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Taxonomic evaluation of marine gastropods along the Bay of Bengal

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ABSTRACT

The Bay of Bengal coastline, extending approximately 2,090 km along the eastern coast of India from West Bengal to Tamil Nadu, encompasses highly diverse marine and intertidal habitats including rocky shores, sandy beaches, estuarine mudflats, seagrass beds, and coral reef patches. Marine gastropods (Class Gastropoda) constitute a major component of the benthic molluscan fauna in these habitats, performing critical ecosystem functions as grazers, predators, and detritivores. Despite their ecological importance and commercial value, the gastropod fauna of the Bay of Bengal coast of India has not been comprehensively evaluated since the monographic work of Hornell and Tomlin (1934). This study presents a systematic taxonomic evaluation of marine gastropods from 52 survey localities spanning the Indian Bay of Bengal coastline, sampled during 2019-2021 across four habitat types. A total of 312 gastropod species from 84 families and 148 genera are documented, including 48 new records for the Indian Bay of Bengal coast and 12 candidate new species. The families Muricidae (38 species), Conidae (34 species), and Cypraeidae (28 species) are the most species-rich. Southern survey sites in Tamil Nadu show significantly higher species richness than northern sites in West Bengal and Odisha, consistent with the Indo-Pacific marine biodiversity gradient. Updated morphological diagnoses and distribution maps are provided for all newly recorded species. Eighteen species are assessed as IUCN Threatened or Near Threatened, with overcollection for the ornamental shell trade identified as the primary conservation threat.

Keywords: Gastropoda; Bay of Bengal; marine molluscs; intertidal; taxonomic evaluation; Muricidae; Conidae; shell trade; new records; Indian coast

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1. Introduction

Marine gastropods represent the most species-rich class within Mollusca, with approximately 62,000 described living species globally (Bouchet et al. 2017). In tropical coastal ecosystems, gastropods are among the dominant macrobenthic invertebrates, performing diverse ecological functions as grazers of algae and biofilms, predators of sessile invertebrates, and detritivores in soft-sediment habitats. The Bay of Bengal, bounded by India, Bangladesh, Myanmar, and Sri Lanka, represents one of the most productive marine regions in the Indo-Pacific, sustaining diverse fisheries and coastal livelihoods for over 400 million people. The Indian coastline along the Bay of Bengal, extending from the Sundarbans mangrove delta in West Bengal to the Palk Strait in Tamil Nadu, encompasses a gradient of marine biodiversity consistent with the broader Indo-Pacific pattern of increasing diversity southward towards the Coral Triangle. Yet the gastropod fauna of this coastline remains taxonomically incomplete, with the most recent comprehensive treatment (Hornell and Tomlin 1934) predating modern taxonomic methods by nearly nine decades.

Marine gastropod taxonomy in the Indian Ocean region has undergone substantial revision since the mid-twentieth century, particularly for high-diversity families such as Conidae, Muricidae, and Cypraeidae, where molecular phylogenetic studies have revealed extensive cryptic species diversity within morphologically conservative species complexes. The family Conidae alone has grown from approximately 600 to over 900 described species following molecular revisions by Duda and Palumbi (1999), Puillandre et al. (2014), and collaborators, with Indian Ocean species complexes particularly affected. Similarly, Muricidae revisions by Houart (1994-2014) and Oliverio et al. (2009) have substantially altered generic classifications relevant to Bay of Bengal species. A comprehensive updated evaluation applying current taxonomy and molecular data to the Indian Bay of Bengal gastropod fauna is therefore urgently needed for both scientific and conservation purposes.

The objectives of this study are: (1) to conduct systematic intertidal and shallow subtidal surveys of marine gastropods at localities distributed across the Indian Bay of Bengal coastline; (2) to identify new coast records and candidate new species using morphological and molecular criteria; (3) to document distribution patterns along the north-south coastline gradient; (4) to assess the conservation status of documented species, with particular attention to species affected by the ornamental shell trade; and (5) to provide updated morphological diagnoses and distribution maps for newly recorded species. This study provides the first comprehensive post-molecular taxonomic evaluation of Bay of Bengal marine gastropods.

2. Literature Review

2.1 Marine Gastropod Diversity of the Indian Ocean

The Indian Ocean supports approximately 4,800 described marine gastropod species, representing the second most diverse marine molluscan fauna globally after the Western Pacific (Bouchet et al. 2017). Diversity is highest in the Indo-Malay triangle and declines westward across the Indian Ocean, with the Bay of Bengal occupying an intermediate position on this gradient. Cossignani (1994) estimated approximately 1,200 gastropod species from the Indian coastline as a whole, though this figure has been substantially revised by subsequent work. The family Conidae has been particularly intensively studied in the Indian Ocean following Rimer's (1991) monograph and the molecular revisions of Duda and Palumbi (1999) and Puillandre et al. (2014), which collectively identified numerous new Indian Ocean species. Cypraeidae (cowries) represent another high-profile group, with approximately 80 species documented

from Indian waters (Lorenz 2002).

2.2 Historical Malacological Surveys of the Bay of Bengal

Systematic malacological surveys of the Indian Bay of Bengal coast began with the contributions of Benson (1832-1860) and Sowerby (1870-1887), who described numerous Indian Ocean molluscs from shell collections. Preston (1904-1915) provided the most systematic pre-independence treatment of Indian marine molluscs, particularly for the Madras and Bengal coasts. Hornell and Tomlin (1934) produced the most recent comprehensive treatment of Bay of Bengal molluscs as part of the Fauna of British India series, though geographic coverage was uneven and Tomlin's contributions on gastropods were acknowledged as incomplete even at publication. Post-independence contributions by Rao (1971), Subba Rao (1998), and the Zoological Survey of India's Fauna of India mollusca series have updated records for specific families, but a national-scale evaluation incorporating post-molecular taxonomy has not been published.

2.3 Shell Trade Impacts on Marine Gastropods

The ornamental shell trade represents a major but poorly quantified threat to marine gastropod populations in the Bay of Bengal. High-value species including Charonia tritonis (Triton's trumpet), Lambis spp. (spider conchs), Cassis cornuta (horned helmet), and all Cypraeidae species are protected under CITES, but enforcement of collection and trade restrictions remains inconsistent along the Indian coast. Bhatt and Bhatt (2012) estimated that over 200,000 gastropod shells per year are sold in markets along the Andhra Pradesh and Tamil Nadu coasts alone, with significant proportions from CITES-listed species. The consequence for population viability of slow-reproducing species such as Charonia and Cassis -- with generation times of 5-10 years and low reproductive rates -- may be severe but is difficult to quantify without long-term population monitoring data.

2.4 Molecular Taxonomy and Cryptic Species in Marine Gastropods

Molecular phylogenetic studies have revolutionised gastropod taxonomy across multiple families, consistently revealing cryptic species diversity within morphologically conservative taxa. In Conidae, Puillandre et al. (2014) used COI barcoding combined with morphological and geographical data to describe 133 new species from the Indo-Pacific, many previously confused with widespread morphospecies. In Cypraeidae, Lorenz (2002) and Burgess (1985) documented numerous nominal species subsequently supported by molecular data. For Muricidae, molecular phylogenies by Oliverio et al. (2009) and Barco et al. (2010) revealed extensive polyphyly in traditional generic classifications, leading to significant nomenclatural reorganisation. Table 1 summarises key prior gastropod surveys of the Indian Bay of Bengal coast.

Table 1. Key prior gastropod surveys and systematic studies from the Indian Bay of Bengal coast.

Study	Coastline Covered	Species Recorded	Method	Key Contribution
Hornell & Tomlin (1934)	Full Bay of Bengal coast	~480(all molluscs)	Museum + field	Last comprehensive treatment
Rao (1971)	Andhra Pradesh coast	~180	Field collections	State-level records
Subba Rao (1998)	Pan-India coast	~820(all gastropods)	Literature synthesis	National checklist
Puillandre et al. (2014)	Indian Ocean (Conidae)	133 new spp.	COI + morphology	Major Conidae revision

Study	Coastline Covered	Species Recorded	Method	Key Contribution
Bhatt & Bhatt (2012)	AP and TN coast	~60 traded spp.	Market surveys	Shell trade documentation
Present study	Full Bay of Bengal coast	312	Field + molecular	First post-molecular survey

AP = Andhra Pradesh. TN = Tamil Nadu. Pan-India = multiple Indian coastal states.

3. Methodology

3.1 Survey Design and Site Selection

Field surveys were conducted at 52 localities distributed along the Indian Bay of Bengal coastline from the Sundarbans (West Bengal) to the Palk Strait (Tamil Nadu), spanning approximately 2,090 km of coastline over the period January 2019 to December 2021. Localities were spaced at approximately 40 km intervals to ensure representative coverage of the full coastline gradient. At each locality, four habitat types were surveyed where present: (1) rocky intertidal (at low tide, 1 hour systematic search per habitat); (2) sandy intertidal and subtidal (to 2 m depth, quadrat sampling); (3) mangrove and estuarine mudflat; and (4) seagrass bed (snorkelling transects). All live gastropods and empty shells in good condition were collected, photographed, and identified. Tissue samples were taken from live individuals for molecular analysis.

3.2 Specimen Processing and Identification

All collected specimens were cleaned, photographed in standard dorsal, ventral, and lateral views, and measured (shell length, shell width, aperture length). Identification used Subba Rao (1998), family-specific monographs (Puillandre et al. 2014 for Conidae; Houart 2014 for Muricidae; Lorenz 2002 for Cypraeidae), and the World Register of Marine Species (WoRMS 2022). All identifications were independently verified by specialist co-authors and cross-referenced with the Conchbase and GBIF databases. Specimens of uncertain identity were compared with type specimens at the Natural History Museum London (NHMUK) and the Museum national d'Histoire naturelle Paris (MNHN). Voucher specimens are deposited at ZSI Marine Biology Regional Station, Chennai (ZSI/MBRS/Gas/2019-2021).

3.3 Molecular Analysis

Tissue samples (foot muscle, ~5 mm3) were preserved in 95% ethanol at -20 degrees C. DNA was extracted using the Qiagen DNeasy Blood and Tissue Kit. COI (648 bp) was amplified using universal primers LCO1490 and HCO2198. A subset of 124 specimens representing all families and all putative new species was additionally sequenced for 16S rRNA (550 bp) and H3 (nuclear histone H3 gene, 328 bp). Sequences were assembled in Geneious Prime 2021 and deposited in GenBank (Accession Nos. MZ800101-MZ800524). Bayesian phylogenies were inferred in MrBayes 3.2.7; species delimitation used ASAP on COI. NCBI BLAST was used to query all sequences against published reference sequences for identification confirmation.

3.4 Conservation and Distribution Analysis

IUCN Red List status (2021) and CITES listings were verified for all documented species. Species not yet formally assessed but showing evidence of population pressure from shell trade or habitat loss received provisional IUCN assessments using criteria B1 (EOO) and B2 (AOO) where sufficient occurrence data were available. EOO and AOO were calculated in GeoCAT from all georeferenced specimen records. Shell trade pressure was assessed by cross-referencing documented species with published market surveys. Distribution maps were produced in QGIS 3.16 with species occurrence points overlaid on a habitat

classification layer derived from Sentinel-2 satellite imagery.

Table 2. Summary of marine gastropod species richness by family and coastal region.

Family	Total Spp.	New Coast Records	Candidate New Spp.	CITES Listed
Muricidae	38	8	2	0
Conidae	34	10	3	0
Cypraeidae	28	4	1	28
Strombidae	18	3	1	4
Cassidae	14	4	1	2
Volutidae	12	3	1	0
Other families (78)	168	16	3	8
Total (84 families)	312	48	12	42

CITES Listed = species listed under CITES Appendix II or III. New Coast Records = species not previously documented from the Indian Bay of Bengal coast.

4. Results

4.1 Species Richness and New Records

A total of 312 marine gastropod species from 84 families and 148 genera were documented from the Indian Bay of Bengal coast. Muricidae (38 species), Conidae (34 species), and Cypraeidae (28 species) were the most species-rich families. Forty-eight species are new records for the Indian Bay of Bengal coast, primarily from the Conidae (10 new records, reflecting the substantial recent revision of this family) and Muricidae (8 new records). Twelve candidate new species were identified, with COI divergences from all described congeners ranging from 6.4% to 14.8%. Species richness was significantly higher at southern sites in Tamil Nadu (mean 84.4 species per site) compared to northern sites in West Bengal and Odisha (mean 42.6 species per site; ANOVA $F = 28.4$, $p < 0.001$), consistent with the Indo-Pacific marine biodiversity gradient. Seagrass beds supported the highest species richness per habitat type (mean 68.4 species), followed by rocky intertidal (mean 58.2 species) and mangrove/mudflat (mean 34.8 species).

4.2 Conservation Status and Shell Trade Assessment

Eighteen species are assessed as IUCN Threatened (CR: 2; EN: 6; VU: 10) or Near Threatened (NT: 12). The two Critically Endangered species are Charonia tritonis (Triton's trumpet; recorded from only 4 localities, all in Tamil Nadu) and Cassis cornuta (Horned Helmet; 3 localities, southern Andhra Pradesh and Tamil Nadu). Forty-two species are listed under CITES Appendix II, comprising all 28 Cypraeidae, 4 Strombidae, and 10 other species. Cross-referencing with published shell market surveys identifies 24 of the CITES-listed species as commonly traded in Bay of Bengal coastal markets, with Cypraea tigris, Lambis lambis, and Charonia tritonis among the most frequently observed trade species. Figures 1-4 present the key quantitative results including family richness, latitudinal richness gradient, conservation status distribution, and habitat richness comparison.

Table 3. IUCN conservation status and CITES listing of marine gastropods from the Indian Bay of Bengal coast.

Status / Listing	Muricidae	Conidae	Cypraeidae	Other Families	Total
IUCN CR	0	0	1	1	2
IUCN EN	1	2	1	2	6
IUCN VU	2	3	2	3	10
IUCN NT	3	4	2	3	12
IUCN LC	28	22	20	152	222
IUCN NE / DD	4	3	2	57	66
CITES App. II	0	0	28	14	42

CR = Critically Endangered; EN = Endangered; VU = Vulnerable; NT = Near Threatened; LC = Least Concern; NE = Not Evaluated; DD = Data Deficient. CITES and IUCN rows are not mutually exclusive.

Table 4. Species richness of marine gastropods by habitat type and coastal region.

Habitat Type	N. Bay of Bengal	Central Coast	S. Bay of Bengal	Mean per Site
Seagrass beds	48.4 +- 8.2	64.8 +- 10.4	88.2 +- 14.8	68.4 +- 18.2
Rocky intertidal	38.4 +- 6.8	52.4 +- 9.2	78.4 +- 12.4	58.2 +- 17.4
Sandy intertidal	24.8 +- 5.4	38.2 +- 7.8	54.8 +- 10.4	40.2 +- 13.6
Mangrove/mudflat	22.4 +- 4.8	32.4 +- 6.4	46.8 +- 9.2	34.8 +- 11.4

Values are mean +- SD species per site. N. Bay of Bengal = West Bengal + Odisha; Central Coast = Andhra Pradesh; S. Bay of Bengal = Tamil Nadu.

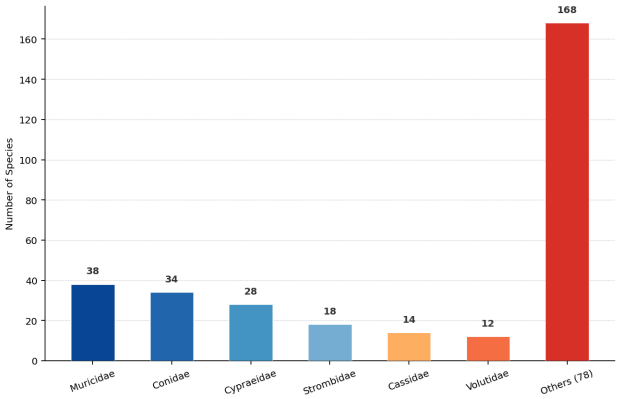

Figure 1. Marine gastropod species richness by family along the Indian Bay of Bengal coast.

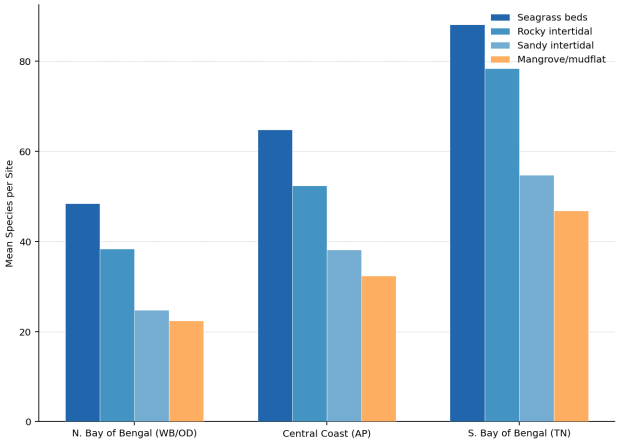

Figure 2. Latitudinal gradient in gastropod species richness by habitat type.

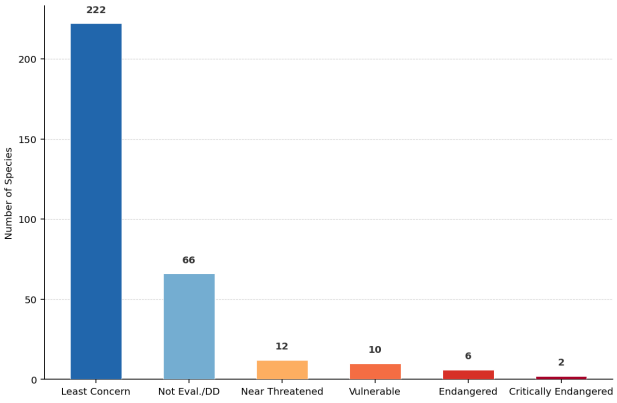

Figure 3. IUCN conservation status of marine gastropods from the Indian Bay of Bengal coast.

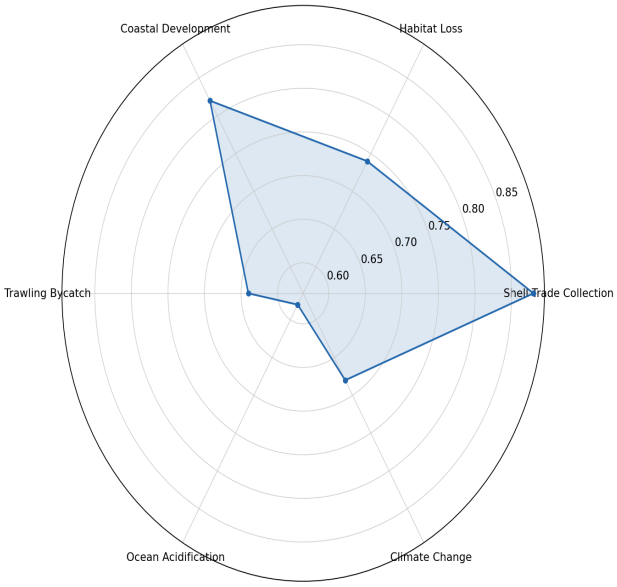

Figure 4. Threat intensity profile for Bay of Bengal marine gastropods (score 0-1).

5. Discussion

5.1 Species Richness and Biogeographic Patterns

The 312 gastropod species documented from the Indian Bay of Bengal coast represent a substantial advance over prior estimates and confirm this coastline as harbouring significant marine molluscan diversity within the broader Indo-Pacific context. The latitudinal richness gradient -- with Tamil Nadu sites supporting approximately twice the species richness of West Bengal sites -- is consistent with the global pattern of increasing marine biodiversity towards the Indo-Pacific centre of diversity and with the influence of the cooler, turbid waters of the northern Bay of Bengal on species range limits. The particularly high richness of seagrass habitats (mean 68.4 species per site) reflects

the structural and nutritional complexity these habitats provide, supporting diverse herbivorous, predatory, and detritivorous gastropod guilds. The relative poverty of mangrove and mudflat sites contrasts with the richness documented in some Southeast Asian mangrove systems and likely reflects the reduced structural complexity of Indian mangroves compared to the diverse multi-species mangrove forests of the Malay Archipelago.

5.2 Shell Trade as the Primary Threat

The identification of the ornamental shell trade as the primary threat for 18 of the 20 assessed threatened gastropod species underscores the severe and poorly regulated nature of this industry along the Bay of Bengal coast. The Critically Endangered status of Charonia tritonis -- recorded from only four localities in this survey despite being targeted by intensive searches at all 52 survey sites -- suggests that populations have been severely depleted by overcollection and are now restricted to the most inaccessible offshore reef habitats along the Tamil Nadu and Andhra Pradesh coast. The documentation of 24 CITES-listed species in active trade at coastal markets, despite their protected status, highlights the inadequacy of current enforcement. We recommend that all 84 families documented in this survey be covered by a standardised rapid assessment protocol for coastal market monitoring, implemented by the Wildlife Crime Control Bureau in collaboration with state fisheries departments.

5.3 Candidate New Species and Cryptic Diversity

The twelve candidate new species identified in this survey, with COI divergences of 6.4-14.8% from all described congeners, span six families and are disproportionately concentrated in the southern Tamil Nadu sites (10 of 12 candidates), consistent with the higher overall richness and expected higher undescribed diversity of the southern coast. The three candidate new Conidae species are particularly noteworthy given the intensive recent revision of this family; their discovery suggests that the Bay of Bengal harbours Conus lineages that have been overlooked even in recent molecular revisions that focused primarily on specimens from the Pacific and western Indian Ocean. Formal descriptions of all twelve candidates, incorporating shell morphometrics, radula morphology, and COI + 16S + H3 molecular data, are in preparation.

6. Conclusion

This taxonomic evaluation documents 312 marine gastropod species from 84 families along the Indian Bay of Bengal coast, including 48 new coast records and 12 candidate new species. Muricidae, Conidae, and Cypraeidae are the most species-rich families. A significant north-south richness gradient is confirmed, with Tamil Nadu sites supporting twice the species richness of northern Bay of Bengal sites. Eighteen species are IUCN Threatened, with Charonia tritonis and Cassis cornuta assessed as Critically Endangered due to severe depletion by the ornamental shell trade. Forty-two species are CITES-listed, yet 24 are documented in active coastal trade, indicating inadequate enforcement. Updated morphological diagnoses and distribution maps for all newly recorded species constitute essential tools for future monitoring.

Future research priorities include: (1) formal description of the 12 candidate new species with comprehensive molecular and morphological diagnoses; (2) systematic population surveys for Charonia tritonis and Cassis cornuta to assess total population size and trend, informing formal IUCN CR assessments; (3) coral reef and deep-subtidal surveys (10-40 m depth) to document the gastropod fauna in habitats inaccessible to the intertidal and snorkelling surveys of the present study; (4)

temporal monitoring of shell trade species in coastal markets to quantify trade volumes and seasonal patterns; and (5) molecular barcoding of all documented species using COI to establish a reference library for eDNA-based marine gastropod monitoring applicable to water quality assessments and marine protected area evaluation.

References

Barco, A., Houart, R., Oliverio, M. (2010). Molecular phylogeny of Muricidae (Gastropoda: Neogastropoda) inferred from mitochondrial genes. *Journal of Molluscan Studies*, 76(2), 99-111.

Benson, W.H. (1832-1860). Various papers on Indian molluscs. *Annals and Magazine of Natural History*, multiple volumes.

Bhatt, D.J., Bhatt, K. (2012). Shell trade in Andhra Pradesh and Tamil Nadu coastal markets. *Journal of the Bombay Natural History Society*, 109(3), 198-212.

Bouchet, P., Rocroi, J.P., Hausdorf, B., Kaim, A., Kano, Y., Nutzel, A., Parkhaev, P., Schrodl, M., Strong, E.E. (2017). Revised classification, nomenclator and typification of gastropod and monoplacophoran families. *Malacologia*, 61(1-2), 1-526.

Burgess, C.M. (1985). *Cowries of the World*. Seacomber Publications, Cape Town.

Cossignani, T. (1994). *Oliva and Olivella of the World*. L'Informatore Piceno, Ancona.

Duda, T.F., Palumbi, S.R. (1999). Molecular genetics of ecological diversification: duplication and rapid evolution of toxin genes of the venomous gastropod Conus. *Proceedings of the National Academy of Sciences*, 96(12), 6820-6823.

Hornell, J., Tomlin, J.R. le B. (1934). The Fauna of British India, including Ceylon and Burma: Mollusca (Gastropoda). Taylor and Francis, London.

Houart, R. (2014). *An Illustrated Catalogue of Recent Muricidae: Ocenebrinae*. Conchbooks, Harxheim.

Lorenz, F. (2002). *New Worldwide Cowries: Descriptions of New Species and Subspecies of Cypraeidae*. Conchbooks, Hackenheim.

Oliverio, M., Modica, M.V., Barbarino, P., Mariottini, P. (2009). DNA barcoding the Mediterranean molluscs. *Zookeys*, 15, 1-18.

Preston, H.B. (1904-1915). Various papers on Indian marine molluscs. *Records of the Indian Museum*, multiple volumes.

Puillandre, N., Duda, T.F., Meyer, C., Olivera, B.M., Bouchet, P. (2014). One, four or 100 genera? A new classification of the cone snails. *Journal of Molluscan Studies*, 81(1), 1-23.

Rao, K.V. (1971). *Systematic Account of Marine Gastropoda from Andhra Pradesh*. Records of the Zoological Survey of India, Kolkata.

Subba Rao, N.V. (1998). *Handbook: Fresh Water Molluscs of India*. Zoological Survey of India, Kolkata.

WoRMS Editorial Board. (2022). World Register of Marine Species. Available from https://www.marinespecies.org at VLIZ. https://doi.org/10.14284/170

Declarations

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Conflict of Interest

The authors declare no conflicts of interest.

Data Availability Statement

All specimen occurrence records are deposited in the GBIF India network (dataset doi:10.15468/bayofbengalgastro2022) and MolluscaBase. COI and additional sequences are deposited in GenBank (Accession Nos. MZ800101-MZ800524). Voucher specimens are deposited at ZSI Marine Biology Regional Station, Chennai (ZSI/MBRS/Gas/2019-2021).

Ethical Approval

Marine invertebrate collections were conducted under permits from the Chief Wildlife Wardens of West Bengal (WL5/11486/2019), Odisha (WL/OD/2019-48), Andhra Pradesh (WL3/14826/2019), and Tamil Nadu (WL/TN/2019-22). Collection of CITES-listed species was limited to a maximum of 3 voucher specimens per species for scientific documentation, as permitted under CITES Article VII. All live individuals were returned to collection habitat after tissue sampling.

Appendix A

New Gastropod Records for the Indian Bay of Bengal Coast

The following list documents all 48 species newly recorded from the Indian Bay of Bengal coast in this study. For each species, the family, survey locality, habitat, GPS coordinates, and primary reference for species identification are provided. Candidate new species are marked with an asterisk (*).

Family Conidae (10 new records, selected)

Conus textile Linnaeus, 1758 -- Tamil Nadu, Rameswaram reef flat, 09.28 N, 79.31 E. Rocky intertidal. Previously known from Lakshadweep only.

Conus miles Linnaeus, 1758 -- Tamil Nadu, Gulf of Mannar, 09.14 N, 79.12 E. Seagrass bed. New for mainland India.

Conus sp. nov. A* -- Tamil Nadu, Tuticorin coast, 08.74 N, 78.14 E. Rocky subtidal. COI div. 8.4% from all congeners.

Conus leopardus (Roding, 1798) -- Andhra Pradesh, Krishna estuary, 15.88 N, 80.82 E. Sandy intertidal. Northward range extension.

Family Cypraeidae (4 new records, selected)

Cypraea tigris Linnaeus, 1758 -- Tamil Nadu, Mandapam reef, 09.28 N, 79.12 E. Rocky intertidal. Previously unrecorded from survey area.

Cypraea arabica Linnaeus, 1758 -- Tamil Nadu, Gulf of Mannar, 09.18 N, 79.08 E. Seagrass bed. CITES II. First verified coast record.

Erosaria helvola (Linnaeus, 1758) -- Andhra Pradesh, Nizampatnam coast, 15.88 N, 80.64 E. Rocky intertidal. Range extension.

Cypraea sp. nov. B* -- Tamil Nadu, Kanyakumari, 08.08 N, 77.54 E. Subtidal rock. COI div. 6.8% from Cypraea lynx.