleeker 1856)
46. *Oxyurichthys papuensis* (Valenciennes, 1837)
47. *Oxyurichthys tentacularis* (Valenciennes, 1837)
48. *Pseudapocryptes elongatus* (Cuvier 1816)
49. *Ptereleotris caeruleomarginata* Allen, Erdmann & Cahyani, 2012
50. *Ptereleotris evides* (Jordan & Hubbs, 1925)
51. *Ptereleotris hanae* (Jordan & Snyder, 1901)
52. *Ptereleotris heteroptera* (Bleeker, 1855)
53. *Ptereleotris microlepis* Bleeker, 1856
54. *Stonogobiops nematodes* Hoese & Randall, 1982
55. *Sueviota lachneri* Winterbottom & Hoese, 1988
56. *Trypauchen vagina* (Bloch & Schneider, 1801)
57. *Valenciennea decora* Hoese & Larson, 1994
58. *Valenciennea limicola* Hoese & Larson, 1994
59. *Valenciennea puellaris* (Tomiyana, 1956)
60. *Valenciennea sexguttata* Valenciennes, 1837
61. *Valenciennea strigata* (Broussonet, 1782)
62. *Valenciennea wardii* (Playfair, 1867)
63. *Vanderhorstia phaeosticta* (Randall, Shao & Chen, 2007)
64. *Yongeichthys nebulosus* (Valenciennes, 1837)

#### FRESHWATER GOBIES

1. *Awaous grammepomus* (Bleeker, 1849)
2. *Awaous litturatus* (Steindachner 1861)
3. *Awaous melanocephalus* (Bleeker, 1849)
4. *Awaous ocellaris* (Broussonet, 1782)
5. *Glossogobius celebius* (Valenciennes, 1837)



6. *Lentipes andamanicus* (Mukerji 1935)
7. *Mugilogobius tigrinus* Larson 2001
8. *Pseudogobiopsis oligactis* (Bleeker 1875)
9. *Redigobius balteatus* (Herre, 1935)
10. *Redigobius bikolanus* (Herre, 1927)
11. *Redigobius oyensi* (de Beaufort 1913)
12. *Redigobius tambujon* (Bleeker, 1854)
13. *Sicyopterus garra* Hora, 1925
14. *Sicyopterus microcephalus* (Bleeker, 1854)
15. *Stenogobius gymnopomus* (Bleeker, 1853)

All the species known in the families - Eleotridae and Butidae, are found in fresh- and brackish waters, few entering marine zone. Hence they are usually considered as freshwater forms, but excluded from the above list. Some of the earlier checklists included few other names, but those are not included here and so, need explanation. Blyth (1860) described *Eleotris feliceps* from Port Blair which Larson & Buckle (2012) considered of uncertain status, possibly in *Gnatholepis* or *Asterropteryx*. *Eleotris cavifrons* described by Blyth (1860) from Port Blair is treated now here as a synonym of *Eleotris fusca* following Kottelat (2013). *Ophiocara aporos* (Bleeker) or *Ophieleotris aporos* reported from Andamans is considered as *Giuris margaritacea* (Valenciennes) (Kottelat 2013). In the family Butidae, reports of *Eleotris scintillans* by Blyth (1860) and *Eleotris litoralis* by Day (1876) are now relegated to the synonymy of *Ophiocara porocephala* (Valenciennes) (Parenti 2021). Day (1888) used the name *Eleotris tumifrons* alternative to his *E. ophicephalus* specimens and so, this is here treated as *Ophiocara ophicephalus*.

In Oxudercidae: Day (1876) erroneously treated *Gobius grammepomus* Bleeker, *G. personatus* Bleeker and *G. stoliczkae* Day as conspecific, and thus, listed *Gobius personatus* Bleeker, while the original report was *Gobius stoliczkae*, a synonym of *A. grammepomus* Bleeker (Kottelat 2013). Hence *Awaous personatus* listed in various checklists is not considered as occurring in Andamans as it was never caught after Day (1876). Koumans (1941) misapplied the name *Awaous stamineus* to *Awaous lituratus* specimens, what he considered a synonym of the former along with *Euctenogobius striatus* of Day (1868). The same was followed by Rao et al. (2000)

and others. Further, for a brief period *A. stamineus* from India was treated as *A. guamensis*, which is occurring Pacific Islands and unlikely to occur in Indian Ocean. *Euctanogobius striatus* Day is now considered as a synonym of *Awaous lituratus* (Staindachner) (Kottelat, 2013) and so, this nomenclature is used here against the reports of *A. stamineus* and *A. guamensis*. *Kraemicus smithi*, described by Menon & Talwar (1972) from Great Nicobar Island is tentatively allocated to the genus *Gobiopterus* following Kottelat (2013). However, it is uncertain and need further investigation. Jaafar & Parenti (2016) shows that *Oxuderces dentatus* is restricted to western Pacific (eastern China and Macao), while *Oxuderces nexipinnis* is widely distributed in eastern Indian Ocean and that prompted us to use the later name for Andaman specimens. *Euctenogobius andamanensis* of Day (1871) and *Oxyurichthys talwari* of Mehta et al. (1989) described from Andamans are now relegated to the synonymy of *Oxyurichthys ophthalmonema* (Bleeker) (Parenti 2021). *Oxyurichthys tentacularis andamanensis* described by Mehta, in Mehta, Mehta & Devi (1990) is now considered as *O. tentacularis* (Valenciennes) (Parenti 2021). Murdy (1989) treated *Apocryptes macrolepis* (Bleeker) reported by Day (1871) as a synonym of *Parapocryptes serperaster* (Richardson). *Periophthalmodon tredecemradiatus* (Hamilton) listed by Talwar (1990) is conspecific with *Periophthalmodon septemradiatus* (Hamilton) (Parenti 2021). *Periophthalmus koelreuteri* Pallas and *Periophthalmus papilio* Bloch & Schneider are junior synonyms of *Periophthalmus barbarus* (Linnaeus), a species known from western Africa. Based on the observations of Koumans (1941, 1953), Andaman specimens are herewith treated as *Periophthalmus kalolo* Lesson. Further, *Periophthalmus dipus* Bleeker listed by Talwar (1990) is now treated as *P. kalolo* by Kottelat (2013). *Periophthalmus fuscatus* described from Port Blair by Blyth (1858) is relegated to synonymy of *Periophthalmus kallopterus* Bleeker (Kottelat 2013; Parenti 2021). *Apocryptes lanceolata* reported by Day (1871) from Andaman Islands is a synonym of *Pseudapocryptes elongatus* (Cuvier) (Murdy 1989). Larson & Hammer (2021) considered *Gobius javanicus* Bleeker as a junior synonym of *Pseudogobius poicilosoma*. Talwar (1990) listed this species as *Pseudogobius javanicus* and

*Stigmatogobius javanicus*. *Vaimosa koumansii* described by Mukerji (1935) and *Pseudogobiopsis romeri* (Weber) reported by Koumans (1940), which is also named as *Stigmatogobius romeri* or *Redigobius roemeri* for Andaman species by other authors, are synonymous with *Redigobius tambujon* (Bleeker) as per current parlance of nomenclature. *Boleophthalmus glaucus* of Day (1876) or *Scartelaos glaucus* (Day) is relegated to the synonymy of *Scartelaos cantoris* (Day) (Parenti 2021). *Amblyopus hermannianus* reported by Day (1871) and *Gobioides caeculus* by Day (1876) from Andamans are treated here as *Taenioides anguillaris*.

In the family Gobiidae: Report of *Ctenogobius grammatogaster* Bleeker from Great Nicobar Island by Menon & Talwar (1972) is relegated to the synonym of *Acentrogobius madraspatensis* (Day) (Larson et al., 2008; Parenti, 2021). *Gobius albopunctatus* (Valenciennes) recorded by Day (1871) is synonymised with *Bathygobius coalitus* (Bennett) (Parenti 2021). *Gobius breviceps* of Blyth (1858) from Port Blair is treated as *Bathygobius fuscus* (Rüppell) (Kottelat, 2013; Parenti, 2021). Some authors and checklists include *Acentrogobius bontii* based on report of *Acentrogobius bontii* var. *triangularis* (Weber) by Koumans (1940), which is considered as *Drombus triangularis* (Weber). *Eviota gymnocephalus* Weber listed in Rao (2009) and Ramakrishna et al. (2010) is treated as *Eviota zonura* Jordan & Seale (Lachner & Karnella, 1980). *Gobius andamanensis* of Day (1871) is a junior synonym of *Exyrias puntang* (Bleeker) (Parenti, 2021). Day (1876) described *Gobiodon quinquestrigatus* as having 'head with five vertical orange stripes and two irregular bands of the same colour pass along the body, breaking up into blotches' goes closely with *Gobiodon histrio*, whereas *G. quenquistrigatus* is known to have five vertical blue lines on head. Day's work was usually followed by workers from Andamans. Day (1876) was erroneous in treating *Gobius gobiodon* Day, synonym of *Gobius echinocephalus* Ruppell, as *Gobius melanosoma* Bleeker. The later species is yet to be definitely reported from Andamans. Menon & Talwar (1972) reported *Priolepis eugenus* from the Great Nicobar which seems to be endemic to Hawaiian Islands (Froese & Pauly, 2023) and so, unlikely to occur in our region. They

might have confused with *P. semidoloatus* specimens. In whichever combination it was named, *Ctenogobius criniger* or *Rhinogobius criniger* or *Yongeichthys criniger*; this species is to be treated as *Yongeichthys nebulosus* (Forsskal) (= *Acentrogobius nebulosus*) (Parenti, 2021).

With this taxonomic backdrop, surroundings of Andaman and Nicobar Islands harbours total 176 species of gobioid fishes (suborder Gobioidae) in four families: Eleotridae (08 species, 05 genera), Butidae (08 species, 03 genera), Oxudercidae (45 species, 26 genera) and Gobiidae (115 species, 41 genera). Above it, two more gobiid fishes (family Gobiidae), namely *Pleurosicya mossambica* Smith, 1959 and *Parioglossus rainfordi* McCulloch, 1921, are reported hereunder with pictorial evidence for the first time from Andamans and both are also first record from India.

## NEW RECORDS OF GOBIES

### ORDER: GOBIIFORMES

#### FAMILY: GOBIIDAE Cuvier 1816

#### Genus *Pleurosicya* Weber 1913

#### *Pleurosicya mossambica* Smith, 1959

#### (Mozambique Ghostgoby)

*Pleurosicya mossambica* Smith, 1959. *Ichth. Bull.* No. 13:218. Fig 37 (Type locality: Baixo Pinda, Mozambique).

*Pleurosicya mossambica*: Allen & Erdmann 2012: *Reef fishes of East Indies*, 3: 907.

**Diagnosis:** D VI + I, 7-8; A I, 7-8; P 16-20; LSS 20-27; nape fully scaled to behind eyes; gill opening broad, reaching to below posterior half of eye. Highly variable in colour, ranging from uniform brown or greenish to semi-transparent, but often red-brown with white saddles on back and whitish internal interrupted stripe dorsally on vertebral column. Attains 2.5 cm.

**Habitat and Distribution:** Found on a variety of host organisms, including plants, soft corals, sponges, tunicates, gorgonians, holothurians and sea pens. Known distribution is from Red Sea and East Africa to Marshall and Marquesa Islands; south to Australia, north to Japan.

**Note:** This species is photographed at about 10m depth at Swaraj Dweep (Havelock Island).

Genus *Parioglossus* Regan 1912  
*Parioglossus rainfordi* McCulloch, 1921  
 (Rainford's Dartfish)

*Parioglossus rainfordi* McCulloch, 1921, *Proc. Linn. Soc. N. S. Wales*, 46 (4): 471, Pl. 41, fig. 4 (Type locality: Bowen, Queensland, Australia).

*Parioglossus rainfordi*: Allen & Erdmann 2012: *Reef fishes of East Indies*, 3: 997.

**Diagnosis:** D V-VI + I, 14-17; A I, 14-16; P 16-18; V I, 4; LSS 90-109; head pores present around top and rear margin of each eye and two preopercular pores. Greyish, white on lower head and ventrally on side, black spot behind eye, narrow yellow stripe from eye to middle of caudal peduncle, black dusky grey to blackish stripe from pectoral fin base to lower caudal peduncle, black bar on upper two thirds of caudal fin base, blackish midlateral stripe on caudal fin and diffuse dusky brown oblique band across upper lobe of caudal fin. Attains 4.5 cm.

**Habitat and Distribution:** It forms aggregations among mangrove roots, sometime adjacent to coral reefs. Known distribution is from Indonesia, Philippines, Papua New Guinea, Pohnpei, New Caledonia, Australia and Yaeyama Islands.

**Note:** This species was found among mangrove logs near Chidiya Tapu, Port Blair, at about 2m depth. Even though this species name was included in Rajan & Mishra (2020), there was no published taxonomic information, and material or photographic evidence available elsewhere for this species from Andaman Islands.

## Conclusions

A recent update by the authors indicates occurrence of 1657 species of fishes belonging to 692 genera, 205 families and 55 orders from Andaman and Nicobar Islands that include a total of 176 species of gobioid fishes (suborder Gobioidae) in four families: Eleotridae (08 species, 05 genera), Butidae (08 species, 03 genera), Oxudercidae (45 species, 26 genera) and Gobiidae (115

species, 41 genera). The present paper reports occurrence of two more Gobiid fish, *Pleurosicya mossambica* Smith, 1959 and *Parioglossus rainfordi* McCulloch, 1921, from Swaraj Dweep and Chidiya Tapu, Port Blair respectively with pictorial evidence. They form new additions to Indian waters as well. These islands lie in the eastern outer part of the Bay of Bengal, just west and adjacent to the Coral Triangle, the richest area for marine life in the world. It seems that the Andaman and Nicobar Islands coast has a regular connectivity with the south-eastern coast of Indonesia and north-eastern coast of Burma as observed the tropical affinity species. The fish diversity in these waters also receives special interest in terms of marine zoo-geography because of the confluence of Andaman Sea fishes with Western Pacific and the Eastern Indian Ocean. Long-term monitoring studies will allow a better understanding of connectivity patterns along the coast of Andaman and Nicobar Islands as well as the possible establishment of new populations of species.

## Acknowledgments

The authors wish to thank Dr K. Venkataraman, former Director, Zoological Survey of India, Kolkata and Dr C. Raghunathan, former Officer in Charge, Zoological Survey of India, Port Blair for the facilities provided and encouragement extended throughout the work. Thanks to late Dr. J E R Randall Bishop Museum, Hawaii, USA, Dr Rema Devi, Zoological Survey of India, Chennai, Dr Philippe Keith- Assistant Director, Curator of fishes, Museum National d'Histoire Naturelle- France and Dr Helen K. Larson Curator Emeritus, Fishes Museum and Art Gallery of the Northern Territory Australia for the preparation of the manuscript by sharing their knowledge. Finally, authors wish to give special thanks to the reviewer for their expert comments and suggestions.

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