



Centre for Marine Living Resources & Ecology (CMLRE)

Ministry of Earth Sciences (MoES)

Government of India

Kochi-682508

Status of New Marine Faunal Discoveries by CMLRE

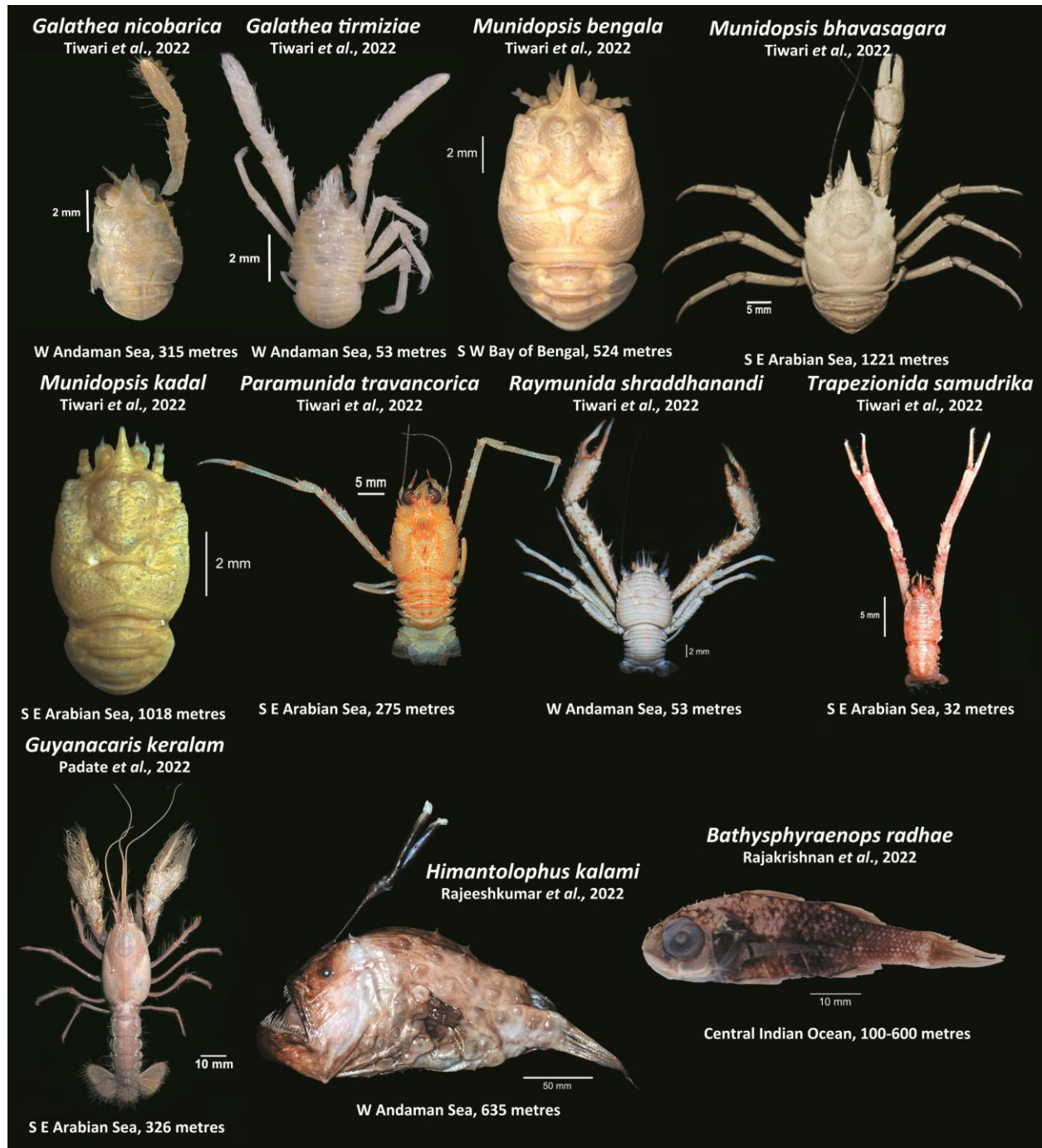


Figure 1: New Species published by CMLRE during January to December 2022

India is one of the 17 megadiverse nations on the planet with diverse marine ecosystems supporting more than 20,000 animal species. Comprehensive surveys of the seas in the Indian EEZ by the CMLRE-owned Fishery Oceanographic Research Vessel (FORV) Sagar Sampada during the 10th, 11th and 12th Five-year plans and the 14th Finance Commission Scheme (2017–2020) have resulted in moderately large faunal collections deposited in the FORV Referral Centre of the institute. The sampling surveys comprised dedicated cruises on-board the FORV Sagar Sampada in the Indian EEZ and Central Indian Ocean, and by SCUBA diving as well as intertidal surveys in the Agatti Island, Lakshadweep. These efforts carried out by the CMLRE under the aegis of the MLRP from the 10th Five-year plan to till date have yielded peer-reviewed publications on 34 species new to science (Table 1) and 66 new zoo-geographical records to the Indian EEZ (Table 2). **The recently publication of a new species of mesopelagic fish *Bathysphyaenops radhae* Rajakrishnan *et al.*, 2022 from the Central Indian Ocean (Figure 1) constituted the 100th new faunal discovery by CMLRE.**

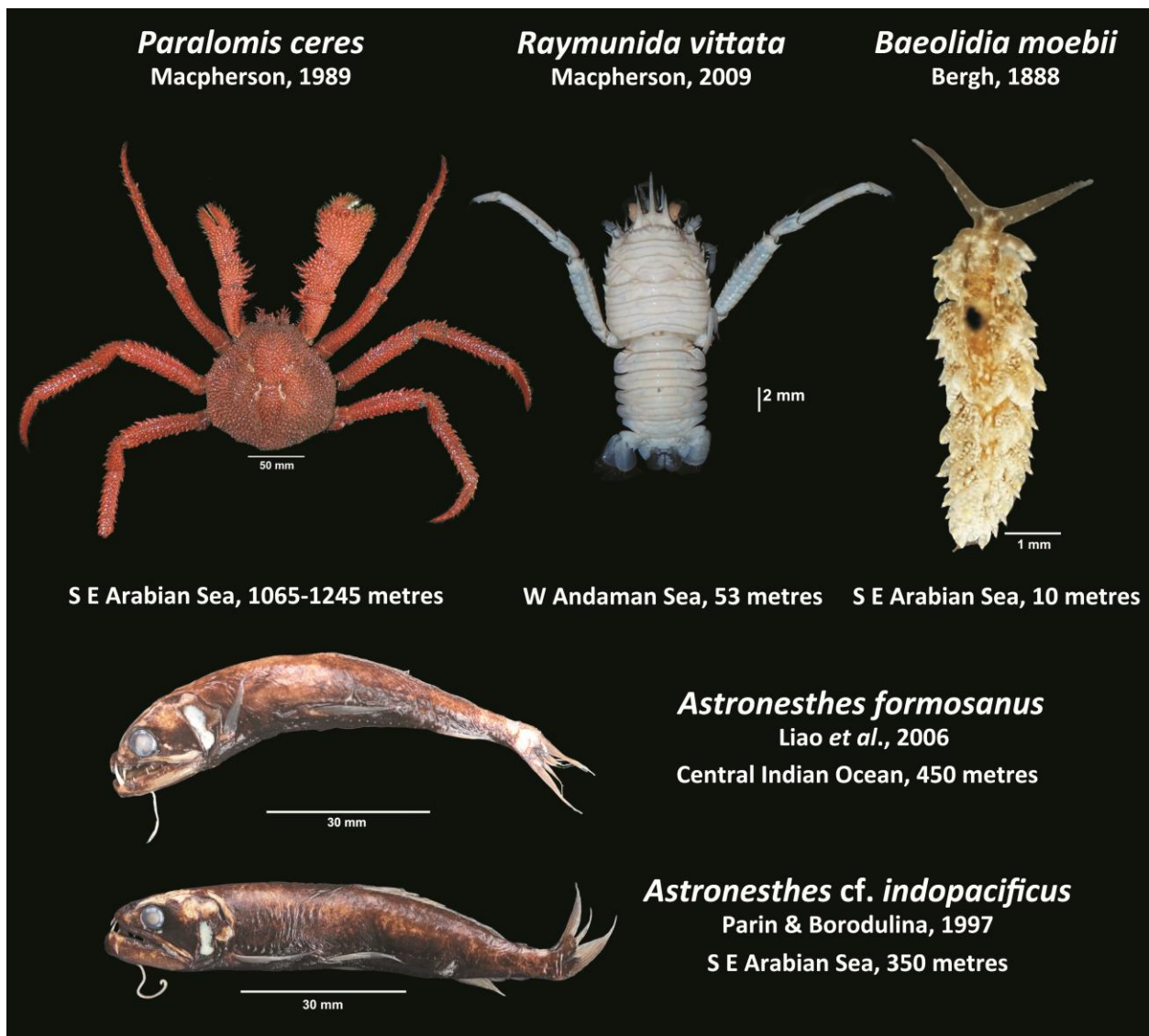


Figure 2: New zoo-geographical records of marine fauna published by CMLRE during January to December 2022

Furthermore, the period from January to December 2022 witnessed a remarkable quantum of research effort by the Resource Exploration and Inventorization System scientific team, which resulted in the publication of 11 new species (Figure 1) and 5 new zoo-geographical records (Figure 2), which accounted for 32% and 8% to the total number of new species and new zoo-geographical records published by CMLRE, respectively.

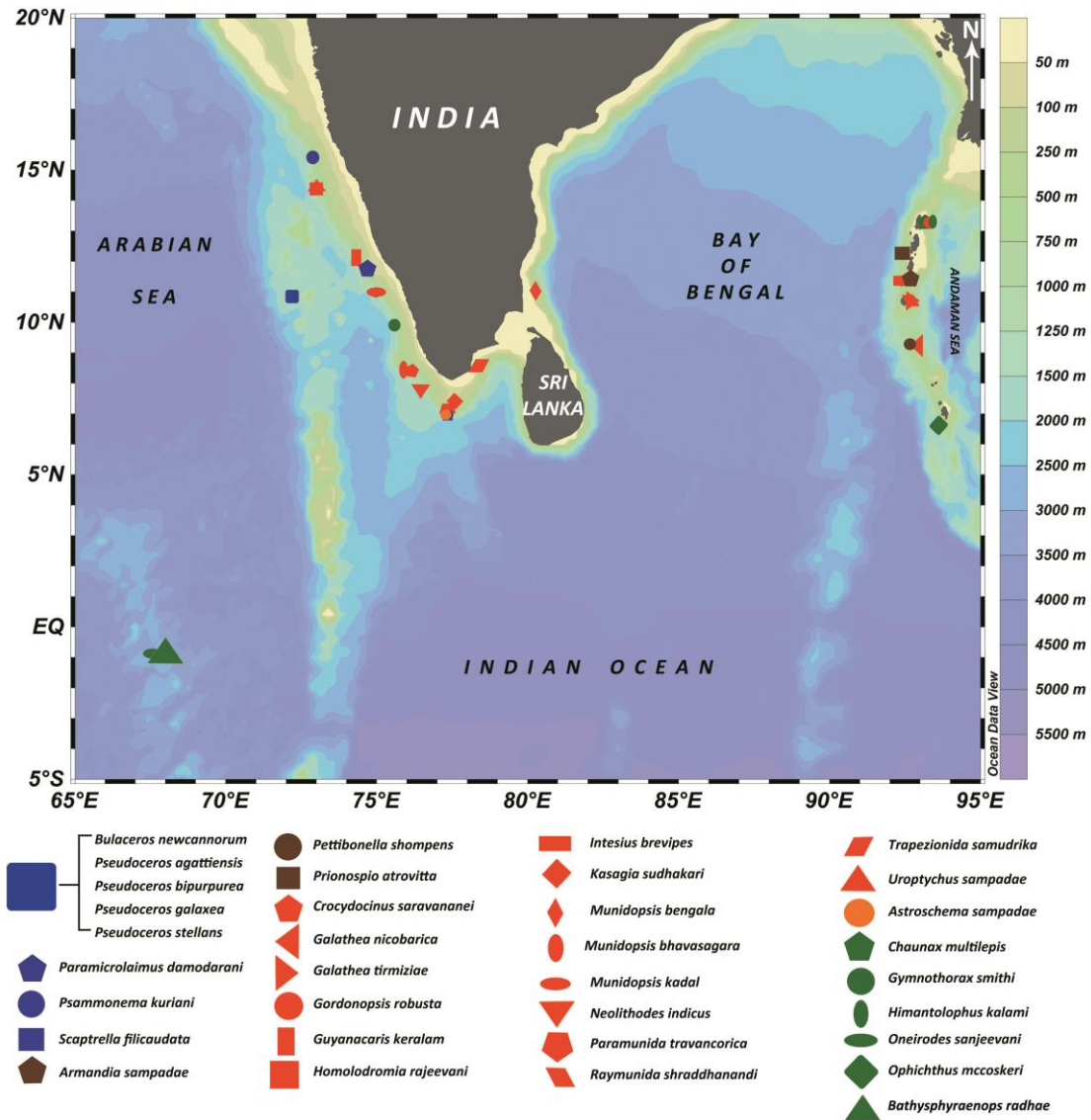


Figure 3: Type localities of 34 new species described by CMLRE

Substantial research effort of the REIS scientific team yielded a significantly high number of new faunal discoveries, particularly from the deep-waters, which has enabled the CMLRE to emerge as the foremost contributor of information on the deep-water biodiversity of the Indian EEZ. These discoveries have created a greater potential for envisaging further biodiversity surveys in the deep-waters of the Indian EEZ, and also highlighting the significance of the **Southeastern Arabian Sea (14 new species, 18 new zoo-geographical records)** and **Andaman Sea (11 new species, 38 new zoo-geographical records)** as potential “marine biodiversity hotspots” (Figures 3 and 4).

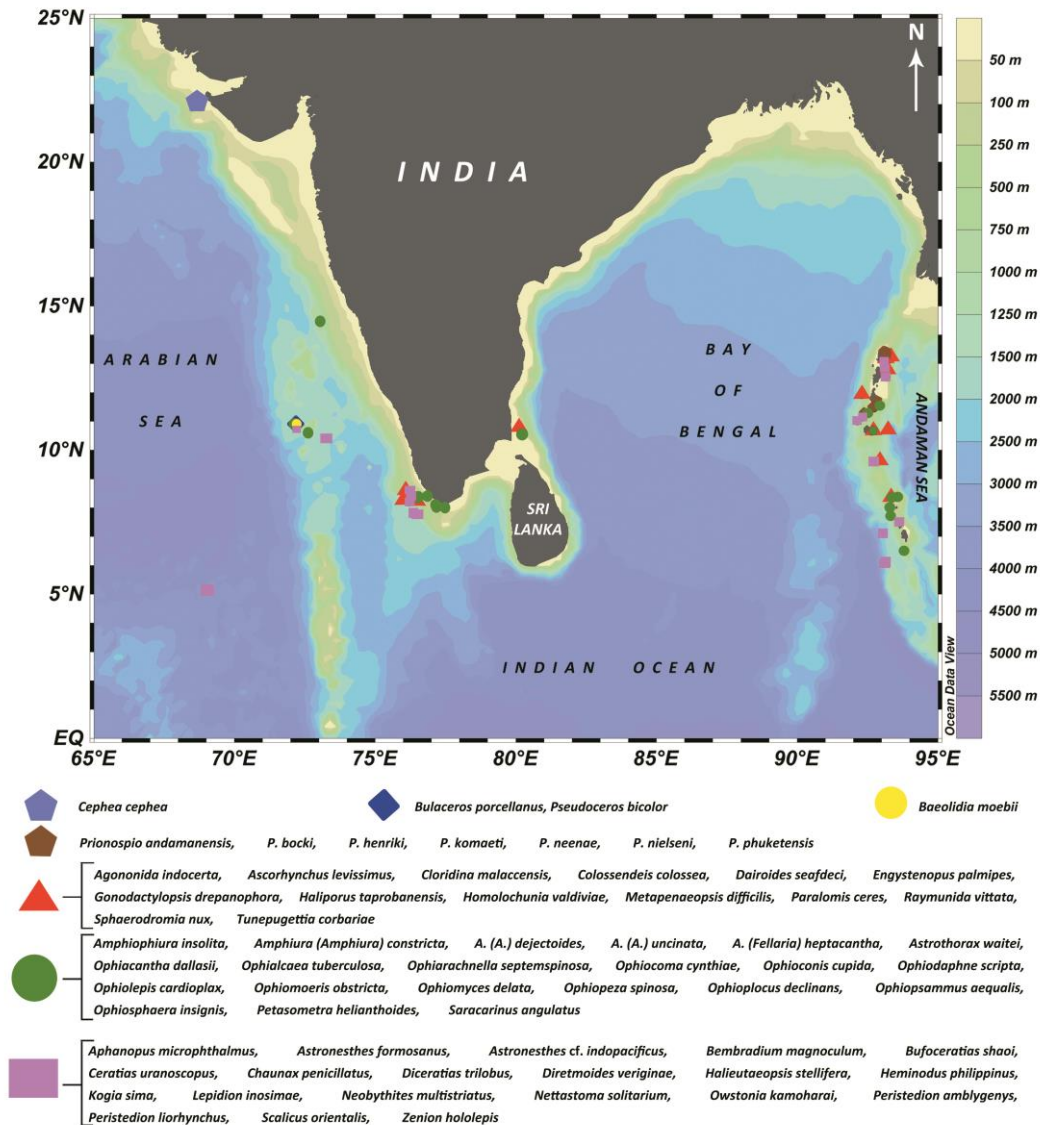


Figure 4: Distribution of 66 new zoo-geographical records published by CMLRE

The 100 new faunal discoveries (new species and new records) species could be categorized into 8 animal phyla, of which the Phylum Arthropoda accounted for a significant 30%, followed by Chordata (26%) and Echinodermata (22%). The remaining 22% species belonged to Annelida, Platyhelminthes, Cnidaria, Mollusca and Nematoda (Figure 5).

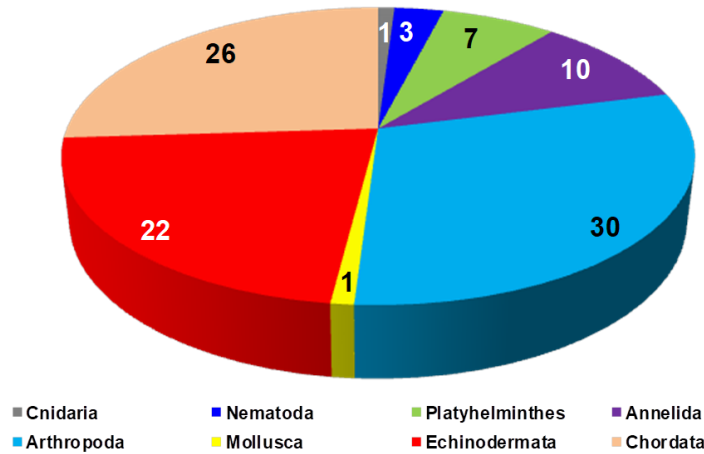


Figure 5: Phylum-wise contribution to the new marine faunal discoveries (new species and zoo-geographical records)

Phylum Arthropoda accounted for the highest number of new species (16) followed by Chordata (6) and Platyhelminthes (5) (Figure 6); whereas Phylum Echinodermata contributed for the highest number of new zoo-geographical records (21), followed by Chordata (20) and Arthropoda (14) (Figure 6).

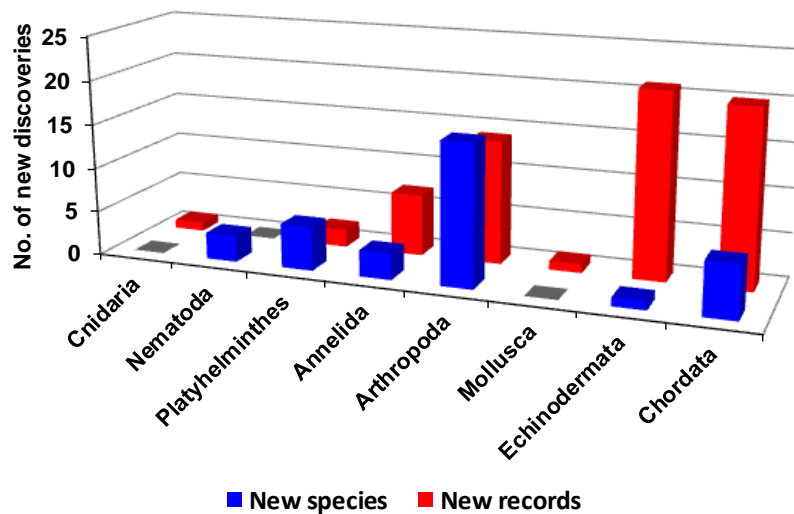


Figure 6: Phylum-wise numbers of new species and new records

Table 1: List of new marine animal species discovered by CMLRE

S. No.	Year of publication	Phylum	Name of new species with Authority	Depth (m)	Region
1	2012	Echinodermata	<i>Asteroschema sampadae</i> Parameswaran & Abdul Jaleel, 2012	454	SEAS
2	2014	Annelida	<i>Pettibonella shompens</i> Gopal, Useph, Varghese & Narayana, 2014	50	ANI
3	2015	Nematoda	<i>Paramicrolaimus damodarani</i> Jacob, Jaleel & Vijayan, 2015	95	SEAS
4	2015	Nematoda	<i>Scaptrella filicaudata</i> Jacob, Abdul-Jaleel, Philip & Damodaran, 2015	1100	SEAS
5	2016	Nematoda	<i>Psammonema kuriani</i> Jacob, Anilkumar, Philip & Rayaroth, 2016	214	EAS
6	2016	Annelida	<i>Armandia sampadae</i> Gopal, Jaleel, Parameswaran & Vijayan, 2016	57	ANI
7	2016	Chordata	<i>Chaunax multilepis</i> Ho, Meleppura & Bineesh, 2016	323	ANI
8	2017	Chordata	<i>Oneirodes sanjeevani</i> Rajeeshkumar, Meera & Hashim, 2017	600	CIO
9	2019	Platyhelminthes	<i>Pseudoceros agattiensis</i> Dixit, 2019	0	LKD
10	2019	Platyhelminthes	<i>Pseudoceros stellans</i> Dixit, 2019	15	LKD
11	2019	Arthropoda	<i>Kasagia sudhakari</i> Padate, Manjebayakath & Ng, 2019	109	SEAS
12	2019	Arthropoda	<i>Gordonopsis robusta</i> Ng, Padate & Saravanane, 2019	635	ANI
13	2019	Chordata	<i>Ophichthus mccoskeri</i> Sumod, Hibino, Manjabrayakath & Sanjeevan, 2019	321	ANI
14	2019	Chordata	<i>Gymnothorax smithi</i> Sumod, Mohapatra, Sanjeevan, Kishor & Bineesh, 2019	200	SEAS
15	2020	Annelida	<i>Prionospio atrovitta</i> Gopal, Parameswaran, Abdul Jaleel & Saravanane, 2020	52	ANI
16	2020	Arthropoda	<i>Homolodromia rajeevani</i> Padate, Cubelio & Jayachandran, 2020	957	SEAS
17	2020	Arthropoda	<i>Crocydocinus saravananei</i> Padate, Lee & Cubelio, 2020	959	SEAS
18	2020	Arthropoda	<i>Neolithodes indicus</i> Padate, Cubelio & Takeda, 2020	1351	SEAS
19	2020	Arthropoda	<i>Uroptychus sampadae</i> Padate, Tiwari, Cubelio & Takeda, 2020	957	SEAS
20	2020	Platyhelminthes	<i>Bulaceros newcannorum</i> Dixit, 2020	0	LKD
21	2021	Platyhelminthes	<i>Pseudoceros bipurpurea</i> Dixit, 2021	32	LKD
22	2021	Platyhelminthes	<i>Pseudoceros galaxea</i> Dixit, 2021	0	LKD
23	2021	Arthropoda	<i>Intesius brevipes</i> Padate, Cubelio & Takeda, 2021	535	ANI
24	2022	Arthropoda	<i>Guyanacaris keralam</i> Padate, Cubelio & Takeda, 2022	326	SEAS
25	2022	Chordata	<i>Himantolophus kalami</i> Rajeeshkumar, Pietsch & Saravanane, 2022	635	ANI
26	2022	Arthropoda	<i>Trapezionida samudrika</i> Tiwari, Padate, Cubelio & Osawa, 2022	32	SEAS

27	2022	Arthropoda	<i>Paramunida travancorica</i> Tiwari, Padate, Cubelio & Osawa, 2022	275	SEAS
28	2022	Arthropoda	<i>Munidopsis bhavasagara</i> Tiwari, Padate, Cubelio & Osawa, 2022	1221	SEAS
29	2022	Arthropoda	<i>Raymunida shraddhanandi</i> Tiwari, Padate, Cubelio & Osawa, 2022	53	ANI
30	2022	Arthropoda	<i>Munidopsis bengala</i> Tiwari, Padate, Cubelio & Osawa, 2022	524	SBOB
31	2022	Arthropoda	<i>Munidopsis kadal</i> Tiwari, Padate, Cubelio & Osawa, 2022	1018	SEAS
32	2022	Arthropoda	<i>Galathea nicobarica</i> Tiwari, Padate, Cubelio & Osawa, 2022	315	ANI
33	2022	Arthropoda	<i>Galathea tirmiziae</i> Tiwari, Padate, Cubelio & Osawa, 2022	53	ANI
34	2022	Chordata	<i>Bathysphyraenops radhae</i> Rajakrishnan, Rajeeshkumar, Cubelio & Prokofiev, 2022	380-600	CIO

ANI – seas around the Andaman and Nicobar Islands; CIO – Central Indian Ocean; EAS - Eastern Arabian Sea; LKD – Lakshadweep; SBOB – Southwestern Bay of Bengal; SEAS – Southeastern Arabian Sea

Table 2: List of new zoo-geographical records of marine animal species recorded by CMLRE

S. No.	Year of publication	Phylum	Name of new record with Authority	Depth (m)	Region
1	2013	Echinodermata	<i>Ophiodaphne scripta</i> (Koehler, 1904)	40-78	SEAS, SBOB
2	2013	Chordata	<i>Halieutopsis stellifera</i> Smith & Radcliffe, 1912)	480-580	ANI
3	2014	Chordata	<i>Aphanopus microphthalmus</i> Norman, 1939	995	SEAS
4	2015	Echinodermata	<i>Ophiomyces delata</i> Koehler, 1904	56	ANI
5	2015	Arthropoda	<i>Colossendeis colossea</i> Wilson, 1881	1241-1262	SEAS
6	2016	Chordata	<i>Scalicus orientalis</i> (Fowler, 1938)	388-402	ANI
7	2016	Chordata	<i>Peristedion amblygenys</i> Fowler, 1938	441	ANI
8	2016	Chordata	<i>Bufoceratias shaoi</i> Pietsch, Ho & Chen, 2004	1300-1350	SEAS
9	2016	Chordata	<i>Diceratias trilobus</i> Balushkin & Fedorov, 1986	1032-1078	SEAS
10	2016	Chordata	<i>Ceratias uranoscopus</i> Murray, 1877	850-900	ANI
11	2016	Chordata	<i>Nettastoma solitarium</i> Castle & Smith, 1981	400-441	ANI
12	2017	Chordata	<i>Lepidion inosimae</i> (Günther, 1887)	1330-1360	SEAS
13	2017	Arthropoda	<i>Ascorhynchus levissimus</i> Loman, 1908	643-650	ANI
14	2018	Echinodermata	<i>Saracrinus angulatus</i> (Carpenter, 1884)	643	ANI
15	2018	Echinodermata	<i>Amphiura (Amphiura) constricta</i> Lyman, 1879	52-106	SEAS
16	2018	Echinodermata	<i>Amphiura (Fellaria) heptacantha</i> (Mortensen, 1940)	31-55	SEAS
17	2018	Echinodermata	<i>Ophiosphaera insignis</i> Brock, 1888	49	SEAS
18	2018	Echinodermata	<i>Ophiacantha dallasii</i> Duncan, 1879	49	SEAS
19	2018	Echinodermata	<i>Ophioconis cupida</i> Koehler, 1905	49	SEAS
20	2018	Echinodermata	<i>Petasometra helianthoides</i> A. H. Clark, 1912	49	SEAS
21	2018	Chordata	<i>Neobythites multistriatus</i> Nielsen & Quéro, 1991	299	ANI
22	2018	Chordata	<i>Diretmoides veriginae</i> Kotlyar, 1987	576-591	ANI
23	2018	Chordata	<i>Heminodus philippinus</i> Smith, 1917	200	ANI
24	2019	Chordata	<i>Bembradium magnoculum</i> Kishimoto, Kawai, Tashiro & Aungtonya, 2019	362	ANI
25	2019	Chordata	<i>Kogia sima</i> (Owen, 1866)	-	SEAS
26	2019	Polycladida	<i>Pseudoceros bicolor</i> Verrill, 1902	15	LKD

27	2020	Cnidaria	<i>Cephea cephea</i> (Forskål, 1775)		SEAS
28	2020	Echinodermata	<i>Ophiarachnella septemspinosa</i> (Müller & Troschel, 1842)	20	LKD
29	2020	Echinodermata	<i>Ophiocoma cynthiae</i> Benavides-Serrato & O'Hara, 2008	-	LKD
30	2020	Echinodermata	<i>Ophiomoeris obstricta</i> (Lyman, 1878)	350	LKD
31	2020	Polychaeta	<i>Prionospio andamanensis</i> Hylleberg & Nateewathana, 1991	49-248	ANI
32	2020	Polychaeta	<i>Prionospio bocki</i> Söderström, 1920	49-208	ANI
33	2020	Polychaeta	<i>Prionospio henriki</i> Hylleberg & Nateewathana, 1991	110	ANI
34	2020	Polychaeta	<i>Prionospio komaeti</i> Hylleberg & Nateewathana, 1991	61-248	ANI
35	2020	Polychaeta	<i>Prionospio nielsenii</i> Hylleberg & Nateewathana, 1991	57-248	ANI
36	2020	Polychaeta	<i>Prionospio neenae</i> Hylleberg & Nateewathana, 1991	52-111	ANI
37	2020	Polychaeta	<i>Prionospio phuketensis</i> Hylleberg & Nateewathana, 1991	55-248	ANI
38	2020	Arthropoda	<i>Homolochunia valdiviae</i> Doflein, 1904	635	ANI
39	2020	Arthropoda	<i>Dairoides seafdeci</i> Takeda & Ananpongsuk, 1991	299-633	ANI
40	2020	Arthropoda	<i>Metapenaeopsis difficilis</i> Crosnier 1991	124	ANI
41	2020	Arthropoda	<i>Haliporus taprobanensis</i> Alcock & Anderson, 1899	635	ANI
42	2020	Arthropoda	<i>Agononida indocerta</i> Poore and Andreakis, 2012	362	ANI
43	2020	Chordata	<i>Chaunax penicillatus</i> McCulloch, 1915	321-337	ANI
44	2020	Chordata	<i>Owstonia kamoharai</i> Endo, Liao & Matsuura, 2015	411	ANI
45	2020	Polycladida	<i>Bulaceros porcellanus</i> Newman & Cannon, 1996	-	LKD
46	2021	Arthropoda	<i>Sphaerodromia nux</i> Alcock, 1900	290	ANI
47	2021	Arthropoda	<i>Tunepugettia corbariae</i> B.Y. Lee, Richer de Forges & P.K.L. Ng, 2019	441	ANI
48	2021	Arthropoda	<i>Engystenopus palmipes</i> Alcock & Anderson, 1894	610	SEAS
49	2021	Echinodermata	<i>Astrothorax waitei</i> (Benham, 1909)	953	SEAS
50	2021	Echinodermata	<i>Amphiophiura insolita</i> (Koehler, 1904)	94	ANI
51	2021	Echinodermata	<i>Amphiura</i> (<i>Amphiura</i>) <i>dejectoides</i> H.L. Clark, 1939	114	SBOB
52	2021	Echinodermata	<i>Amphiura</i> (<i>Amphiura</i>) <i>uncinata</i> Koehler, 1904	469-485	ANI
53	2021	Echinodermata	<i>Ophioplocus declinans</i> (Koehler, 1904)	71	ANI
54	2021	Echinodermata	<i>Ophiolepis cardioplax</i> Murakami, 1943	56-88	ANI
55	2021	Echinodermata	<i>Ophialcaea tuberculosa</i> (Lyman, 1878)	395-635	ANI
56	2021	Echinodermata	<i>Ophiopsammus aequalis</i> (Lyman, 1880)	94	ANI

57	2021	Echinodermata	<i>Ophiopeza spinosa</i> (Ljungman, 1867)	49-558	ANI
58	2021	Chordata	<i>Peristedion liorhynchus</i> (Günther, 1872)	934-950	SEAS
59	2021	Arthropoda	<i>Gonodactylopsi drepanophora</i> (de Man, 1902)	53	ANI
60	2021	Arthropoda	<i>Cloridina malaccensis</i> (Manning, 1968)	56	SBOB
61	2021	Chordata	<i>Zenion hololepis</i> (Goode & Bean, 1896)	314	ANI
62	2022	Arthropoda	<i>Paralomis ceres</i> Macpherson, 1989	1065-1245	SEAS
63	2022	Mollusca	<i>Baeolidia moebii</i> Bergh, 1888	10	LKD
64	2022	Chordata	<i>Astronesthes indopacificus</i> Parin & Borodulina, 1997	350	SEAS
65	2022	Chordata	<i>Astronesthes formosanus</i> Liao, Chen and Shao, 2006	450	CIO
66	2022	Arthropoda	<i>Raymunida vittata</i> Macpherson, 2009	53	ANI

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