



Checklist of serranid and epinephelid fishes (Perciformes: Serranidae & Epinephelidae) of India

AKHILESH, K.V. ¹, RAJAN, P.T. ², VINEESH, N. ³, IDREESBABU, K.K. ⁴, BINEESH, K.K. ⁵,
MUKTHA, M. ⁶, ANULEKSHMI, C. ¹, MANJEBRAYAKATH, H. ⁷, GLADSTON, Y. ⁸ & NASHAD M. ⁹

¹ ICAR-Central Marine Fisheries Research Institute, Mumbai Regional Station, Maharashtra, India.

Corresponding author: akhikv@gmail.com; Email: anulekshmic@gmail.com

² Andaman & Nicobar Regional Centre, Zoological Survey of India, Port Blair, India. Email: rajanpt537@gmail.com

³ Department of Health & Family Welfare, Government of West Bengal, India. Email: vineeshnedumpally@gmail.com

⁴ Department of Science and Technology, U.T. of Lakshadweep, Kavaratti, India. Email: idreesbabu@gmail.com

⁵ Southern Regional Centre, Zoological Survey of India, Chennai, Tamil Nadu, India. Email: bineeshkk@gmail.com

⁶ ICAR-Central Marine Fisheries Research Institute, Visakhapatnam Regional Centre, Andhra Pradesh, India.

Email: muktham@gmail.com

⁷ Centre for Marine Living Resources and Ecology, Kochi, Kerala, India. Email: hashimaqua@gmail.com

⁸ ICAR-Central Island Agricultural Research Institute, Port Blair, Andaman and Nicobar Islands, India.

Email: greatgladston@gmail.com

⁹ Fishery Survey of India, Port Blair, Andaman and Nicobar Islands, 744101, India. Email: nasharocks22@gmail.com

Abstract

We provide an updated checklist of fishes of the families Serranidae and Epinephelidae reported or listed from India, along with photographs. A total of 120 fishes in this group are listed as occurring in India based on published literature, of which 25 require further confirmation and validation. We confirm here the presence of at least 95 species in 22 genera occurring in Indian marine waters. The majority of the species belong to the grouper genus *Epinephelus* (41%), followed by *Pseudanthias* (15%) and *Cephalopholis* (13%). Most species (92%) found in India have been assessed globally either as Data Deficient (DD) or Least Concern (LC) on the IUCN Red List of Threatened Species. Since information on groupers from India is limited, there is an urgent need to document the diversity, ecology, life history, population status, and fisheries status of this group of fishes from the country.

Key words: ichthyology, tropical marine fishes, groupers, seabasses, Indian Ocean, Andamans, conservation, threatened, endangered species.

Citation: Akhilesh, K.V., Rajan, P.T., Vineesh, N., Idreesbabu, K.K., Bineesh, K.K., Muktha, M., Anulekshmi, C., Manjebayakath, H., Gladston, Y. & Nashad, M. (2021) Checklist of serranid and epinephelid fishes (Perciformes: Serranidae & Epinephelidae) of India. *Journal of the Ocean Science Foundation*, 38, 35–65.

doi: <https://doi.org/10.5281/zenodo.5151903>

The percoid fishes of the families Serranidae and Epinephelidae, often called groupers, rock cods, seabasses, creolefish, coney, hinds, hamlets, anthias, and soapfishes, are a large group of predatory fishes, especially important in fisheries for food and sport, aquaculture, and the main predatory component of the ichthyofauna in undisturbed tropical marine ecosystems (Smith & Craig 2007, Craig et al. 2011, Ma et al. 2016, Ma & Craig 2018, Rimmer & Glamuzina 2019). The group consists of at least 597 species in 72 genera, occurring in all oceans, but most species are from tropical and subtropical waters (Parenti & Randall 2020, Fricke et al. 2021).

In India, serranids and epinephelids constitute a relatively minor component of the large mixed-species fisheries operating at a wide range of depths and habitats. Groupers especially form a minor but valuable component in the fishery and contributed around 51,433 tons (1.5% by weight) to the country's fisheries landings in 2018 (excluding Andaman and Nicobar Islands) (CMFRI 2019). The estimated annual grouper landings have been sharply increasing, from the range of 12,000 to 25,000 tons per annum from 1995–2010 (decadal average of ca. 13,000 tons from 1991–2000 vs. ca. 20,000 tons from 2001–2010) up to ca. 40,000 tonnes from 2011–2019 (<http://eprints.cmfri.org.in/>). The northern Arabian Sea coastal states, such as Gujarat, Karnataka, and Maharashtra, accounted for more than 60% of the estimated total of mainland grouper landings. The grouper fishery is dominated by the spinycheek grouper, *Epinephelus diacanthus* (Valenciennes, 1828). Other members of the group do not contribute to a large degree in the commercial trade, except in unusual circumstances (see Kishore et al. 2019) or in localized fisheries. We aim here to compile and update the list of serranid and epinephelid fishes occurring in India.

Our checklist was compiled based on observations made by the authors at multiple landing centers across India. The species list was updated and assessed after extensive review of published and grey literature and photographs and reports shared by colleagues, including divers along the coasts of India, and valid sources on social media. We cross-checked our assessments with recent reviews and databases: including Craig et al. (2011), Parenti & Randall (2020), Froese & Pauly (2021), and Fricke et al. (2021). The IUCN Red List assessment status for each species was retrieved from the IUCN Red List of Threatened Species™ (2019) and the species list was updated for the IUCN Grouper Fishery Monitoring and Assessment Workshop planned for Hong Kong, subsequently held online on May 10–11, 2020 due to the pandemic. AKV, BKK, and MM were invited and participated in the assessment workshop.

Along with many other fish groups, India's serranid and epinephelid diversity remains poorly known. The earliest detailed account of these fishes in India was provided by Russell (1803) which illustrated several groupers from Visakhapatnam (Bay of Bengal) classified under *Perca*, i.e. 'bontoo', 'madinawa bontoo', 'rahtee bontoo' and 'Sugualatoo bontoo' (see Russell (1803) plates 20–23). *Epinephelus marginalis* Bloch, 1793 was likely the first epinephelid described from Indian waters (type locality listed as East India); that species is now under the synonymy *Epinephelus fasciatus* (Forsskal, 1775). Since then, only 34 species have been described from India (up to 2020) (Table 1), compared to 72 species of serranids and epinephelids described globally between 2012 and 2021 alone (Fricke et al. 2021). The oldest known valid Indian species is the orange-spotted grouper *Epinephelus coioides* (Hamilton, 1822) described as *Bola coioides* from the Ganges River. The original description mentions it to be the same as the 'bontoo' of Russell (1803). Many early researchers contributed to the grouper diversity of India (Bloch & Schneider 1801, Shaw 1812, Hamilton 1822, Valenciennes 1828, 1830, Kner 1864, Bleeker 1875, Day 1868a, b, 1878, Alcock 1890).

Compilations of grouper species for the whole of India (Day 1888, Misra 1962, Talwar & Kacker 1984, James et al. 1996) are now outdated; and more recent publications focus on commercially important groupers (Basheer et al. 2017, Rajan et al. 2017) and are also limited to regional checklists (Jones & Kumaran 1980, James et al. 1996, Rajan 2002, Sluka & Lazarus 2010, Kandula et al. 2015). There is a lack of a comprehensive assessment of the overall diversity and distribution of serranids and epinephelids in India. Our assessment considers 120 species reported from India (see Appendix Table 3 and Appendix color plates), with 25 of them requiring additional confirmation due to unverifiable or doubtful listings, questionable images, and/or inadequate descriptions, and/or the records being outside of the currently known range of distribution, and/or pending confirmations (Craig et al. 2011). We anticipate the diversity of this group in India will prove to be higher than we have confirmed, due to potentially new species descriptions pending, new records from India, and some known species in the fishery requiring taxonomic appraisal and revalidation.

TABLE 1
Serranid & epinephelid species of fishes described from India

Species described from India	Current status	Type locality *
<i>Sciaena formosa</i> Shaw in Shaw & Nodder 1812	<i>Cephalopholis formosa</i> (Shaw 1812)	Visakhapatnam
<i>Serranus homfrayi</i> Day 1871	<i>Cephalopholis leopardus</i> (Lacepède 1801)	Port Blair, Andaman Islands
<i>Serranus sonnerati</i> Val. in Cuvier & Valenciennes 1828	<i>Cephalopholis sonnerati</i> (Valenciennes 1828)	Puducherry
<i>Centropristis investigatoris</i> Alcock 1890	<i>Chelidoperca investigatoris</i> (Alcock 1890)	Off Madras coast
<i>Chelidoperca maculicauda</i> Bineesh & Akhilesh 2013	<i>Chelidoperca maculicauda</i> Bineesh & Akhilesh, 2013	Off Quilon
<i>Serranus glaucus</i> Day 1871	<i>Epinephelus areolatus</i> (Forsskål 1775)	Andaman Islands
<i>Epinephelus dayi</i> Bleeker 1875	<i>Epinephelus bleekeri</i> (Vaillant 1878)	Madras
<i>Serranus coromandelicus</i> Day 1878	<i>Epinephelus bleekeri</i> (Vaillant 1878)	Madras
<i>Serranus dermochirus</i> Val. in Cuvier & Valenciennes 1830	<i>Epinephelus coeruleopunctatus</i> (Bloch 1790)	Coromandel coast
<i>Bola coioides</i> Hamilton 1822	<i>Epinephelus coioides</i> (Hamilton 1822)	Ganges River
<i>Serranus suillus</i> Val. in Cuvier & Valenciennes 1828	<i>Epinephelus coioides</i> (Hamilton 1822)	Coromandel coast, Puduchery, Visakhapatnam
<i>Epinephelus dayi</i> Bleeker 1874	<i>Epinephelus diacanthus</i> (Valenciennes 1828)	Cochin
<i>Serranus diacanthus</i> Val. in Cuvier & Valenciennes 1828	<i>Epinephelus diacanthus</i> (Valenciennes 1828)	Malabar
<i>Serranus erythrurus</i> Val. in Cuvier & Valenciennes 1828	<i>Epinephelus erythrurus</i> (Valenciennes 1828)	Malabar
<i>Epinephelus marginalis</i> Bloch 1793	<i>Epinephelus fasciatus</i> (Forsskål 1775)	East India
<i>Holocentrus marginatus</i> Shaw 1803	<i>Epinephelus fasciatus</i> (Forsskål 1775)	East India
<i>Serranus bontoo</i> Val. in Cuvier & Valenciennes 1828	<i>Epinephelus faveatus</i> (Valenciennes 1828)	Visakhapatnam & Madras
<i>Holocentrus caeruleus</i> Shaw 1803	<i>Epinephelus flavocaeruleus</i> (Lacepède 1802)	Indian seas

TABLE 1 cont.
Serranid & epinephelid species of fishes described from India

Species described from India	Current status	Type locality *
<i>Priacanthichthys maderaspensis</i> Day 1868	<i>Epinephelus latifasciatus</i> (Temminck & Schlegel 1843)	Madras
<i>Serranus grammicus</i> Day 1868	<i>Epinephelus latifasciatus</i> (Temminck & Schlegel 1843)	Madras
<i>Serranus longispinis</i> Kner 1864	<i>Epinephelus longispinis</i> (Kner 1864)	Madras
<i>Holocentrus malabaricus</i> Bloch & Schneider 1801	<i>Epinephelus malabaricus</i> (Bloch & Schneider 1801)	Tranquebar
<i>Serranus semipunctatus</i> Val. in Cuvier & Valenciennes 1828	<i>Epinephelus malabaricus</i> (Bloch & Schneider 1801)	Puducherry
<i>Serranus radiatus</i> Day 1868	<i>Epinephelus radiatus</i> (Day 1868)	Near Madras
<i>Serranus lineatus</i> Val. in Cuvier & Valenciennes 1828	<i>Epinephelus undulosus</i> (Quoy & Gaimard 1824)	Puducherry
<i>Liopropoma randalli</i> Akhilesh, Bineesh & White 2012	<i>Liopropoma randalli</i> Akhilesh, Bineesh & White 2012	Off Mangalore
<i>Holanthias perumali</i> Talwar 1976	<i>Odontanthias rhodopeplus</i> (Günther 1872).	Off Kollam
<i>Plectranthias alcocki</i> Bineesh, Gopalakrishnan & Jena 2014	<i>Plectranthias alcocki</i> Bineesh, Gopalakrishnan & Jena 2014	Off Kollam
<i>Plectropoma leopardinus</i> Cuvier in Cuvier & Valenciennes 1828	<i>Plectropomus leopardus</i> (Lacepède 1802)	Indian sea
<i>Pseudanthias pillai</i> Heemstra & Akhilesh 2012	<i>Pseudanthias pillai</i> Heemstra & Akhilesh 2012	Off Chavakkadu
<i>Anthias bitaeniatus</i> Kotthaus 1973	<i>Pseudanthias conspicuus</i> (Heemstra 1973)	Off Mumbai
<i>Anthias conspicuus</i> Heemstra 1973	<i>Pseudanthias conspicuus</i> (Heemstra 1973)	Off Diu
<i>Pseudanthias vizagensis</i> Krishna, Rao & Venu 2017	<i>Pseudanthias pillai</i> Heemstra & Akhilesh 2012	Visakhapatnam
<i>Pseudogramma cernunnos</i> Prokofiev 2019	<i>Pseudogramma cernunnos</i> Prokofiev 2019	North of Great Nicobar Island
<i>Serranus oxyrhynchus</i> Val. in Cuvier & Valenciennes 1828	? <i>Serranus cabrilla</i> (Linnaeus 1758)	Malabar

* Madras [= Chennai], Puduchery [= Pondichery], Tranquebar [=Tharangambadi], Quilon [=Kollam], Visakhapatnam [= Vizagapatam]

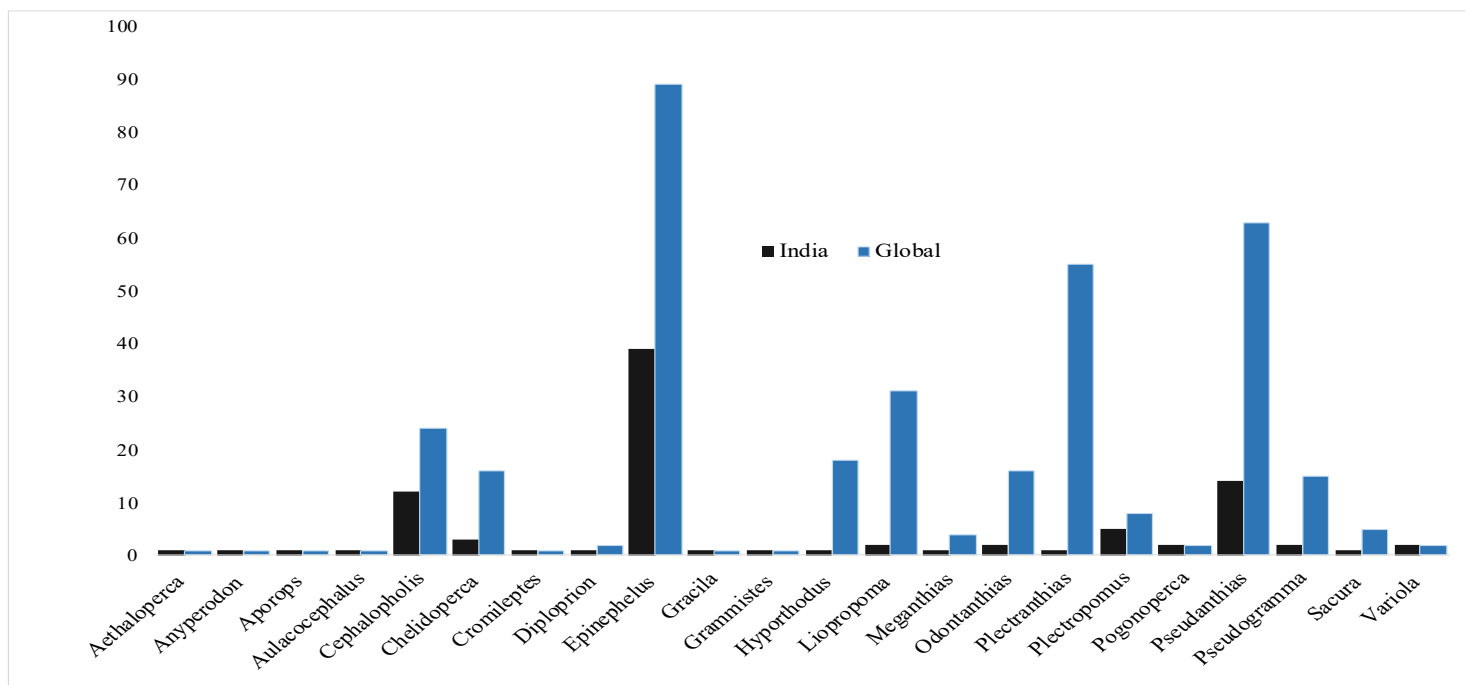


Figure 1. Relative diversity of serranid and epinephelid fishes in India and worldwide.

TABLE 2
Numbers of confirmed species in genera of serranid & epinephelid fishes

Genus	Species reported from India	Global Species
<i>Aethaloperca</i>	1	1
<i>Anyperodon</i>	1	1
<i>Aporops</i>	1	1
<i>Aulacocephalus</i>	1	1
<i>Cephalopholis</i>	12	24
<i>Chelidoperca</i>	3	16
<i>Cromileptes</i>	1	1
<i>Diploprion</i>	1	2
<i>Epinephelus</i>	39	89
<i>Gracila</i>	1	1
<i>Grammistes</i>	1	1
<i>Hyporthodus</i>	1	18
<i>Liopropoma</i>	2	31
<i>Meganthias</i>	1	4
<i>Odontanthias</i>	2	16
<i>Plectranthias</i>	1	55
<i>Plectropomus</i>	5	8
<i>Pogonoperca</i>	2	2
<i>Pseudanthias</i>	14	63
<i>Pseudogramma</i>	2	15
<i>Sacura</i>	1	5
<i>Variola</i>	2	2
total	95	357

A total of 95 species belonging to 22 genera were confirmed by our criteria to occur in Indian waters, accounting for 16% of the known serranids and epinephelids in the world (597). The diversity of genera is similar to that for the group from the entire Indo-Pacific region (Table 2). The genus *Epinephelus* is the most speciose, with 41% of total Indian species of this group, followed by *Pseudanthias* (15%) and *Cephalopholis* (13%) (Fig. 1).

The maximum species richness of this group documented in India occurs in Southern India and Andaman and Nicobar Islands. The lowest number of species was recorded for Lakshadweep, which could be a result of limited studies. In the northern part of the subcontinent, species diversity was low. The total was well higher than reported for neighboring countries including Pakistan (at least 24 species) and Myanmar (at least 50 species) (Psomadakis et al. 2015, 2019), likely due to India's large area of coastal waters and EEZ, diverse habitats, and broad latitudinal range.

Of the 95 species considered, 90 have been assessed in the global IUCN Red List with 9% categorized as Data Deficient (DD), 88% as Least Concern (LC), and 3% as Vulnerable (VU). In addition to these global assessments, there is an urgent need to undertake regional assessments, especially of the long-lived, highly exploited and clearly threatened species in Indian waters. Those groupers in the threatened category have a maximum reported size greater than 50 cm TL and include *Epinephelus polyphekadion* (Bleeker, 1849), *Epinephelus fuscoguttatus* (Forsskal, 1775) and *Plectropomus areolatus* (Ruppell, 1830) (Fig 2). The total of 92% of Indian species listed as DD or LC is similar to the global situation, where the majority of species are in these categories. In general, DD species are poorly documented, making it difficult to assess their true extinction risk (Sadovy et al. 2013, 2020).

In India, there is limited information on much of the marine fauna, including several exploited fish groups (Akhilesh et al. 2014, Tripathy & Mukhopadhyay 2015). Although groupers are a relatively small component of India's multi-species fishery, certain local grouper fisheries (Fig. 3) are significant (Advani et al. 2013), and the high rate of exploitation of juveniles in some species, like the Spinycheek grouper, are matters of conservation concern (Fig. 3D) (Dineshbabu & Radhakrishnan 2009). In the Andaman and Nicobar Islands, an export-oriented targeted fishery for reef fishes has developed (Advani et al. 2013) and high-intensity fishing in reef areas such as the Gulf of Mannar, Malvan, and a seasonal reef fishery in Lakshadweep region, are potential threats to these populations. With increased fishing effort, there is evidence of mean-length reduction in exploited fish populations (Akhilesh et al., in prep.). In the Indian groupers list, the largest species is *Epinephelus lanceolatus* (Bloch, 1790) with a

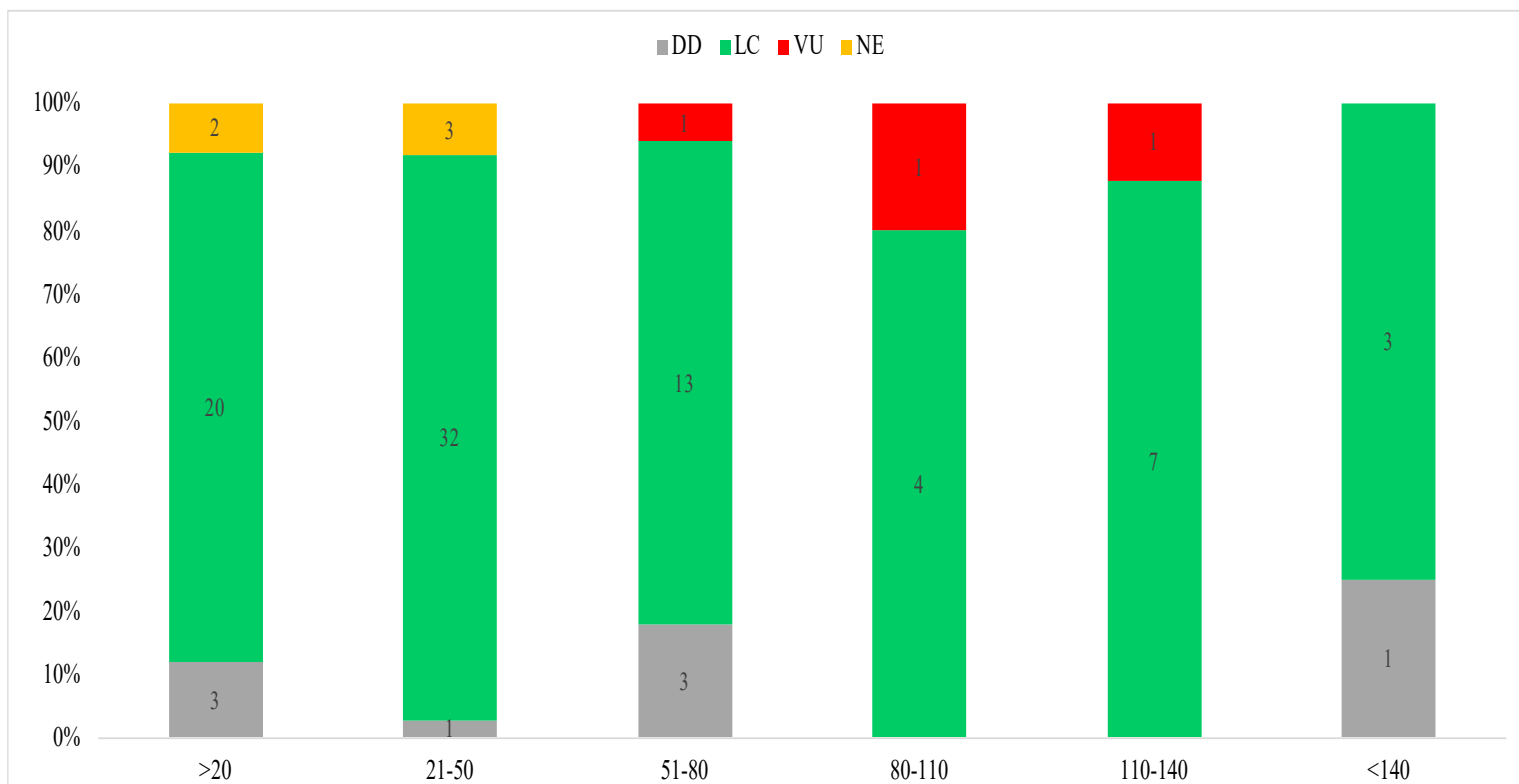


Figure 2. Proportion of serranid and epinephelid fishes in various IUCN Red List categories (93 species): DD= data deficient, LC= Least Concern, VU= Vulnerable.



Figure 3. Landings of groupers in India, A & B: Kerala; C: Andaman & Nicobar Islands; D: Maharashtra.

maximum reported size of 270 cm TL. The grouper fishery of India is dominated by medium-sized groupers with a maximum TL of 50 cm and even among these there is a predominance of juveniles. This exploitation of juveniles is a particular threat to many grouper species which have protogynous mating systems, potentially leading to population crashes. With increasing international and domestic demand for fish consumption, the exploitation of these fishes is likely to increase sharply, underscoring the urgent need for baseline assessments and intensive monitoring (Sadovy et al. 2020). The trade of the live reef fishes (including serranids) for the aquarium trade has received little attention, although this component is highly localized (Prakash et al. 2017). We recommend a regional and national status-assessment of serranids and epinephelids: it is likely many of the species currently assessed as DD or LC globally may fall in a higher threat category and lead to increased conservation efforts.

The giant grouper, *E. lanceolatus* is the only grouper being legally protected by inclusion in Schedule I (Part II A) of the Wildlife (Protection) Act 1972 of India since 2001. Globally the species has been assessed as DD by the IUCN Red List (Fennessy et al. 2018). Schedule I inclusion gives the species a highly protected status in India, similar to that for tigers and sawfishes.

In the Indian EEZ, there is a uniform fishing ban applicable to vessels (other than non-motorized) mostly from 15 April to 14 June for the east coast of India, and between 1 June to 31 July for the west coast. Coastal fisheries within 12 nm are managed by their respective coastal states. General fisheries-management measures like mesh-size regulation and fishing zones are also in place for different states under their Marine Fisheries Regulation Acts (MFRA). For example, the minimum legal size (MLS) for capture and trade of *E. diacanthus*, has been enacted by coastal states such as Kerala and Karnataka (at 18 cm TL). Besides these measures, community-based management and co-management measures are present in the Lakshadweep Islands, Andaman and Nicobar Islands, and Tamil Nadu (Sivadas & Godwin 2006, Jaini et al. 2018).

Marine faunal conservation in India has received very limited attention compared to terrestrial fauna. In addition, natural history collections in India give little attention to fishes, including serranids and epinephelids, and most fish species reported from India are not available in any single collection. Most of India's natural history collections, including fishes, are housed in the National Museum at Zoological Survey of India, Calcutta. The recent disasters, including the fire that destroyed the National Museum of Natural History (Delhi, India) in 2016 and the National Museum of Brazil in 2018 are a rationale to increase collections and promote dispersal of scientific materials across several institutions.

In summary, the effectiveness of management and conservation measures for serranid and epinephelid fishes in India is compromised by a general lack of species-specific information on key aspects of life history and population biology, fishery pressure, and poaching (e.g. Kirubasankar et al. 2019). Future efforts should be oriented towards critical information gathering, especially fishery monitoring, identification of breeding grounds and nursery areas, and, especially for groupers, potential spawning aggregations with the aim of implementing science-based conservation measures.

Acknowledgments

We thank Livi Wilson, Kishore, T.G., Swati Priyanka Sen, Tijo (ICAR-CMFRI), Anil Mohapatra (ZSI) Sileesh, M. (KUFOS), and Naveen, N. (Dakshin Foundation) for sharing information and images and Matthew Craig (NOAA), Rajeev Raghavan (KUFOS), and Yvonne Sadovy (The University of Hong Kong) for comments on the earlier version of manuscript. AKV, MM and KKB thank the IUCN and Bloom Foundation for the invitation to the IUCN Grouper Fishery Monitoring and Assessment Workshop. We thank The Biodiversity Heritage Library (BHL) for the open access collections. We thank the two anonymous reviewers whose comments have significantly improved the manuscript.

References

Advani, S., Sridhar, A., Namboothri, N., Chandi, M. & Oommen, M.A. (2013) *Emergence and transformation of marine fisheries in the Andaman Islands*. Dakshin Foundation and ANET Publications, Bengaluru, Karnataka, India, 50 pp.

- Ajith Kumar, T.T., Vinoth, R., Prakash, S. & Balasubramanian, T. (2012) *Reef fishes of the Lakshadweep archipelago*. Publications Division of the Annamalai University, Tamil Nadu, India, 180 pp.
- Akhilesh, K.V., Bineesh, K.K. & White, W.T. (2012) *Liopropoma randalli*, a new serranid (Teleostei, Perciformes) fish from the Indian Ocean. *Zootaxa*, 3439 (1), 43–50. <https://doi.org/10.11646/zootaxa.3439.1.2>
- Akhilesh, K.V., Bineesh, K.K., Gopalakrishnan, A., Jena, J.K., Basheer, V.S. & Pillai, N.G.K. (2014) Checklist of Chondrichthyans in Indian waters. *Journal of the Marine Biological Association of India*, 56(1), 109–120.
- Akhilesh, K.V., Pillai, N.G.K., Ganga, U., Bineesh, K.K., Shanis, C.P.R. & Manjebrayakath, H. (2009) First record of the anthiine fish, *Meganthias filiferus* (Perciformes, Serranidae) from Indian Waters. *Marine Biodiversity Records*, 2,e113. 1–2. <https://doi.org/10.1017/S1755267209001201>
- Alcock, A.W. (1890) Natural history notes from H.M. Indian marine survey steamer 'Investigator,' Commander R.F. Hoskyn, R.N., commanding. No. 16. On the bathybial fishes collected in the Bay of Bengal during the season 1889–1890. *Annals and Magazine of Natural History*, 6 (33), 197–222.
- Allen, G.R. & Erdmann, M.V. (2012) *Reef fishes of the East Indies*. Tropical Reef Research, Perth, Australia, 1292 pp.
- Anrose, A., Nair, K.N.V. & Ramachandran, S. (2007) Diversity of Perches Along the Coromandel Coast and its Economic Valuation. National symposium on conservation and valuation of marine biodiversity. *Zoological Survey of India, Kolkata*, 21–39.
- AqGRISI (2020) Aquatic Genetic Information System of India (AqGRISI). <http://mail.nbfgr.res.in/agrisi/>
- Arthur, R. (2004) *Patterns and processes of reef recovery and human resource use in the Lakshadweep Islands, Indian Ocean*. Ph.D thesis, James Cook University, Douglas, QLD 4811, Australia, 130 pp.
- Baiju, P.T., Prabhakaran, M.P., Pereira, F.G.B. & Jayaprakas, V. (2016) Rocky reef-associated fish diversity of south Kerala coast, India. *Journal of Aquatic Biology & Fisheries*, 4, 31–44.
- Balachandran, K. & Abdul Nizar, M.A. (1990) Check list of fishes of the Exclusive Economic Zone of India collected during the research cruises of FORV Sagar Sampada. In: *Proceedings of the first workshop on scientific results of FORV Sagar Sampada, 5–7 June 1989*, Kochi, India, pp. 305–324.
- Barik, T.K., Swain, S.N., Sahu, B., Tripathy, B. & Acharya, U.R. (2018) The First Record of *Cephalopholis formosa* (Perciformes: Serranidae) from the Marine Waters of Odisha Coast, Bay of Bengal, India. *Journal of Ichthyology*, 58 (5), 751–753.
- Barman, R.P., Mishra, S.S., Kar, S., Mukherjee, P. & Saren, S.C. (2011) Marine and estuarine fish. Fauna of Tamil Nadu, State Fauna Series. *Zoological Survey of India*, 17 (2), 293–417.
- Basheer, V.S., Vineesh, N., Bineesh, K.K., Kumar, R.G., Mohitha, C., Venu, S., Kathirvelpandian, A., Gopalakrishnan, A. & Jena, J.K. (2017) Mitochondrial signatures for identification of grouper species from Indian waters. *Mitochondrial DNA Part A*, 27, 451–457.
- Bijukumar, A. & Raghavan, R.A. (2015) Checklist of fishes of Kerala. *Journal of Threatened Taxa*, 13, 8036–8080.
- Bineesh, K.K., Akhilesh, K.V., Abdussamad, E.M. & Pillai, N.G.K. (2013) *Chelidoperca maculicauda*, a new species of perchlet (Teleostei, Serranidae) from the Arabian Sea. *Aqua International Journal of Ichthyology*, 19 (2), 71–78.
- Bineesh, K.K., Akhilesh, K.V., Abdussamad, E.M., Pillai, N.G.K., Thiel, R., Jena, J.K. & Gopalakrishnan, A. (2014a) A redescription of *Chelidoperca investigatoris* (Alcock, 1890) and *Chelidoperca occipitalis* Kotthaus, 1973 (Perciformes, Serranidae) from the south-west coast of India. *Indian Journal of Fisheries*, 61 (4), 117–122.
- Bineesh, K.K., Akhilesh, K.V., Gopalakrishnan, A. & Jena, J.K. (2014b) *Plectranthias alcocki*, a new anthiine fish species (Perciformes, Serranidae) from the Arabian Sea, off southwest India. *Zootaxa*, 3785 (3), 490–496.
- Bineesh, K.K., Akhilesh, K.V., Abdussamad, E.M. & Prakasan, D. (2014c) Seamount associated fishery of south-west coast of India – a preliminary assessment. *Indian Journal of Fisheries*, 61 (3), 29–34.
- Bineesh, K.K. (2015) *Molecular Taxonomy of Deep Sea Fishes Off the southern coast of India*. PhD thesis, Cochin University of Science and Technology, Kochi, Kerala, India, 214 pp. <http://dyuthi.cusat.ac.in/purl/5075>
- CMFRI (2019) *CMFRI Annual Report 2018–19. Technical Report*. Central Marine Fisheries Research Institute (CMFRI), Kochi, Ernakulam, Kerala, India. <http://eprints.cmfri.org.in/13922/>
- Craig, M.T., Sadovy de Mitcheson, Y. & Heemstra, P.C. (2011) *Groupers of the World, A Field and Market Guide*. CRC Press, Grahamstown, South Africa, 424 pp.

- Day, F. (1865) *The fishes of Malabar*. Bernard Quaritch, London, UK, 293 pp.
- Day, F. (1868a) On some new fishes from Madras. *Proceedings of the Zoological Society of London*, 1, 192–199.
- Day, F. (1868b). On some new or imperfectly known fishes of India. *Proceedings of the Zoological Society of London*, 3, 699–707.
- Day, F. (1871) On the fishes of the Andaman Islands. *Proceedings of the Zoological Society of London*, 3, 677–705.
- Day, F. (1875) *The fishes of India: being a natural history of the fishes known to inhabit the seas and fresh waters of India, Burma, and Ceylon. Part 1*. Bernard Quaritch, London, UK, pp. 1–168.
- Day, F. (1878) *The fishes of India: being a natural history of the fishes known to inhabit the seas and fresh waters of India, Burma, and Ceylon. Part 4*. Bernard Quaritch, London, UK, pp. 553–779.
- Day, F. (1888) *The fishes of India, being a natural history of the fishes known to inhabit the seas and fresh waters of India, Burma, and Ceylon*. Williams & Norgate, London, UK, pp. 779–816.
- Deepti, V.A.I., Shrikanya, K.V.L. & Sujatha, K. (2013) Morphometric variation and allozyme electrophoretic studies in hind grouper species of genus *Cephalopholis* (Epinephelidae) off Visakhapatnam, Central Eastern Coast of India. *International Journal of Science and Research*, 6, 533–542.
- Deepti, V.A.I., Shrikanya, K.V.L. & Sujatha, K. (2014) Taxonomic studies and phylogenetic relationship of seven spotted groupers species of genus *Epinephelus* (Pisces, Serranidae) off Visakhapatnam, middle east coast of India. *Indian Journal of Geo-Marine Sciences*, 43 (12), 2254–2268.
- Deepti, V.A.I., Sujatha, K. & Khedkar (2018) DNA barcoding of five species of groupers (Pisces, Serranidae) off Visakhapatnam, central eastern coast of India. *Mitochondrial DNA Part A*, 29 (5), 659–663.
- Deepti, V.A.I., Sujatha, K. & Shrikanya, K.V.L. (2017) List of grouper species (Pisces, Serranidae) recorded with descriptions of three new distributional records from Indian waters. *Journal of Experimental Zoology*, 20 (1), 339–349.
- Devarapalli, P. (2017) *Finfish Atlas of EGREE*. East Godavari Estuarine Ecosystem Foundation, An Initiative of GoI-UNDP-GEF-GoAP (EGREE) Project. Kakinada, Andhra Pradesh, India, 790 pp.
- Dhandapani, P. & Mishra, S.S. (1998) Fish resources of the Great Nicobar Island and their potentiality for sustainable utilisation. *Symposium Proceedings. Island Ecosystem and Sustainable Development. Andaman Science Association*, 139–146.
- Dineshbabu, A.P. & Radhakrishnan, E.V. (2009) Trawl Fishery of Juvenile Fishes along Mangalore- Malpe Coast of Karnataka and its Impact on Fish Stock. *Asian Fisheries Science*, 22 (2), 491–500.
- Dutt, S. & Sujatha, K. (1984) *Epinephelus* (*Epinephelus*) *guaza* (Linnaeus, 1758), an addition to the Indian ichthyofauna. *Geobios New Reports*, 3, 43–45.
- Fennessy, S., Pollard, D.A. & Samoilys, M. (2018) *Epinephelus lanceolatus*. The IUCN Red List of Threatened Species 2018: e.T7858A100465809. <https://doi.org/10.2305/IUCN.UK.2018-2.RLTS.T7858A100465809.en> (electronic version accessed 14 July 2021)
- Fischer, W. & Bianchi, G. (1984) *FAO species identification sheets for fishery purposes. Western Indian Ocean; (Fishing Area 51), Volume 4*. Food and Agricultural Organization of the United Nations, Rome, Italy, 513 pp.
- Fricke, R., Eschmeyer, W.N. & Van der Laan, R. (Eds.) (2021) *Eschmeyer's Catalog of Fishes, Genera, Species, References*. <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (electronic version accessed 2 January 2021)
- Froese, R. & Pauly, D. (Eds.) (2021) *FishBase*. <https://fishbase.mnhn.fr/search.php> (version (06/2021) (electronic version accessed 14 July 2021)
- George, R.M., Naomi, T.S. & Sreeram, M.P. (2010) First record of the one-stripe anthias *Pseudanthias fasciatus* (Kamohara, 1954) (Perciformes: Serranidae: Anthiinae) from Indian waters. *Journal of the Marine Biological Association of India*, 52 (1), 70–74.
- Govindan, S. & Ravichandran, R. (2016) Fish Fauna Diversity and Conservation Status of Pulicat Lagoon in Tamil Nadu. *Annals of Aquaculture and Research*, 3 (2), 1018.
- Hamilton, F. (1822). *An account of the fishes found in the river Ganges and its branches*. Archibald Constable & Company, Edinburgh, UK, 405 pp.
- Heemstra, P.C. (1973) *Anthias conspicuus* sp. nova (Perciformes, Serranidae) from the Indian Ocean, with comments on related species. *Copeia*, (2), 200–210.

- Heemstra, P.C. & Akhilesh, K.V. (2012) A review of the anthiine fish genus *Pseudanthias* (Perciformes, Serranidae) of the western Indian Ocean, with description of a new species and a key to the species. *Aqua International Journal of Ichthyology*, 18 (3), 121–164.
- Heemstra, P.C. & Randall, J.E. (1993) *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*. FAO Fisheries Synopsis, FAO, Rome, Italy, 382 pp.
- Herre, A.W.C.T. (1941) List of the fishes known from the Andaman Islands. *Memoirs of the Indian Museum*, 13 (3), 331–403.
- Idu, K.A.A., Akhilesh, K.V. & Singh, V.V. (2017) Report of Potato grouper and Cloudy grouper in fishery landings at Mumbai. *Marine Fisheries Information Service, Technical and Extension Series*, 231, 25–26.
- Jaini, M., Advani, S., Shanker, K., Oommen, M. & Namboothri, N. (2018) History, culture, infrastructure and export markets shape fisheries and reef accessibility in India's contrasting oceanic islands. *Environmental Conservation*, 45 (1), 41–48. <https://doi.org/10.1017/S037689291700042X>
- James, P.S.B.R., Murty, V.S. & Nammalwar, P. (1996) Groupers and snappers of India, biology and exploitation. In: Sanchez, A.F. et al. (Eds.), *Biology, fisheries and culture of tropical groupers and snappers*. ICLARM Conference Proceedings, Makati, Philippines, pp. 106–136.
- Jones, S. & Kumaran, M. (1959). The fishing industry of Minicoy Island with special reference to the tuna fishery. *Indian Journal of Fisheries*, 6 (1), 30–57.
- Jones, S. & Kumaran, M. (1964) New records of fishes from the seas around India. Part 1. *Journal of the Marine Biological Association of India*, 6 (2), 285–306.
- Jones, S. & Kumaran, M. (1966) New records of fishes from the seas around India. Part IV. *Journal of the Marine Biological Association of India*, 8 (1), 163–180.
- Jones, S. & Kumaran, M. (1968) New records of fishes from the seas around India. Part VI. *Journal of the Marine Biological Association of India*, 10 (2), 321–331.
- Jones, S. & Kumaran, M. (1980) *The fishes of the Lakshadweep Archipelago*. The Nature Conservation and Aquatic Science Service, Trivandrum, Kerala, India, 760 pp.
- Jones, S. (1969) Catalogue of fishes from the Laccadive Archipelago in the reference collections of the Central Marine Fisheries Research Institute. *Bulletin of the Central Marine Fisheries Research Institute*, 8, 1–32.
- Jones, S., Kumaran, M. & Ali Manikfan, M. (1981) On some fishes from the Maldives. Part I, Species known from the Laccadive archipelago in the collections. *Journal of the Marine Biological Association of India*, 23, 81–97.
- Joshi, K.K., Sobhana, K.S., Varghese, M., Sreeram, M.P., Sreenath, K.R., Geetha, P.M., Sreekumar, K.M., Aju, K.R., Varsha, M.S., Sethulakshmi, M., Divya, K.A., Antony, T.P., Sheeba, K.B. & Gopalakrishnan, A. (2018) *CATALOGUE-Marine Biodiversity Museum*. CMFRI special publication 129, Central Marine Fisheries Research Institute (CMFRI), Kochi, Ernakulam, Kerala, India, 140 pp.
- Joshi, K.K., Sreeram, M.P., Zacharia, P.U., Abdussamad, E.M., Varghese, M., Mohammed, O.M.M.J., Jayabalan, K., Kanthan, K.P., Kannan, K., Sreekumar, K.M., George, G. & Varsha, M.S. (2016) Check list of fishes of the Gulf of Mannar ecosystem, Tamil Nadu, India. *Journal of the Marine Biological Association of India*, 58b(1), 34–54.
- Kandula, S., Shrikanya, K.V.L. & Deepti, V.A.I. (2015). Species diversity and some aspects of reproductive biology and life history of groupers (Pisces, Serranidae, Epinephelinae) off the central eastern coast of India. *Marine Biology Research*, 11, 18–33. <https://doi.org/10.1080/17451000.2014.949271>
- Kiruba-Sankar, R., Lohith Kumar, K., Saravanan, K. & Praveenraj, J. (2019) Poaching in Andaman and Nicobar coasts, insights. *Journal of Coastal Conservation*, 23, 95–109.
- Kishore, T.G., Ambarish, G.P. & Akhilesh, K.V (2019) Unusual landings of the anthiine fish, *Pseudanthias pillai* at Neendakara Fisheries Harbour. *Marine Fisheries Information Service; Technical and Extension Series*, 236, 32.
- Krishna, N.M., Rao, V.G. & Venu, D. (2017) *Pseudanthias vizagensis* sp. nov., a new anthiine fish (Subfamily, Anthiinae), genus *Pseudanthias*, from India. *Journal of Experimental Zoology*, 20 (1), 213–216.
- Krishnan, S. & Mishra, S.S. (1994) On a collection of fish from Middle and South Andaman group of Islands. *Records of the Zoological Survey of India*, 94 (2–4), 265–306.
- Kumar, K.V., Pravin, A.P., Meenakumari, B., Khanolkar, P.S. & Baiju, M.V. (2015) Shark bycatch in the experimental tuna longline fishery in Lakshadweep Sea, India. *Journal of Applied Ichthyology*, 31 (2), 301–307.

- Kumar, S.D., Praveen, P., Nair, R.J. & Kuriakose, S.A. (2012) Note on the eight-bar grouper, *Hyporthodus octofasciatus* (Griffin, 1926) (Pisces, Serranidae) from Indian waters. *Journal of the Marine Biological Association of India*, 54 (1), 113–115.
- Luther, G. (1972) *Anyperodon leucogramicus* (Cuv. & Val.) (Pisces Serranidae) a new record from the Andaman Sea. *Indian Journal of Fisheries*, 19, 189–190.
- Ma, K.Y. & Craig, M.T. (2018) An inconvenient monophyly, an update on the taxonomy of the groupers (Epinephelidae). *Copeia*, 106 (3), 443–456.
- Ma, K.Y., Craig, M.T., Choat, J.H. & van Herwerden, L. (2016). The historical biogeography of groupers, clade diversification patterns and processes. *Molecular Phylogenetics and Evolution*, 100, 21–30. <https://doi.org/10.1016/j.ympev.2016.02.012>
- Mahavidyalaya, B.M., Ray, D. & Mohapatra, A. (2020) First report of ten grouper species (Serranidae, Epinephelinae) from the West Bengal coast, along the east coast of India. *Indian Journal of Geo-Marine Sciences*, 49, 108–117.
- Manojkumar, P.P., Ranjith L., Karuppasamy, K. & Kanthan, K.P. (2019) Fishery and population dynamics of *Epinephelus malabaricus* (Bloch & Schneider, 1801) off Tuticorin, southeast coast of India. *Journal of the Marine Biological Association of India*, 61 (1), 26–30.
- Menon, A.G.K. & Talwar, P.K. (1973) Fishes of the Great Nicobar Expedition, 1966, with a description of a new gobioid fish of the family Kraemeriidae. *Records of Zoological Survey of India*, 66, 35–61.
- Mishra, S.S. & Krishnan, S. (2003) Marine Fishes of Pondichery and Karaikal. *Records of Zoological Survey of India, Occasional Papers*, 216, 1–52.
- Misra, K.S. (1962) An aid to the identification of the common commercial fishes of India and Pakistan. *Records of the Indian Museum*, 57, 1–320.
- Mogalekar, H.S., Canciyal, J., Jawahar, P., Patadiya, D.S., Sudhan, C., Pavinkumar, P., Santhoshkumar & Subburaj, A. (2017) Estuarine fish diversity of Tamil Nadu, India. *Indian Journal of Geo-Marine Sciences*, 46 (10), 1968–1985.
- Murty, V.S., Kumaran, M. & Lalmohan, R.S. (1989) Resources of ornamental fishes. *Bulletin of the Central Marine Fisheries Research Institute*, 43, 46–64.
- Murugan, A. & Namboothri, N. (2012) *Finfishes of the Gulf of Mannar. A field identification guide*. Dakshin Foundation, Bengaluru, Karnataka, India, 224 pp.
- Nair, R.J. & Kuriakose, S. (2014) *Field guide on reef associated fishes of India*. CMFRI special publication 117, Central Marine Fisheries Research Institute (CMFRI), Kochi, Ernakulam, Kerala, India, 148 pp.
- Nair, R.J. (2008) Taxonomic account of Marcia's Anthias, *Pseudanthias marcia* Randall & Hoover, 1993 (Serranidae, Anthiinae), a new record from India. *Journal of the Marine Biological Association of India*, 50(1), 98–102.
- Nair, R.J. (2017) Field Identification of Groupers and Snappers. In: *Training Manual on Species Identification*. Central Marine Fisheries Research Institute (CMFRI), Kochi, Ernakulam, Kerala, India, pp. 60–87.
- Nair, R.J., Kumar, S.D., Kuriakose, S. & Praveen, P. (2012) *Reef fishes of India, Groupers Poster*. ICAR-CMFRI, 2012, Central Marine Fisheries Research Institute (CMFRI), Kochi, Ernakulam, Kerala, India, <http://eprints.cmfri.org.in/10308/1/Poster---Grouper-copy.jpg>
- Nair, R.J., Kumar, S.D., Paul, S. & Kuriakose, S. (2013) Occurrence of two serranid fish from Indian waters with a note on their taxonomy. *Marine Biodiversity Records*, 6, 1–4.
- Noushad, M.K., Sirajudheen, T.K. & Idrees Babu, K.K. (2014) Intertidal ichthyofaunal diversity of Androth Island, Lakshadweep, India – a call for developing culture based fishery. *Journal of Aquatic Biology & Fisheries*, 2 (1), 304–306.
- Parenti, P. & Randall, J.E. (2020) An annotated checklist of the fishes of the family Serranidae of the world with description of two new related families of fishes. *FishTaxa*, 15, 1–170.
- Prabhakaran, M.P., Nandan, S.B., Jayachandran, P.R. & Pillai, N.G.K. (2010) Species diversity and community structure of ichthyofauna in the seagrass ecosystem of Minicoy Atoll, Lakshadweep, India. *Indian Journal of Geo-Marine Sciences*, 42 (3), 349–359.
- Prakash, S., Ajith Kumar, T.T., Raghavan, R., Rhyne, A., Tlusty, M.F., & Subramoniam, T. (2017) Marine aquarium trade in India: Challenges and opportunities for conservation and policy. *Marine Policy*, 77, 120–129. <https://doi.org/10.1016/j.marpol.2016.12.020>

- Psomadakis, P.N., Osmany, H.B. & Moazzam, M. (2015) *Field identification guide to the living marine resources of Pakistan*. FAO Species Identification Guide for Fishery Purposes, Rome, Italy, 386 pp.
- Psomadakis, P.N., Thein, H., Russell, B.C. & Tun, M.T. (2019) *Field identification guide to the living marine resources of Myanmar*. FAO Species Identification Guide for Fishery Purposes, Rome, Italy, 694 pp.
- Rajan P.T., Vikas, N., Mishra, S.S., Rajan, R. & Sivaperuman C. (2016) *Reef Fishes of Andaman and Nicobar Islands*. Zoological Survey of India, Kolkata, India, 167 pp.
- Rajan, P.T. & Sreeraj, C.R. (2015) New records of coral reef fishes from Andaman and Nicobar Islands. *Records of the Zoological Survey of India*, 115 (2), 179–189.
- Rajan, P.T. (2002) *A field guide to Grouper and Snapper fishes of Andaman and Nicobar Islands*. Z.S.I., Port Blair, Andaman and Nicobar Islands, India, 103 pp.
- Rajan, P.T. (2003) *A field Guide to Marine Food Fishes of Andaman and Nicobar Islands*. Z.S.I., Kolkata, India, 260 pp.
- Rajan, P.T. (2015) New record of two species of *Epinephelus* (Perciformes, Serranidae, Epinephelinae) from Andaman Islands, India. *Records of the Zoological Survey of India*, 115 (4), 321–323.
- Rajan, P.T., Mishra, S.S. & Bineesh, K.K. (2017) First records of two species of groupers, *Cephalopholis nigripinnis* and *Epinephelus retouti* (Perciformes, Epinephelidae) from India, with a note on Epinephelids from Andaman and Nicobar Islands. *Records of the Zoological Survey of India*, 117 (3), 289–294.
- Ramaiyan, V., Purushothaman, A. & Natarajan, R. (1987) Checklist of estuarine and marine fishes of Parangipettai coastal waters. *Matsya*, 12-13, 1–19.
- Ramakrishna, I.T., Sreeraj, C.R., Raghunathan, C., Raghuraman, R., Rajan P.T. & Yogesh Kumar, J.S. (2010) An account of additions to the Ichthyofauna of Andaman and Nicobar Islands. *Records of the Zoological Survey of India, Occasional Papers*, 326, 1–140.
- Ramesh, R., Nammalwar, P. & Gowri, V.S (2008) *The Database on Coastal Information of Tamilnadu*. Environmental Information System (ENVIS) Centre, Department of Environment, Government of Tamil Nadu, India, 133 pp.
- Randall, J.E & Heemstra, P.C. (1991) Revision of Indo-Pacific groupers (Perciformes: Serranidae: Epinephelinae), with descriptions of five new species. *Indo-Pacific Fishes*, 20, 1–322.
- Rangarajan, K. (1967) *Aulacocephalus temmincki* Bleeker (Pisces: Serranidae) A new record from the Andaman Sea. *Journal of the Marine Biological Association of India*, 9 (2), 442–444.
- Rao, D.V., Devi, K. & Rajan, P.T. (2000) An account of Ichthyofauna of Andaman & Nicobar Islands, Bay of Bengal. *Records of the Zoological Survey of India, Occasional Papers*, 178, 1–434.
- Rao, D.V., Rajan, P.T. & Dev, K. (1992) New records of groupers (Family, Serranidae) and cardinal fishes (Family, Apogonidae) from Andaman and Nicobar Islands. *Journal of the Andaman Science Association*, 8 (1), 47–52.
- Rao, G.C. (1991) Lakshadweep, General features. In: Ghosh, A.K. & Kumar, A. (Eds.), *State Fauna Series 2, Fauna of Lakshadweep*, Zoological Survey of India, Kolkata, India, pp. 5–40.
- Ray, D. & Mohapatra, A. (2020) First report of ten grouper species (Serranidae, Epinephelinae) from the West Bengal coast, along the east coast of India. *Indian Journal of Geo-Marine Sciences*, 49 (1), 108–117.
- Reddy, N.A.V.P. (1984) A new record of *Epinephelus guaza* (Linnaeus, 1758) (Serranidae, Pisces) from Indian waters. *The Journal of the Bombay Natural History Society*, 80, 650–651.
- Rimmer, M.A. & Glamuzina, B. (2019) A review of grouper (Family Serranidae: Subfamily Epinephelinae) aquaculture from a sustainability science perspective. *Reviews in Aquaculture*, 11, 58–87. <https://doi.org/10.1111/raq.12226>
- Sachithanandam, V. & Mohan, P.M. (2014) New distribution record of *Cephalopholis aurantia* Valenciennes, 1828 (Pisces, Serranidae) golden hind to Indian waters from Andaman and Nicobar Islands. *Indian Journal of Geo-Marine Sciences*, 43 (12), 2233–2235.
- Sachithanandam, V., Mohan, P.M., Muruganandam, N., Chaaithanya, I.K. & Baskaran, R. (2015) Molecular Taxonomy of Serranidae, Subfamily Epinephelinae, Genus *Plectropomus* (Oken, 1817) of Andaman Waters by DNA Barcoding Using COI Gene Sequence. In: Venkataraman, K. & Sivaperuman, C. (Eds.), *Marine Faunal Diversity in India*, Academic Press, Elsevier, Cambridge. MA, USA, pp. 373–394.
- Sadovy de Mitcheson, Y., Craig, M.T., Carpenter, K.E., Cheung, W.W.L., Choat, J.H. & Cornish, A.S. (2013) Fishing groupers towards extinction, A global assessment of threats and extinction risks in a billion dollar fishery. *Fish and Fisheries*, 14 (2), 119–136.

- Sadovy de Mitcheson, Y.J., Linardich, C., Barreiros, J.P., Ralph, G.M., Perera, A.A, Afonso, P. Erisman, B.E., Pollard, D.A., Fennessy, S.T, Bertoncini, A.A., Nair, R.J., Rhodes, K.L., Francour, P., Brul T., Samoilys M.A., Ferreira B.P. & Craig M.T. (2020). Valuable but vulnerable, Over-fishing and under-management continue to threaten groupers so what now? *Marine Policy*, 116. <https://doi.org/10.1016/j.marpol.2020.103909>
- Sivadas, M. & Wesley, S.G. (2006) Community based local management of fisheries - a paradigm from Minicoy, Lakshadweep, India. *Ecology, Environment and Conservation*, 12 (4), 705–706.
- Sluka, R.D., & Lazarus, S. (2006) Groupers and wrasses of Minicoy Island, Lakshadweep, India. In: Fennessy, S. (Ed.) *Newsletter of the Groupers & Wrasses Specialist Group Issue 9*, International Union for the Conservation of Nature, Lisbon, Portugal, pp. 4–5.
- Sluka, R.D., & Lazarus, S. (2010) Grouper (Pisces, Serranidae) relative abundance and diversity on the west coast of India. *Marine Biodiversity Records*, 3, 371. <https://doi.org/10.1017/S1755267210000606>
- Smith, W.L & Craig, M.T. (2007) Casting the percomorph net widely, the importance of broad taxonomic sampling in the search for the placement of serranid and percoid fishes. *Copeia*, 2007, 35–55.
- Sujatha, K. & Dutt, S. (1986) List of the species of *Epinephelus* recorded at Visakhapatnam with a description of a new record, *E. hata* Katayama (1953). *Geobios New Reports*, 5, 65–66.
- Sujatha, K. & Shrikanya, K.V.L. (2012) *Plectropomus leopardus* (Lacepède, 1802) (Pisces, Serranidae), an addition to the Indian ichthyofauna. *Journal of the Marine Biological Association of India*, 54 (1), 116 –118.
- Sujatha, K. (2004) Groupers off Visakhapatnam, north east coast of India. *Journal of the Marine Biological Association of India*, 46, 87–92.
- Sujatha, K., Deepti, V.A.I. & Padmavathi, P. (2008) Species diversity and exploitation of groupers (Pisces, Serranidae) off Visakhapatnam, east coast of India. In: Natarajan P., Jayachandran, K.V., Kannaiyan, S., Babu, A. & Augustine, A. (Eds.), *Glimpses of Aquatic Biodiversity*. Rajiv Gandhi Chair Special Publication 7, Kochi, India, pp. 205–212.
- Sujatha, K., Padmavathi, P., Deepti, V.A.I. & Shrikanya, K.V.L (2008) *Epinephelus magniscuttis* Poster, Fourmanoir and Gueze, 1963 - new record from Indian waters. *Indian Journal of Fisheries*, 55, 341–343.
- Talwar, P.K. & Kacker, R.K. (1984) *Commercial Sea Fishes of India*. Zoological Survey of India, Kolkata, India, 521 pp.
- Talwar, P.K. & Sen, T.K. (1971) On some fishes from the Madras coast with description of a new species of the family Clinidae. *Records of the Zoological Survey of India*, 65, 248–250.
- Talwar, P.K. (1976) On a new bathypelagic fish, *Holanthias perumali* from the Arabian Sea, with a record of *Holanthias rhodopeplus* (Günther) from Indian Seas. *Journal of Natural History*, 10 (4), 361–365.
- Talwar, P.K. (1990) Fishes of the Andaman and Nicobar Islands, A Synoptic analysis. *Journal of the Andaman Science Association*, 6 (2), 71–102.
- Thomas, S., Sreeram, M.P., George, R.M., Naomi, T.S. & Sanil, N.K. (2008) First record of occurrence of Boulenger's anthias *Sacura boulengeri* (Heemstra, 1973), Family Serranidae, in Indian waters. *Journal of the Marine Biological Association of India*, 50 (1), 69–73.
- Tripathy, B. & Mukhopadhyay, A.K. (2015) Marine Molluscan Diversity in India. In: Venkataraman, K. & Sivaperuman, C. (Eds.), *Marine Faunal Diversity in India*, Academic Press, Elsevier, Cambridge. MA, USA, pp. 39–74. <https://www.sciencedirect.com/science/article/pii/B9780128019481000045?via%3Dihub>
- Varghese, M., Manisseri, M.K., Ramamurthi, N., Geetah, P.M., Thomas, V.J. & Gandhi, A. (2011) Coral reef fishes of Gulf of Mannar, S.E of India. *Fishing Chimes*, 31 (1), 38–40.
- Venkataraman, K., Srinivasan, M., Satyanarayana, C. & Prabakar, D. (2002) Faunal diversity of Gulf of Mannar Biosphere Reserve. *Conservation Area Series*, 15, 1–77.
- Williams, J.T. & Viviani, J. (2016) *Pseudogramma polyacantha* complex (Serranidae, tribe Grammistini), DNA barcoding results lead to the discovery of three cryptic species, including two new species from French Polynesia. *Zootaxa*, 4111 (3), 246–260.
- Yennawar, P., Mohapatra, A. & Tudu P.C. (2017) An account of Ichthyofauna of Digha coast, West Bengal. *Records of the Zoological Survey of India*, 117 (1), 4–21. <https://doi.org/10.26515/rzsi/v117/i1/2017/117289>
- Zajonz, U., Bogorodsky, S.V. & Victor. B.C. (2020) First record of *Meganthias natalensis* (Actinopterygii: Serranidae: Anthiinae) from the Socotra Archipelago (north-western Indian Ocean), with notes on *Odontanthias* and *Sacura*. *Acta Ichthyologica et Piscatoria*, 50 (4), 501–510.

TABLE 3

Species	IUCN RList	Common name	OBS	Remarks	Arabian Sea/ West coast	Lakshadweep Islands	Bay of Bengal E.coast & GOM	Andaman & Nicobar Islands
1 <i>Aethaloperca rogaa</i> (Forsskål 1775)	LC	Redmouth grouper	Y		13, 18, 93	43, 47, 48, 92	58, 79	76, 85, 86
2 <i>Anyperodon leucogrammicus</i> (Valenciennes 1828)	LC	Slender grouper	Y				79	56, 76, 86
3 <i>Aporops bilinearis</i> Schultz 1943	LC	Blotched podge	N			46 as <i>A. allfreei</i>	49	
4 <i>Aulacocephalus temminckii</i> Bleeker 1855	LC	Goldribbon soapfish	N				49	81
5 <i>Caprodon longimanus</i> (Günther 1859)	LC	Pink maomao	N	NC	09			
6 <i>Cephalopholis argus</i> Schneider 1801	LC	Peacock hind	Y		13, 34, 93	44, 47, 92	79, 105	24, 76, 86
7 <i>Cephalopholis aurantia</i> (Valenciennes 1828)	LC	Golden hind	Y		13, 34		49	76, 90
8 <i>Cephalopholis boenak</i> (Bloch 1790)	LC	Chocolate hind	Y		14, 34	40, 43, 47 as <i>C. pachycentron</i>	12, 77, 79, 106	25, 76, 86
9 <i>Cephalopholis cyanostigma</i> (Valenciennes 1828)	LC	Bluespotted hind	N				79	76, 85, 86
10 <i>Cephalopholis formosa</i> (Shaw 1812)	LC	Bluelined hind	Y		13, 18, 22, 93	43, 47 as <i>C. boenack</i>	11, 51, 57, 58, 60, 79	76, 86, 100
11 <i>Cephalopholis leopardus</i> (Lacepède 1801)	LC	Leopard hind	Y		14	92	49	24 as <i>Serranus homfrayi</i> , 25
12 <i>Cephalopholis microprion</i> (Bleeker 1852)	LC	Freckled hind	Y				? 28	71, 85, 86
13 <i>Cephalopholis miniata</i> (Forsskål 1775)	LC	Coral hind	Y		13, 34, 93	44, 47	13, 58, 79, 106	24 as <i>Serranus cyanostigmatoideus</i> , 25, 86
14 <i>Cephalopholis nigripinnis</i> (Valenciennes 1828)	LC	Blackfin grouper	Y		13	8 as <i>C. urodeta nigripinnis</i>	61	76
15 <i>Cephalopholis oligosticta</i> Randall & Ben-Tuvia 1983	LC	Vermilion hind	N	Q (see 40)			30	
16 <i>Cephalopholis polleni</i> (Bleeker 1868)	LC	Harlequin hind	N	(26) but NAR			49	

TABLE 3 cont.

	Species	IUCN RList	Common name	OBS	Remarks	Arabian Sea/ West coast			Lakshadweep Islands		Bay of Bengal E.coast & GOM		Andaman & Nicobar Islands	
17	<i>Cephalopholis polyspila</i> Randall & Satapoomin 2000	LC	Polyspila hind	Y									05, 76	
18	<i>Cephalopholis sexmaculata</i> (Rüppell 1830)	LC	Sixblotch hind	Y		14, 34, 50							76, 78	
19	<i>Cephalopholis sonnerati</i> (Valenciennes 1828)	LC	Tomato hind	Y		13, 18, 34, 93	43, 44, 47	06, 12, 51, 60, 79					32, 76, 86	
20	<i>Cephalopholis urodeta</i> (Forster 1801)	LC	Darkfin hind	N	NC	14, 18	92	58, 79					86	
21	<i>Chelidoperca investigatoris</i> (Alcock 1890)	LC	Investigator perchlet	Y		15, 16		04, 15, 16						
22	<i>Chelidoperca maculicauda</i> Bineesh & Akhilesh 2013	DD	Indian perchlet	Y		15, 16								
23	<i>Chelidoperca occipitalis</i> Kothaus 1973	LC	Arabian perchlet	Y		15, 16								
24	<i>Chelidoperca pleurospilus</i> (Günther 1880)	NE	Arafura perchlet	N	NAR			21, 63						
25	<i>Cromileptes altivelis</i> (Valenciennes 1828)	DD	Humpback grouper	Y		14, 34		79					25, 76, 86	
26	<i>Diploprion bifasciatum</i> Cuvier 1828	LC	Barred soapfish	Y			70	63					74	
27	<i>Epinephelus amblycephalus</i> (Bleeker 1857)	LC	Banded grouper	N									07	
28	<i>Epinephelus albomarginatus</i> Boulenger 1903	VU	White-edged grouper	N	NC	20, 50		06						
29	<i>Epinephelus andersoni</i> Boulenger 1903	NT	Catface grouper	N	NC	50, 67								
30	<i>Epinephelus areolatus</i> (Forsskål 1775)	LC	Areolate grouper	Y	Comment 1*	13, 18, 34, 93	70	06, 12, 51, 57, 58, 79, 106					24 as <i>Serranus glaucus</i> , 25 as <i>S. angularis</i>	
31	<i>Epinephelus bleekeri</i> (Vaillant 1878)	DD	Duskytail grouper	Y		13, 34	01	06, 51, 57, 58, 77, 106					71, 76, 100	

* Comment 1: Deepti et al. (2014) suggested *E. angularis* as a valid species

TABLE 3 cont.

	Species	IUCN RList	Common name	OBS	Remarks	Arabian Sea/ West coast	Lakshadweep Islands	Bay of Bengal E.coast & GOM	Andaman & Nicobar Islands
32	<i>Epinephelus bontoides</i> (Bleeker 1855)	DD	Palemargin grouper	N	NC	09		30	
33	<i>Epinephelus chabaudi</i> (Castelnau 1861)	DD	Moustache grouper	N	(66) but NAR	14, 98 as <i>E.modestus</i>			
34	<i>Epinephelus chlorostigma</i> (Valenciennes 1828)	LC	Brownspotted grouper	Y		13, 18, 34		06, 49, 51, 58, 101	71, 76, 100
35	<i>Epinephelus coeruleopunctatus</i> (Bloch 1790)	LC	Whitespotted grouper	Y		22, 93	43, 47	06, 57, 58, 79, 104	59, 76
36	<i>Epinephelus coioides</i> (Hamilton 1822)	LC	Orange-spotted grouper	Y	Comment 2*	13, 93	01	51, 58, 108	24 as <i>Serranus suillus</i> , 86
37	<i>Epinephelus corallicola</i> (Valenciennes 1828)	LC	Coral grouper	Y		Pers. obs.	43, 47, 48, 82, 92	?105	71, 76
38	<i>Epinephelus cyanopodus</i> (Richardson 1846)	LC	speckled blue grouper	N	(65) but NC				
39	<i>Epinephelus diacanthus</i> (Valenciennes 1828)	LC	Spinycheek grouper	Y		13, 22, 93		06, 77, 106	
40	<i>Epinephelus epistictus</i> (Temminck & Schlegel 1842)	LC	Dotted grouper	Y		13, 18, 34		51	73, 76
41	<i>Epinephelus erythrurus</i> (Valenciennes 1828)	LC	Cloudy grouper	Y		13, 22, 42, 93		57, 79	76, 85
42	<i>Epinephelus fasciatus</i> (Forsskål 1775)	LC	Blacktip grouper	Y	Comment 3*	13, 18, 34, 93	43, 44, 47	06, 57, 58, 77	25, 76
43	<i>Epinephelus fasciatus maculosus</i> (Peters 1865)	DD	Rock grouper	N	NC			37, 61	
44	<i>Epinephelus faveatus</i> (Valenciennes 1828)	LC	Barred-chest grouper	Y		22, 93		58, 103 as <i>Serranus bontoo</i>	24 as <i>Serranus bontoo</i>
45	<i>Epinephelus flavocaeruleus</i> (Lacepède 1802)	LC	Blue and yellow grouper	Y		18, 13, 22, 93	43, 47	06, 58	25, 76
46	<i>Epinephelus fuscoguttatus</i> (Forsskål 1775)	VU	Brown-marbled grouper	Y		14, 18, 34	43, 47	58	25, 76

* Comment 2: Possibly often misidentified as *E. tauvina** Comment 3: “*E. fasciatus*” a complex (Randall & Heemstra 1991, Gill & Kemp 2002); *Epinephelus marginalis* Bloch 1793 is possibly a valid species (Fricke et al. (2011)

TABLE 3 cont.

	Species	IUCN RList	Common name	OBS	Remarks	Arabian Sea/ West coast	Lakshadweep Islands	Bay of Bengal E.coast & GOM	Andaman & Nicobar Islands
47	<i>Epinephelus heniochus</i> Fowler 1904	LC	Bridled grouper	Y				30, 31, ?95 as <i>E. hata</i>	73
48	<i>Epinephelus hexagonatus</i> (Forster 1801)	LC	Starspotted grouper	Y		34	43, 47, 82	94	24, 76
49	<i>Epinephelus irroratus</i> (Forster 1801)	LC	Marquesan grouper	N	Q (65)				
50	<i>Epinephelus itajara</i> (Lichtenstein 1822)	VU	Atlantic goliath grouper	N	Q (see 40)				88
51	<i>Epinephelus lanceolatus</i> (Bloch 1790)	DD	Giant grouper	Y		22, 93		108	24, 76
52	<i>Epinephelus latifasciatus</i> (Temminck & Schlegel 1842)	LC	Striped grouper	Y		13, 18, 34		06, 51, 108	
53	<i>Epinephelus lebretonianus</i> (Hombron & Jacquinot 1853)	DD	Mystery grouper	N	NC			21	
54	<i>Epinephelus longispinus</i> (Kner 1864)	LC	Longspine grouper	Y		13, 34, 93	43, 47 as <i>E. fario</i> , 82	51, 57, 58	25 as <i>Serranus macu-</i> <i>latus</i> , 76, 100 as <i>E. fario</i>
55	<i>Epinephelus macrospilos</i> (Bleeker 1855)	LC	Snubnose grouper	Y		13			76, 86
56	<i>Epinephelus maculatus</i> (Bloch 1790)	LC	Highfin grouper	N	NC	14		30	
57	<i>Epinephelus magniscuttis</i> Postel, Fourmanoir & Guézé 1963	LC	Speckled grouper	N	NC			31, 51, 57, 87, 97	
58	<i>Epinephelus malabaricus</i> (Bloch & Schneider 1801)	LC	Malabar grouper	Y		13, 34, 93	70	06, 51, 58, 108	25 as <i>Serranus</i> <i>salmoides</i> , 76
59	<i>Epinephelus marginatus</i> (Lowe 1834)	VU	Dusky grouper	?Y	NAR			?33 as <i>E. guaza</i> , 89	
60	<i>Epinephelus melanostigma</i> (Schultz 1953)	LC	One-blotch grouper	Y		13	44, 47		76, 86
61	<i>Epinephelus merra</i> Bloch 1793	LC	Honeycomb grouper	Y		34	43, 44, 47	58, 101	25, 76
62	<i>Epinephelus miliaris</i> (Valenciennes 1801)	LC	Nefin grouper	Y		13	70		71, 100

TABLE 3 cont.

	Species	IUCN RList	Common name	OBS	Remarks	Arabian Sea/ West coast	Lakshadweep Islands	Bay of Bengal E.coast & GOM	Andaman & Nicobar Islands
63	<i>Epinephelus morhua</i> (Valenciennes 1833)	LC	Comet grouper	Y		13, 34	43, 47		78, 84
64	<i>Epinephelus multinotatus</i> (Peters 1876)	LC	White-blotched grouper	N	65				
65	<i>Epinephelus ongus</i> (Bloch 1790)	LC	White-streaked grouper	Y		34	01		24 as <i>Serranus summana</i> , 86
66	<i>Epinephelus poecilonotus</i> (Temminck & Schlegel 1842)	LC	Dot-dash grouper	Y		13, 18			
67	<i>Epinephelus polylepis</i> Randall & Heemstra 1991	LC	Smallscaled grouper	Y		13	55		
68	<i>Epinephelus polyphekadion</i> (Bleeker 1849)	VU	Camouflage grouper	Y		13	92		24 as <i>Serranus dispar</i> , 76
69	<i>Epinephelus polystigma</i> (Bleeker 1853)	LC	White-dotted grouper	Y					71, 76
70	<i>Epinephelus quoyanus</i> (Valenciennes 1830)	LC	Longfin grouper	Y		13, 34	69		53, 76
71	<i>Epinephelus radiatus</i> (Day 1868)	LC	Oblique-banded grouper	Y		13, 18		23 as <i>Serranus radiatus</i> 06, 21, 51, 57	72, 76
72	<i>Epinephelus retouti</i> (Bleeker 1868)	LC	Red-tipped grouper	Y					76
73	<i>Epinephelus rivulatus</i> (Valenciennes 1830)	LC	Halfmoon grouper	N	NAR	34		06,	
74	<i>Epinephelus sexfasciatus</i> (Valenciennes 1828)	LC	Sixbar grouper	Y		22 as <i>Serranus sexfasciatus</i>		57	76, 83
75	<i>Epinephelus spilotoceps</i> Schultz 1953	LC	Foursaddle grouper	Y		13	92		76, 86
76	<i>Epinephelus stoliczkae</i> (Day 1875)	LC	Epaulet grouper	N	NC		44	10	
77	<i>Epinephelus summana</i> (Forsskal 1775)	LC	Summan grouper	N	Q (see 40)		82		07

TABLE 3 cont.

	Species	IUCN RList	Common name	OBS	Remarks	Arabian Sea/ West coast	Lakshadweep Islands	Bay of Bengal E.coast & GOM	Andaman & Nicobar Islands
78	<i>Epinephelus tauvina</i> (Forsskål 1775)	DD	Greasy grouper	Y	Comment 4*	13, 34	43, 47 as <i>E.elongatus</i> , 82	06, 51, 101	41, 71, 100
79	<i>Epinephelus tukula</i> Morgans 1959	LC	Potato grouper	Y		34, 93			75, 76
80	<i>Epinephelus undulosus</i> (Quoy & Gaimard 1824)	LC	Wavy-lined grouper	Y		13, 34		06, 51, 58, 101, 103 as <i>Serranus lineatus</i>	76, 86
81	<i>Gracila albomarginata</i> (Fowler & Bean 1930)	LC	Masked grouper	Y			08, 92		
82	<i>Grammistes sexlineatus</i> (Thunberg 1792)	LC	Goldenstriped soapfish	Y			43, 47		41, 86
83	<i>Hyporthodus octofasciatus</i> (Griffen 1926)	LC	Eightbar grouper	Y		13, 54			
84	<i>Liopropoma lunulatum</i> (Guichenot 1863)	LC	Lunulatum basslet	?Y		68			
85	<i>Liopropoma randalli</i> Akhilesh, Bineesh & White 2012	DD	Randall's basslet	Y		03			
86	<i>Meganthias filiferus</i> Randall & Heemstra 2008	DD	Filamentous anthiine	Y	Comment 5*	02			
87	<i>Odontanthias perumali</i> (Talwar 1976)	NE	Indian swallowtail (newly proposed)	Y	Comment 6*	19, 99			
88	<i>Odontanthias rhodopeplus</i> (Günther 1872)	NE	Indonesian swallowtail (newly proposed)	Y	Comment 7*	19, 99			
89	<i>Plectranthias alcocki</i> Bineesh, Gopalakrishnan & Jena 2014	DD	Alcock's deep-reef basslet	Y		17			
90	<i>Plectranthias winniensis</i> (Tyler 1966)	LC	Redblotch basslet	N	NC				07
91	<i>Plectropomus areolatus</i> (Rüppell 1830)	VU	Squaretail coral grouper	Y		13, 18, 93	92		71, 76

* Comment 4: Possibly often misidentified as *E. coioides** Comment 5: Needs comparison with *Meganthias natalensis*, see Zajonz et al. (2020)* Comment 6: Currently a synonym of *Odontanthias rhodopeplus*, possibly a valid species, see Bineesh (2015)

* Comment 7: Needs comparison of additional material from a wide geographic range

TABLE 3 cont.

Species	IUCN RList	Common name	OBS	Remarks	Arabian Sea/ West coast	Lakshadweep Islands	Bay of Bengal E.coast & GOM	Andaman & Nicobar Islands
92 <i>Plectropomus laevis</i> (Lacepede 1802)	LC	Black-saddled coral grouper	Y		13, 68	92		76, 83
93 <i>Plectropomus leopardus</i> (Lacepede 1802)	LC	Leopard coral grouper	Y	Comment 8*	13, 18, 34	44, 92	06, 96	91
94 <i>Plectropomus maculatus</i> (Bloch 1790)	LC	Spotted coral grouper	Y		14, 34	43, 47	06	76, 86, 100
95 <i>Plectropomus pessuliferus</i> (Fowler 1904)	LC	Roving coral grouper	Y	Comment 9*	Pers. obs.	20, 40		71, 76, 85
96 <i>Pogonoperca ocellata</i> Günther 1859	LC	Indian soapfish	Y	Comment 10*	Pers. obs.		105	
97 <i>Pogonoperca punctata</i> (Valenciennes 1830)	LC	Spotted soapfish	Y	Comment 10*	Images		63	
98 <i>Pseudanthias bimaculatus</i> (Smith 1955)	LC	Two-spot basslet	N					78
99 <i>Pseudanthias cichlops</i> (Bleeker 1853)	LC	Yellow anthias	Y			43, 45		
100 <i>Pseudanthias conspicuus</i> (Heemstra 1973)	LC	N/A	N		38			
101 <i>Pseudanthias cooperi</i> (Regan 1902)	LC	Red-bar anthias	N			43, 47		78
102 <i>Pseudanthias evansi</i> (Smith 1954)	LC	Yellowback anthias	Y			92		Images
103 <i>Pseudanthias fasciatus</i> (Kamohara 1955)	NE	One-stripe anthias	N	Comment 11*	14, 36			
104 <i>Pseudanthias gibbosus</i> (Klunzinger 1884)	LC	Red-stripe anthias	Y					Images
105 <i>Pseudanthias hypselosoma</i> Bleeker 1878	LC	Stocky anthias	Y					78

* Comment 8: Often confused with *Plectropomus pessuliferus** Comment 9: Often misidentified as *Plectropomus leopardus*. Regional reports need confirmation.* Comment 10: Needs detailed genetic and morphometric comparisons for the genus *Pogonoperca*

* Comment 11: Needs comparison of additional material from Indian and Pacific Oceans, see Heemstra & Akhilesh (2012)

TABLE 3 cont.

Species	IUCN RList	Common name	OBS	Remarks	Arabian Sea/ West coast	Lakshadweep Islands	Bay of Bengal E.coast & GOM	Andaman & Nicobar Islands
106 <i>Pseudanthias ignitus</i> (Randall & Lubbock 1981)	LC	Flame anthias	Y			Pers. obs.		78
107 <i>Pseudanthias marcia</i> Randall & Hoover 1993	LC	Marcia's anthias	Y		64		Pers. obs	
108 <i>Pseudanthias pillai</i> Heemstra & Akhlesh 2012	NE	Pillai's anthias	Y		39		52 as <i>P. vizagensis</i> , 63	
109 <i>Pseudanthias pulcherrimus</i> (Heemstra & Randall 1986)	LC	Resplendent goldie	Y					Images, 27
110 <i>Pseudanthias rubrizonatus</i> (Randall 1983)	LC	Red-belted anthias	Y					Images
111 <i>Pseudanthias squamipinnis</i> (Peters 1855)	LC	Sea goldie	Y			45, 47, 92	106	86
112 <i>Pseudanthias taeniatus</i> (Klunzinger 1884)	LC	Striped anthias (newly proposed)	N	NC			30	
113 <i>Pseudanthias townsendi</i> (Boulenger 1897)	LC	Townsend's anthias	?Y	NAR	Image/Gujarat			
114 <i>Pseudogramma cernunos</i> Prokofiev 2019	NE	Bengal podge (newly proposed)	N					109
115 <i>Pseudogramma polyacantha</i> (Bleeker 1856)	LC	Honeycomb podge	N		107	45, 47, 62		
116 <i>Sacura boulengeri</i> (Heemstra 1973)	LC	Boulenger's anthias	Y		102			
117 <i>Sacura margaritacea</i> (Hilgendorf 1879)	NE	Cherry anthias	N	NC	50			
118 <i>Serranus cabrilla</i> (Linnaeus 1758)	LC	Comber	N	NC *comment 12				
119 <i>Variola albigmarginata</i> Baissac 1953	LC	White-edged lyretail	Y		13			71, 76
120 <i>Variola louti</i> (Forsskål 1775)	LC	Yellow-edged lyretail	Y		13, 34	43, 44, 47, 92		76, 86, 100

* Comment12: *Serranus oxyrhynchus* Valenciennes, 1828 described from Malabar is a junior synonym (Parenti & Randall 2020)

TABLE 3 cont.

Abbreviations

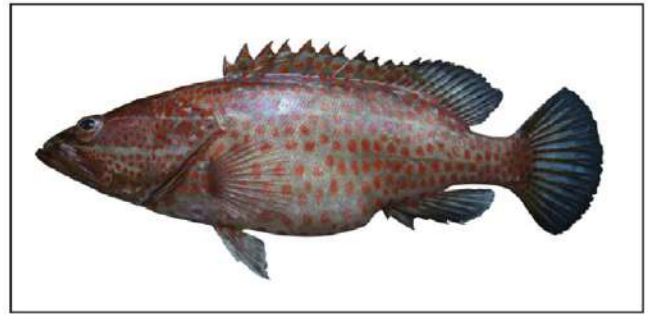
Pers. obs.- Observed by authors; Q- Questionable; NAR- Needs additional reports for confirmation, possibly occurs in Indian waters; NC- Needs confirmation, current distribution range does not include Indian waters; NE- Not evaluated; GoM- Gulf of Mannar; NA- Not available; DD- Data Deficient; LC- Least Concern; VU- Vulnerable

References

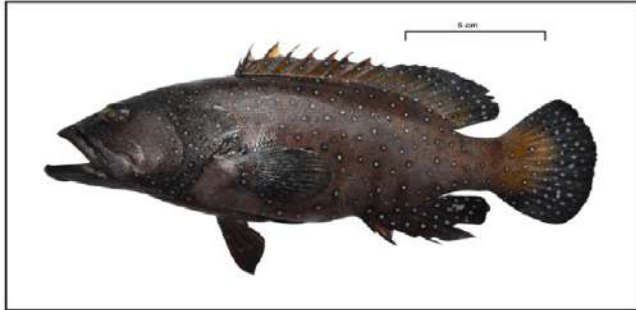
01. Ajith Kumar et al. 2012; 02. Akhilesh et al. 2009; 03. Akhilesh et al. 2012; 04. Alcock 1890; 05. Allen & Erdmann 2012; 06. Anrose et al. 2007; 07. AqGRISI 2020; 08. Arthur 2004; 09. Baiju et al. 2016; 10. Balachandran & Nizar 1991; 11. Barik et al. 2018; 12. Barman et al. 2011; 13. Basheer et al. 2017; 14. Bijukumar & Raghavan 2015; 15. Bineesh et al. 2013; 16. Bineesh et al. 2014a; 17. Bineesh et al. 2014b; 18. Bineesh et al. 2014c; 19. Bineesh 2015; 20. Craig et al. 2011; 21. Devarapalli et al. 2017; 22. Day 1865; 23. Day 1868; 24. Day 1871; 25. Day 1875; 26. Day 1888; 27. Debelius 2007; 28. Deepti et al. 2013; 29. Deepti et al. 2014; 30. Deepti et al. 2017; 31. Deepti et al. 2018; 32. Dhandapani & Mishra 1998; 33. Dutt & Sujatha 1984; 34. Fischer & Bianchi 1984; 35. Fricke et al. 2011; 36. George et al. 2010; 37. Govindan & Ravichandran 2016; 38. Heemstra 1973; 39. Heemstra & Akhilesh 2012; 40. Heemstra & Randall, 1993; 41. Herre 1941; 42. Idu et al. 2017; 43. Jones 1969; 44. Jones & Kumaran 1959; 45. Jones & Kumaran 1966; 46. Jones & Kumaran 1968; 47. Jones & Kumaran 1980; 48. Jones et al. 1981; 49. Joshi et al. 2016; 50. Joshi et al. 2018; 51. Kandula et al. 2015; 52. Krishna et al. 2017; 53. Krishnan & Mishra 1994; 54. Kumar et al. 2012; 55. Kumar et al. 2015; 56. Luther 1972; 57. Mahavidyalaya et al. 2020; 58. Manojkumar et al. 2019; 59. Menon & Talwar 1973. 60. Mishra & Krishnan 2003; 61. Mogalekar et al. 2017; 62. Murty et al. 1989; 63. Murugan & Namboothri 2012; 64. Nair 2008; 65. Nair 2017; 66. Nair & Kuriakose 2014; 67. Nair et al. 2012; 68. Nair et al. 2013; 69. Nounshad et al. 2014; 70. Prabhakaran et al. 2013; 71. Rajan 2002; 72. Rajan 2003; 73. Rajan 2015; 74. Rajan & Sreeraj, 2015; 75. Rajan et al. 2016; 76. Rajan et al. 2017; 77. Ramaiyan et al. 1987; 78. Ramakrishna et al. 2010; 79. Ramesh et al. 2008; 80. Randall & Heemstra, 1991; 81. Rangarajan 1967; 82. Rao 1991; 83. Rao 2003; 84. Rao 2009; 85. Rao et al. 1992; 86. Rao et al. 2000; 87. Ray & Mohapatra, 2020; 88. Ray et al. 2013; 89. Reddy 1984; 90. Sachithanandam & Mohan 2014; 91. Sachithanandam et al. 2015; 92. Sluka & Lazarus 2006; 93. Sluka & Lazarus 2010; 94. Sujatha 2004; 95. Sujatha & Dutt 1986; 96. Sujatha & Shrikanya 2012; 97. Sujatha et al. 2008; 98. Talwar & Kacker 1984; 99. Talwar 1976; 100. Talwar 1990; 101. Talwar & Sen 1971; 102. Thomas et al. 2008; 103. Valenciennes 1828; 104. Valenciennes 1830; 105. Varghese et al. 2011; 106. Venkataraman et al. 2002; 107. Williams & Viviani 2016; 108. Yennawar et al. 2011; 109. Prokofiev 2019



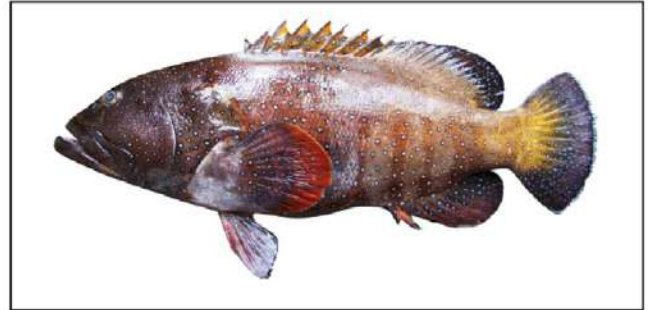
1. *Aethaloperca rogaa*
SW India



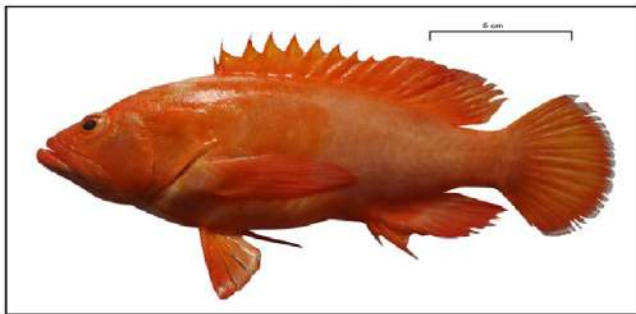
2. *Anyperodon leucogrammicus*
A&N Islands



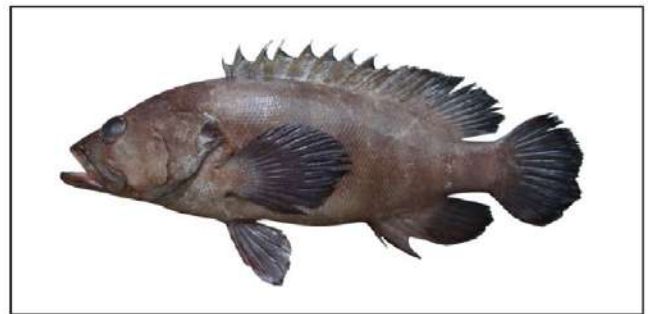
3. *Cephalopholis argus*
Lakshadweep Islands



4. *Cephalopholis argus*
A&N Islands



5. *Cephalopholis aurantia*
A&N Islands



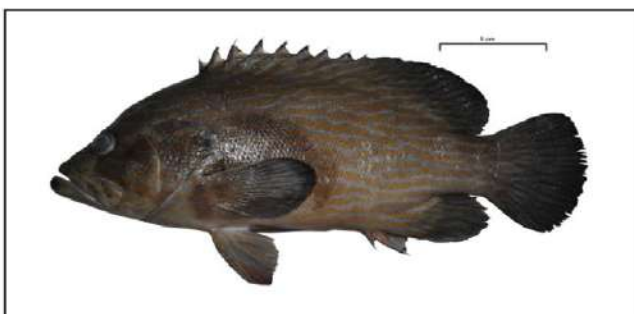
6. *Cephalopholis boenak*
A&N Islands



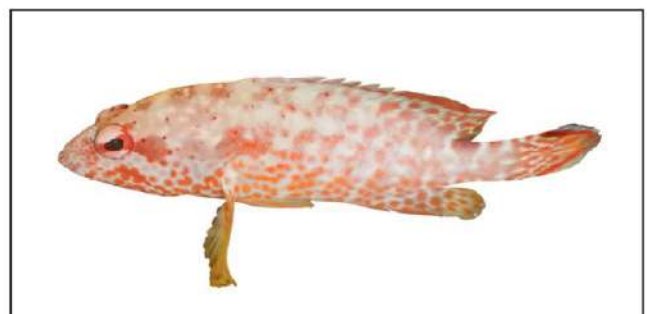
7. *Cephalopholis boenak*
SE India



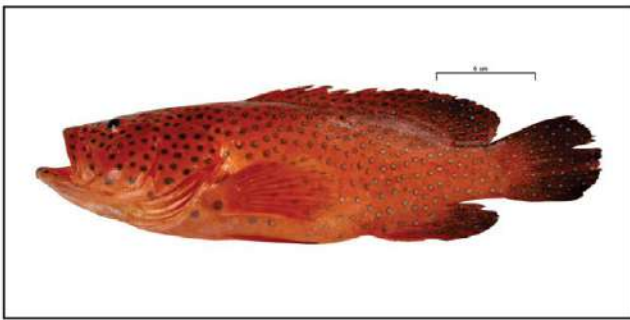
8. *Cephalopholis formosa*
NW India



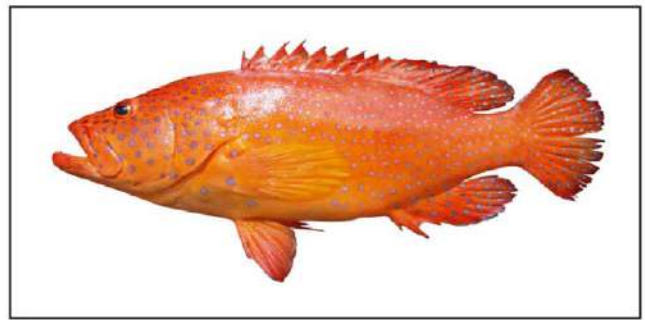
9. *Cephalopholis formosa*
A&N Islands



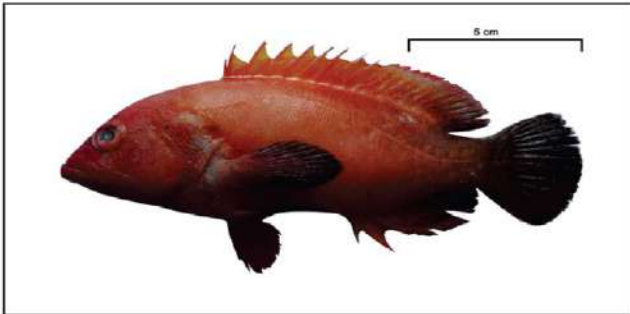
10. *Cephalopholis leopardus*
A&N Islands



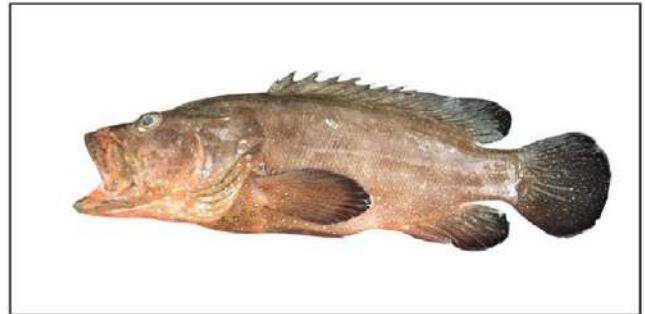
11. *Cephalopholis miniata*
Lakshadweep Islands



12. *Cephalopholis miniata*
A&N Islands



13. *Cephalopholis nigripinnis*
SW India



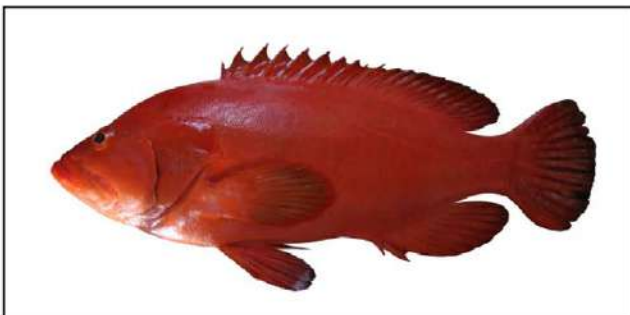
14. *Cephalopholis polyspila*
A&N Islands



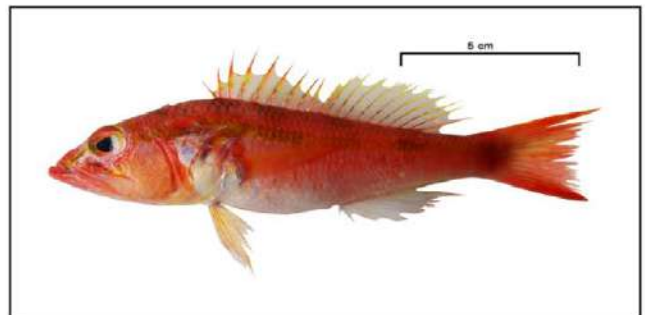
15. *Cephalopholis sexmaculata*
A&N Islands



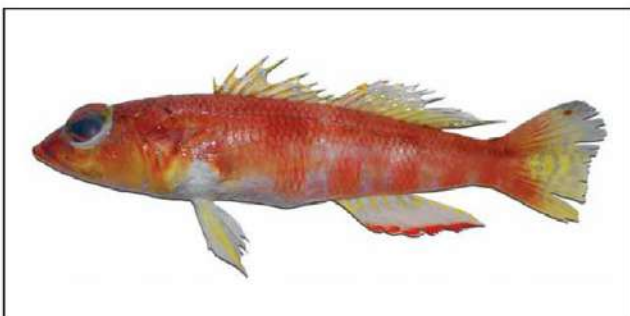
16. *Cephalopholis sonnerati*
SW India



17. *Cephalopholis sonnerati*
A&N India



18. *Chelidoperca investigatoris*
SW India



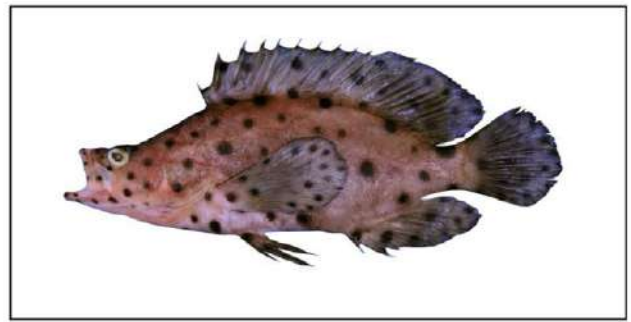
19. *Chelidoperca maculicauda*
SW India



20. *Chelidoperca occipitalis*
SW India



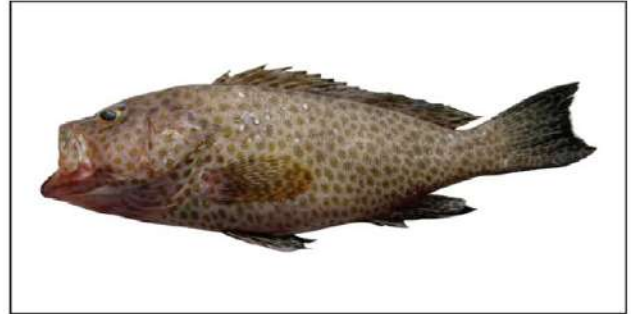
21. *Chelidoperca* sp A.
A&N Islands (Silesh. M/CMLRE)



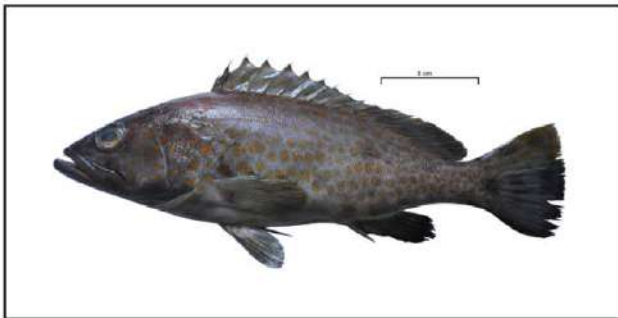
22. *Cromileptes altivelis*
A&N Islands



23. *Diploprion bifasciatum*
NE India



24. *Epinephelus areolatus*
SW India



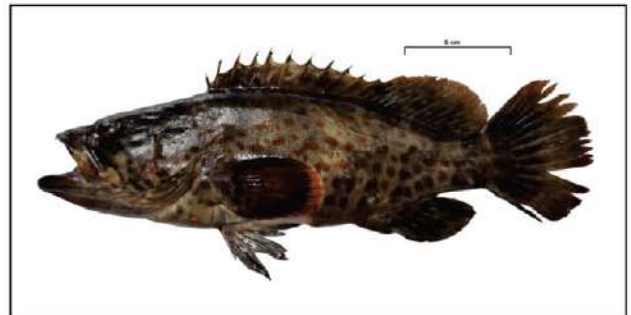
25. *Epinephelus bleekeri*
SW India



26. *Epinephelus chlorostigma*
SW India



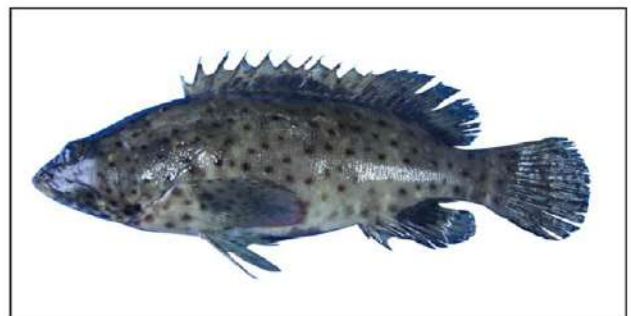
27. *Epinephelus coeruleopunctatus*
Lakshadweep Islands



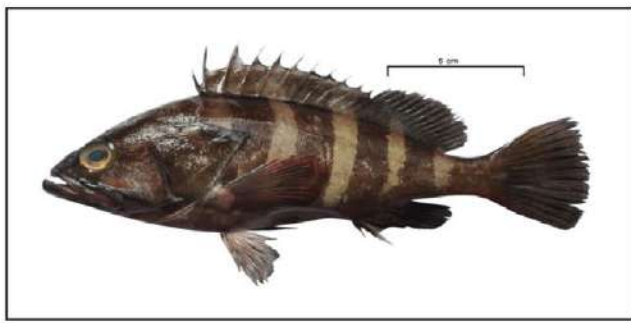
28. *Epinephelus coioides*
SW India



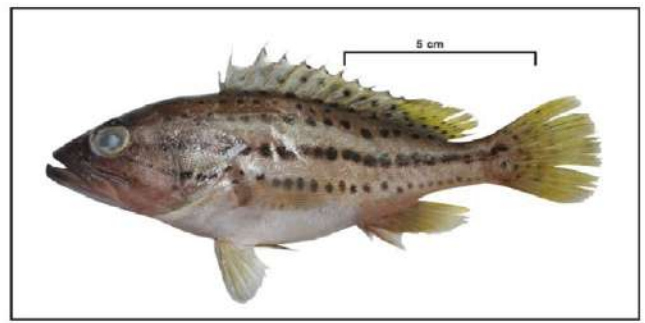
29. *Epinephelus coioides*
NW India



30. *Epinephelus corallicola*
A&N Islands



31. *Epinephelus diacanthus*
SW India



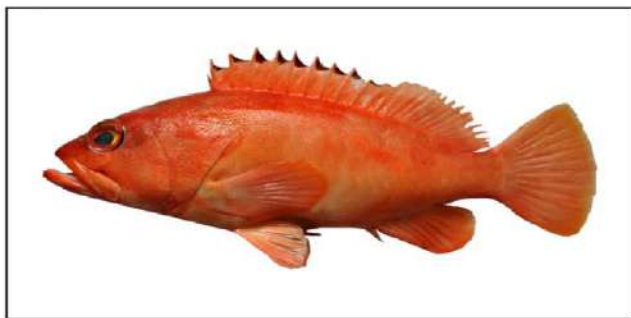
32. *Epinephelus epistictus*
SW India



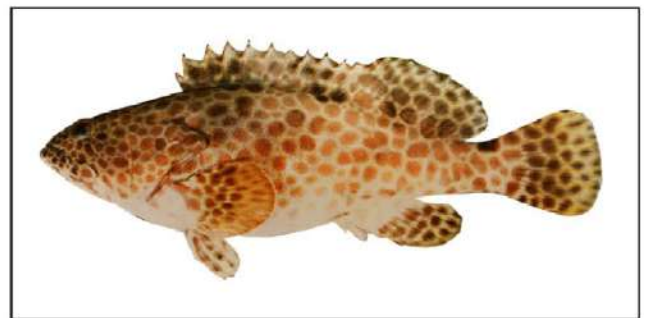
33. *Epinephelus epistictus*
SW India



34. *Epinephelus erythrurus*
NW India



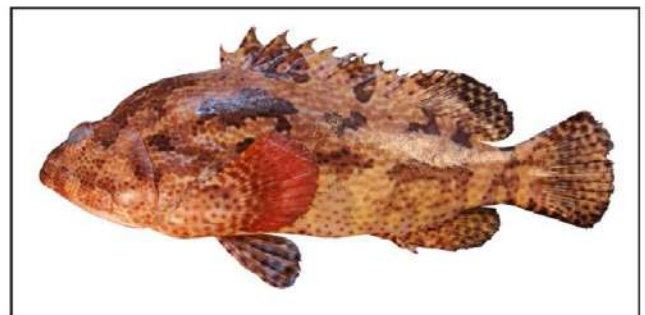
35. *Epinephelus fasciatus*
SW India



36. *Epinephelus faveatus*
SW India (J.E. Randall)



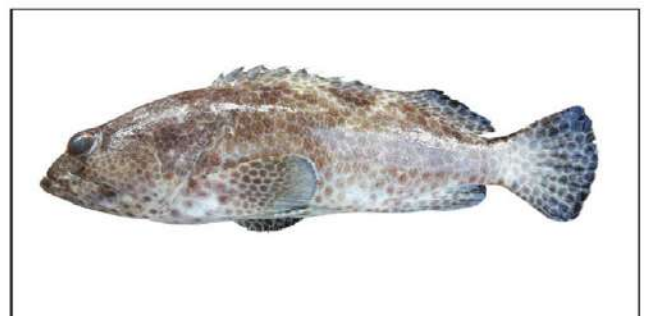
37. *Epinephelus flavocaeruleus*
SW India



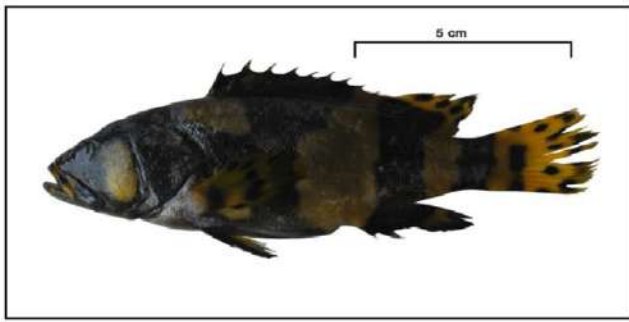
38. *Epinephelus fuscoguttatus*
A&N Islands



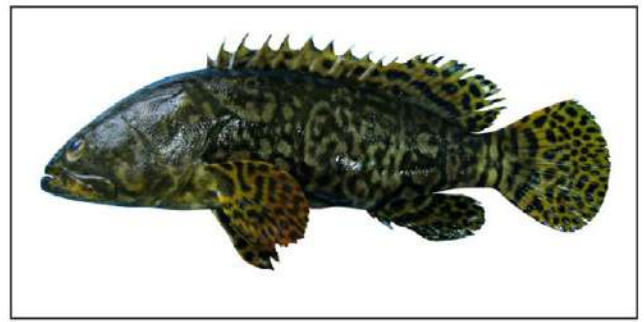
39. *Epinephelus heniochus*
A&N Islands



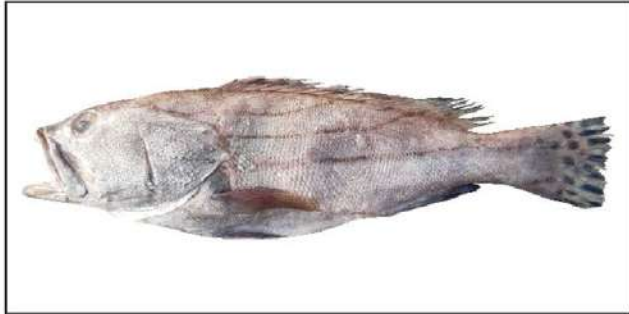
40. *Epinephelus hexagonatus*
A&N Islands



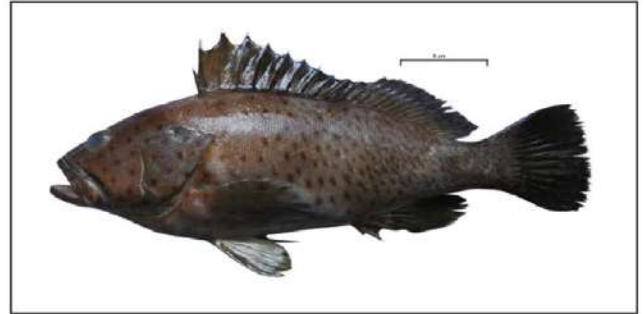
41. *Epinephelus lanceolatus*
SW India



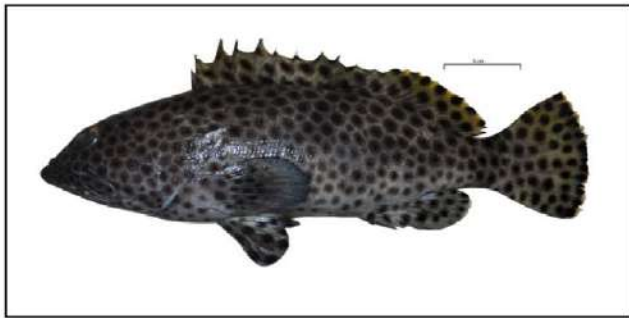
42. *Epinephelus lanceolatus*
A&N Islands



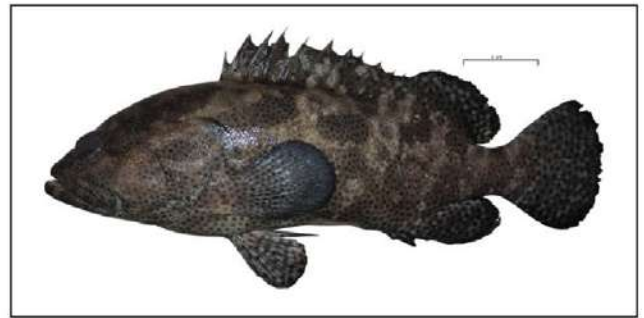
43. *Epinephelus latifasciatus*
NW India



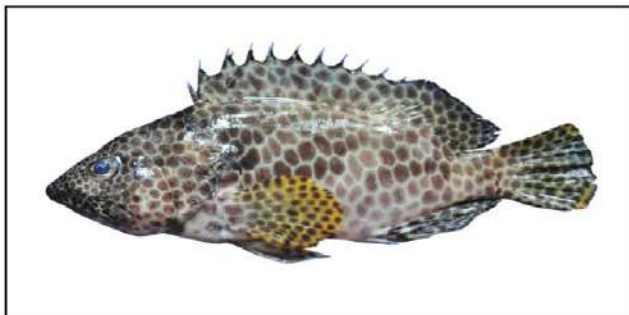
44. *Epinephelus longispinis*
SW India



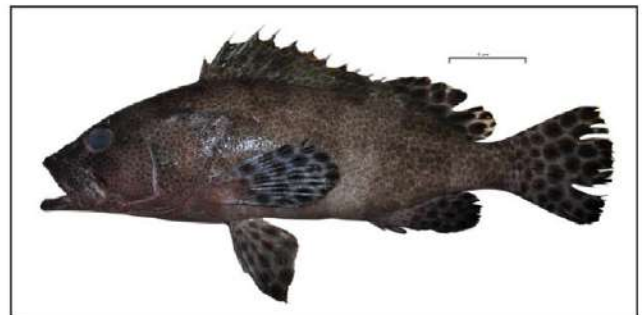
45. *Epinephelus macrospilos*
SW India



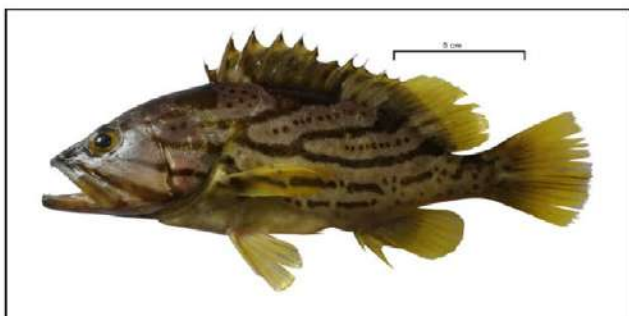
46. *Epinephelus malabaricus*
SW India



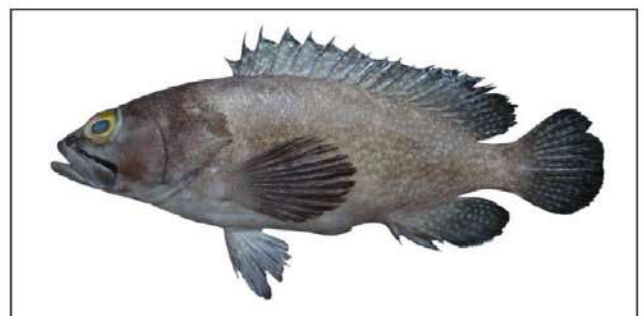
47. *Epinephelus merra*
A&N Islands



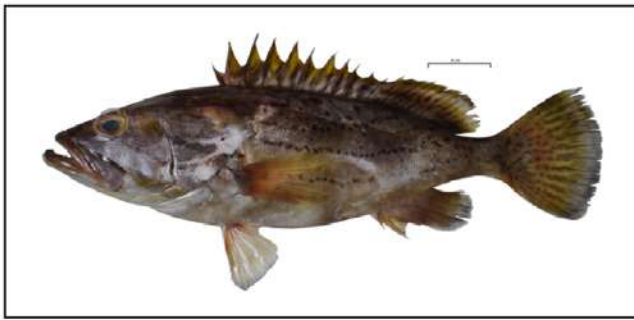
48. *Epinephelus miliaris*
SW India



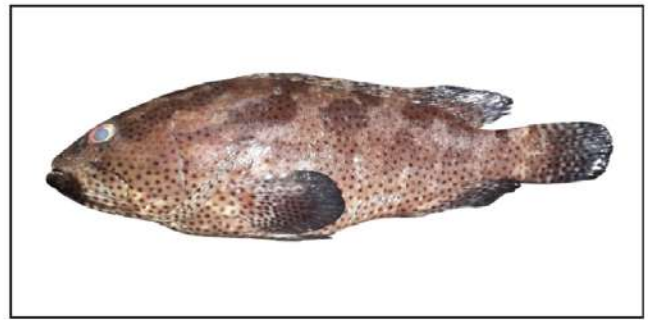
49. *Epinephelus morrhua*
SW India



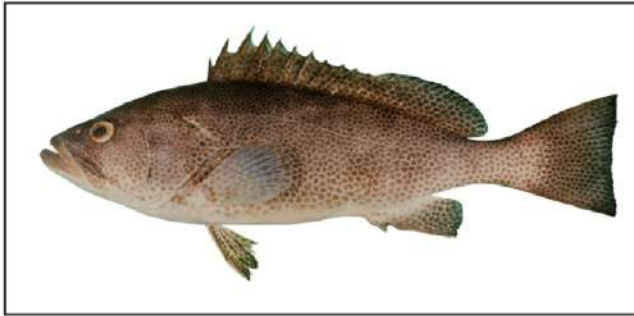
50. *Epinephelus ongus*
A&N Islands



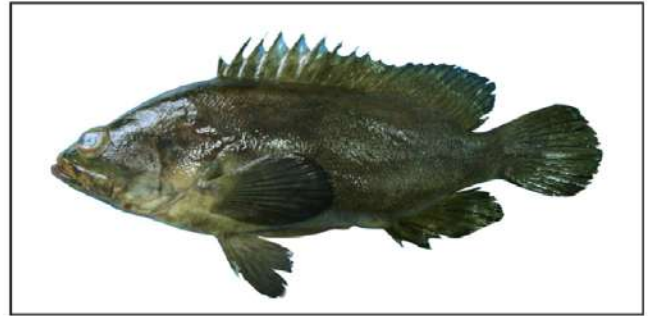
51. *Epinephelus poecilonotus*
SW India



52. *Epinephelus polyphkadion*
SW India



53. *Epinephelus polylepis*
SW India (J.E. Randall)



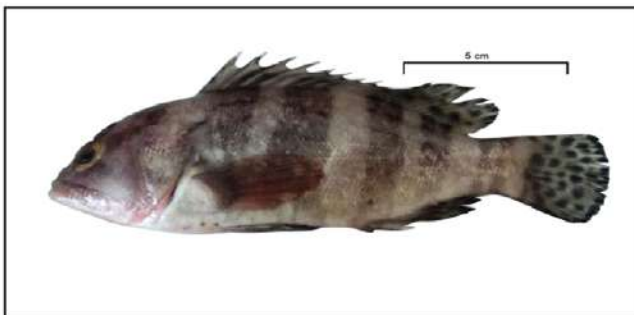
54. *Epinephelus polystigma*
A&N Islands



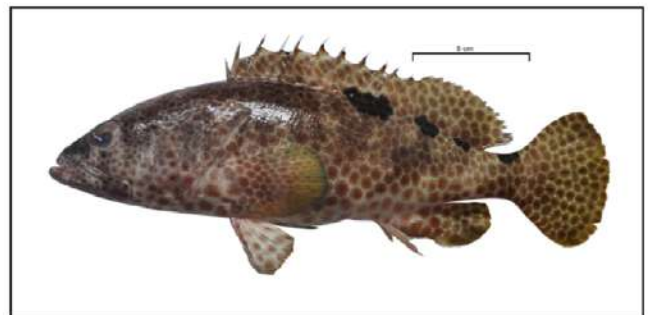
55. *Epinephelus radiatus*
A&N Islands



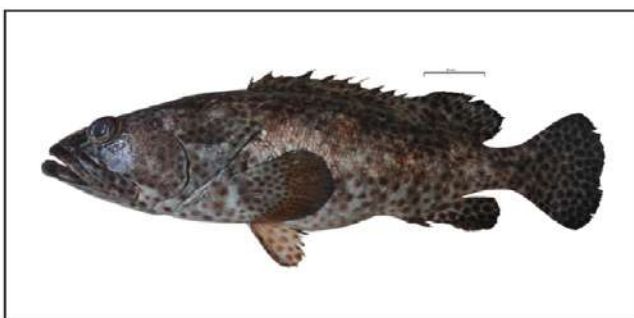
56. *Epinephelus retouti*
A&N Islands



57. *Epinephelus sexfasciatus*
NE India (D. Ray)



58. *Epinephelus spilotoceps*
SW India



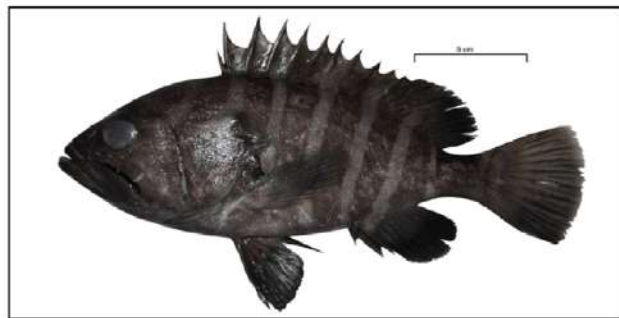
59. *Epinephelus tauvina*
SW India



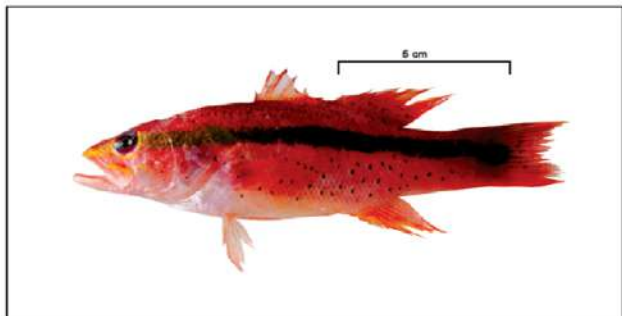
60. *Epinephelus tukula*
NW India



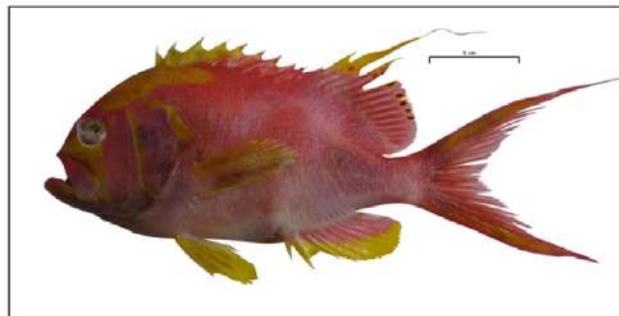
61. *Epinephelus undulosus*
SW India



62. *Hyporthodus octofasciatus*
SW India



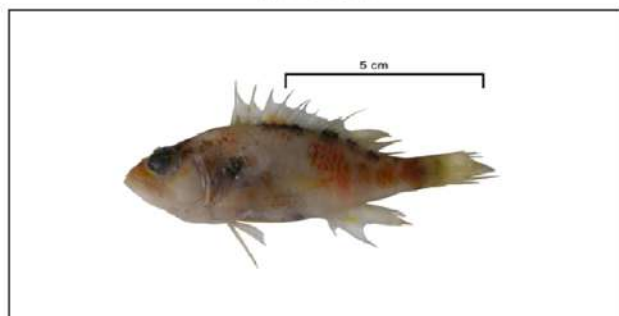
63. *Liopropoma randalli*
SW India



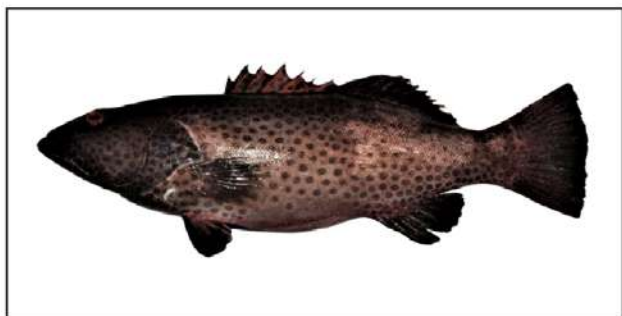
64. *Meganthias filiferus*
SW India



65. *Odontanthias rhodopeplus*
SW India



66. *Plectranthias alcocki*
SW India



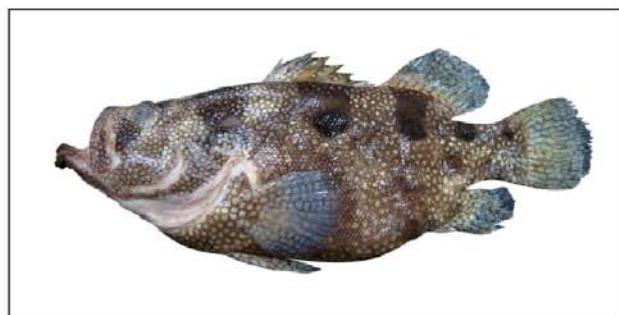
67. *Plectropomus areolatus*
SW India



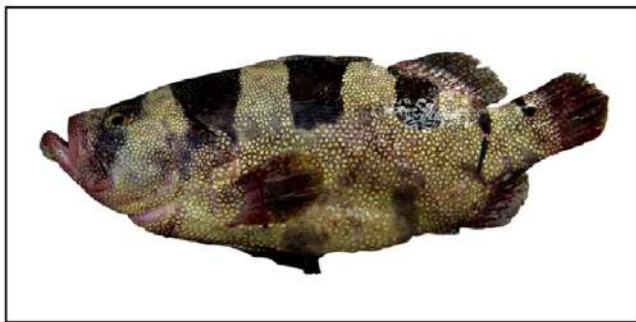
68. *Plectropomus laevis*
A&N Islands



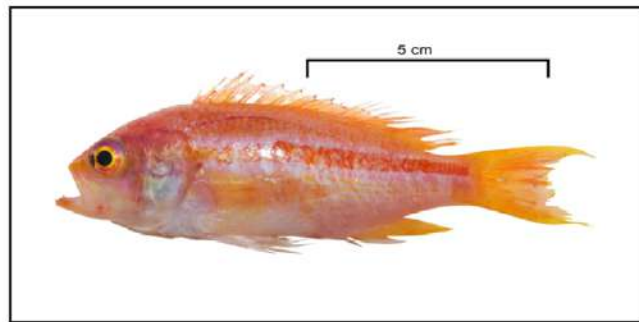
69. *Plectropomus pessuliferus*
A&N Islands



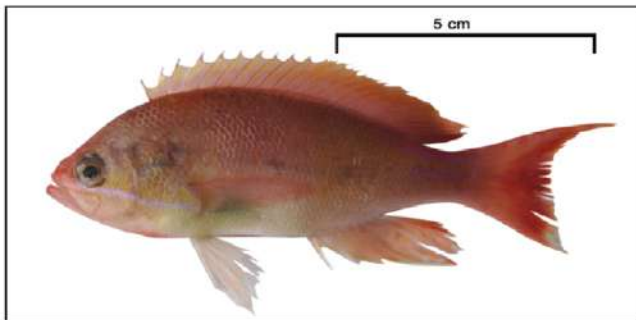
70. *Pogonoperca ocellata*
A&N Islands



71. *Pogonoperca punctata*
SE India



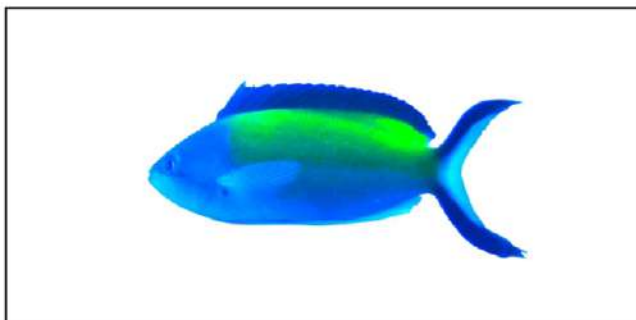
72. *Pseudanthias gibbosus*
off A&N Islands



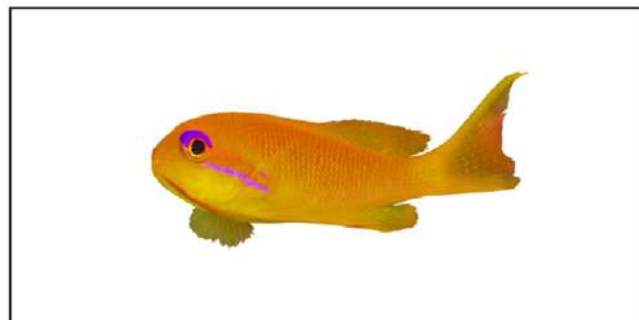
73. *Pseudanthias marcia*
SW India



74. *Pseudanthias pillai*
SW India



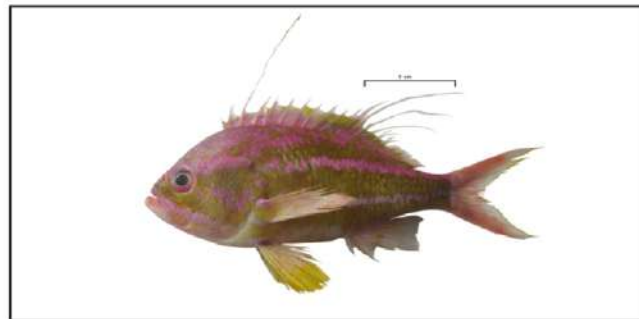
75. *Pseudanthias ignitus*
A&N Islands



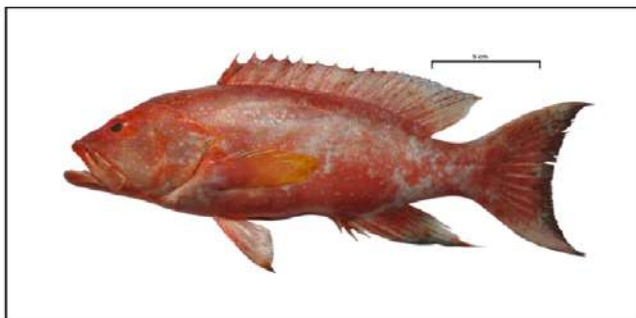
76. *Pseudanthias squamipinnis*
A&N Islands



77. *Pseudanthias squamipinnis*
A&N Islands



78. *Sacura boulengeri*
SW India



79. *Variola albiguttata*
SW India



80. *Variola louti*
Lakshadweep Islands