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# Megafauna of the German exploration licence area for seafloor massive sulphides along the Central and South East Indian Ridge (Indian Ocean)

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## Abstract

### Background

The growing interest in mineral resources of the deep sea, such as seafloor massive sulphide deposits, has led to an increasing number of exploration licences issued by the International Seabed Authority. In the Indian Ocean, four licence areas exist, resulting in an increasing number of new hydrothermal vent fields and the discovery of new species. Most studies focus on active venting areas including their ecology, but the non-vent megafauna of the Central Indian Ridge and South East Indian Ridge remains poorly known.

In the framework of the Indian Ocean Exploration project in the German license area for seafloor massive sulphides, baseline imagery and sampling surveys were conducted yearly during research expeditions from 2013 to 2018, using video sledges and Remotely Operated Vehicles.

### New information

This is the first report of an imagery collection of megafauna from the southern Central Indian- and South East Indian Ridge, reporting the taxonomic richness and their distribution. A total of 218 taxa were recorded and identified, based on imagery, with additional morphological and molecular confirmed identifications of 20 taxa from 89 sampled specimens. The compiled fauna catalogue is a synthesis of megafauna occurrences aiming at a consistent morphological identification of taxa and showing their regional distribution. The imagery data were collected during multiple research cruises in different exploration clusters of the German licence area, located 500 km north of the Rodriguez Triple Junction along the Central Indian Ridge and 500 km southeast of it along the Southeast Indian Ridge.

### Keywords

deep-sea mining, INDEX, fauna catalogue, video imagery, photographs, biodiversity

### Introduction

The Central Indian Ridge (CIR) and South East Indian Ridge (SEIR) are part of a global oceanic ridge system with high magmatic activity, which creates new seafloor, volcanoes and hydrothermal vent fields (Kelley 2001, Wang et al. 2012). High-temperature hydrothermal activity is often focused along topographically shallow portions of a single ridge segment, where a large magma reservoir causes crustal buoyancy (Ballard et al. 1981, Francheteau and Ballard 1983, Herzig and Hannington 1995). The hydrothermal activity accumulates polymetallic sulphides on the seafloor that may form seafloor massive sulphide (SMS) deposits with high content of iron, copper, zinc and rare earth metals in

economically valuable amounts (Van Dover 2011, Miller et al. 2018, Van Dover 2019). The highly abundant and mostly symbiotic fauna that exist in hydrothermally active deposits in the Indian Ocean benefit from bacterial primary production and consist mainly of shrimp swarms, bivalve mussel beds and dense anemone fields (Hashimoto et al. 2001).

Along the spreading axes of the Indian Ocean, exploration licences for SMS deposits as potential mineral resources are issued by the International Seabed Authority (ISA; [www.isa.org.jm](http://www.isa.org.jm)). The ISA manages the areas beyond national jurisdiction (Levin et al. 2016) and regulates the human activities in the context of mineral resource exploration and exploitation that may take place in the near future (Ramirez-Llodra et al. 2011). This includes the protection of the marine environment from anthropogenic impacts, such as mineral extraction and mining technology testing (Rogers et al. 2012, Levin et al. 2016, Miller et al. 2018). To date, seven exploration licences for SMS deposits have been issued by the ISA; three on the Mid-Atlantic Ridge (MAR) and four in the Indian Ocean ([www.isa.org.jm](http://www.isa.org.jm)).

Possible future mining events at inactive hydrothermal vents will physically remove hard substrates and the local fauna, thereby flattening the vertical topography and permanently reducing habitat heterogeneity (Van Dover 2014, Levin et al. 2016, Van Dover et al. 2020). Since inactive vents may act as stepping stones for population recolonisation, removal of substrate during SMS mineral extraction may halt recolonisation (Van Dover 2014, Van Dover et al. 2020).

Such mining-related activities and disturbances will likely affect the hydrothermal vent fields and their surrounding areas, making taxonomic and ecological baseline studies essential for describing undisturbed environmental conditions and assessing potential mining impacts (Copley et al. 2016). Imagery-based studies are an accurate and cost-effective tool (Sen et al. 2014, Van Dover 2014), as they are able to detect environmental changes or serious harm (Van Dover 2019) to the ecosystem.

Deep-sea megafauna are important components of biodiversity and play significant roles in ecosystem functioning, as pointed out for megafauna occurring in nodule areas (Smith et al. 2008, Vanreusel et al. 2016). These ecosystem functions include utilisation rates of surface derived detritus, dietary composition or the locomotion mode. Megafauna are likely subject to drastic changes due to mining activities and are expected to recover slowly related with slow rates of growth and recruitment (Ramirez-Llodra et al. 2011, Amon et al. 2016, Gollner et al. 2017). Many megafauna taxa are considered as indicators of physical disturbance responding to disturbance events with changes in densities, dominating taxa or the community composition (Bluhm and Gebruk 1999, Amon et al. 2017).

Environmental research has been conducted in the framework of the German Indian Ocean Exploration (INDEX) project and includes biological benthic baseline studies in accordance with ISA environmental guidelines ([www.isa.org.jm](http://www.isa.org.jm) (ISBA/25/LTC/6/Rev.1); Ardron et al. 2011, Miller et al. 2018). The German licence area (GLA) in the Indian Ocean is located along the southern CIR and northern SEIR (Fig. 1). The INDEX project is conducted by the Federal Institute for Geoscience and Natural Resources (BGR,

www.bgr.bund.de) and aims to find massive sulphide deposits in economically valuable amounts for potential exploitation. The GLA covers 100 exploration blocks, each 10 x 10 km in size, with a total area of 10,000 km<sup>2</sup> of deep-sea floor. A vast number of photographs and video material has been collected during annual expeditions from 2013 to 2018 and has been used to create annual fauna catalogues of specific regions or clusters within the licence area.

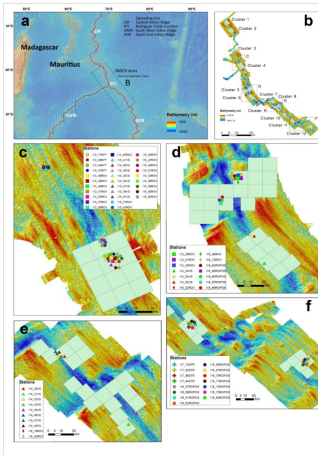


Figure 1. [doi](#)

Locations of imagery stations within the INDEX exploration area. a) Overview map of the southwestern Indian Ocean showing the ridge spreading axes (red line). b) Cluster 1-12 of the GLA for polymetallic massive sulphide exploration. The red boxes show the areas enlarged in C-F; each includes imagery transects conducted in each area. c) MESO area and Cluster 4. d) Cluster 5 and 6. e) Cluster 8 and 9. f) Cluster 11 and 12. Bathymetry data provided by the Federal Institute for Geoscience and Natural Resources (BGR).

This study combined the existing imagery of the taxa observed within the GLA to create a taxonomic expert-revised faunal catalogue with consistent identifications for the six years of exploration. The goal of the image analysis was to assess the species richness of benthic megafauna within the GLA, covering active and inactive hydrothermal vent fields and their surrounding non-vent areas, namely the abyssal deep-sea areas along the spreading axis of the southern CIR, the Rodriguez Triple Junction (RTJ) and the northern SEIR.

## Materials and methods

### INDEX expeditions and imagery acquisition

Six expeditions in consecutive years from 2013 to 2018 were used for this imagery study and covered a cumulative bottom track distance of 220,983 m. A total of 122,918 photographs and 367 hours 10 minutes of video imagery were collected. All photographs were reviewed and faunal occurrences annotated and extracted; video imagery was only

used when additional imagery was necessary to clarify the imagery-based identification. The study area has a bathymetrical range of 2,280 – 3,770 m and spanned a geographical range from the MESO areas (after RV Meteor and RV Sonne; Muench et al. 1999) outside the German licence area on the southern CIR at 23°23'S, 69°14'E, to Cluster 12 on the northern SEIR at 27°42'S, 73°44'E (Fig. 1). The MESO area was studied during the pre-exploration period and later excluded before signing the exploration licence in 2015.

All imagery transects were conducted using three different video sledges and three Remotely Operated Vehicles (ROVs). The towed video platforms were the Multifunctional Tool (MFT) and the *STROMER* (STR), both belonging to the BGR and the video sledge (VS) of the Royal Netherlands Institute for Sea Research (NIOZ). The ROVs were the *Kiel 6000* from the GEOMAR, the Remotely Operated Platform for Ocean Science (ROPOS) of the Canadian Scientific Submersible Facility (CSSF) and the ROV *Victor 6000* of the IFREMER. Table 1 lists gear details and total photographs and video imagery collected. Table 2 lists specifications of the sampling gear, such as the camera equipment used and the imagery resolution.

Table 1.

Detailed information of each expedition, including gear used, number of stations, photographs and video collected and distance covered. EGS = Edmond-vent site 2-vent site 7, SEIR = South East Indian Ridge, RTJ = Rodriguez Triple Junction, MFT = Multifunctional Tool, ROV = Remotely Operated Vehicle, VS = Video Sledge, ROPOS = Remotely Operated Platform for Ocean Science, STR = STROMER.

Expedition	Vessel	Year	Time period	Cluster	Locality	Gear	No. of Stations	Photographs	Video (h: min)	Distance (m)
INDEX 2013	RV Sonne	2013	23Oct – 21Dec	4,5	MESO, Kairei, EGS	MFT	4	15,124	-	11,529
						ROV Kiel 6000	11	595	105:57	18,617
INDEX 2014	RV Pelagia	2014	11Nov – 9Dec	6,8,9	SEIR, Pelagia	VS	11	64,606	-	33,820
INDEX 2015	RV Pelagia	2015	12Oct – 12Dec	4	vent site 1, EGS	VS	8	15,243	-	28,529
						ROV ROPOS	11	5,608	68:36	22,541
INDEX 2016	RV Pourquoi pas?	2016	3Jan – 3Feb	5,8	Kairei, Pelagia	ROV Victor 6000	5	3,402	81:52	38,277
INDEX 2017	RV Sonne	2017	25Aug – 13Oct	11,12	SEIR, vent site 5	STR	4	4,522	-	16,460
INDEX 2018	RV Pelagia	2018	10Oct – 17Dec	5,11,12	RTJ, vent sites 3-6	ROV ROPOS	16	4,817 (9,001 frame grabs)	110:45	51,210

Table 2.

Detailed information of each sampling gear, including altitude above seafloor, speed range during imagery collection, camera angle, camera system, interval of taking still photos and information regarding the resolution (dots per inch (dpi); Megapixel (mp); Bit rate (kBits sec<sup>-1</sup>); Size of video imagery in pixel X pixel). All gears used flat port pressure bottles for video and still cameras with the exception of the ROV Victor 6000, which used dome port pressure bottles.

Gear specifications				Camera specifications				Video specifications			
Gear	Altitude	Speed range	Angle	Camera system	Interval	Dots per inch	Megapixel	Frame rate	Bit rate	Pixel resolution	Megapixel
<b>MFT</b>	0.5-5 m	0.3-1 knots	90°/45°	Canon Power Shot G9	10 sec	180 dpi	12 mp	25 fps	8,555 kBits sec <sup>-1</sup>	1440X1080	1.6 mp
<b>STR</b>	0.5-5 m	0.3-1 knots	90°/90°	Canon Power Shot G15	10 sec	180 dpi	12 mp	29 fps	15,186 kBits sec <sup>-1</sup>	1920X1080	2.1 mp
<b>VS</b>	0.5-5 m	0.3-1.5 knots	-/90°	-	-	-	-	25 fps	171,355 kBits sec <sup>-1</sup>	1920X1080	2.1 mp
<b>ROV Kiel 6000</b>	0.5-5 m	0.1-1 knots	10-90°	Canon Power Shot G5	-	180 dpi	5 mp	25 fps	4,128 kBits sec <sup>-1</sup>	704X576	0.4 mp
<b>ROV Victor 6000</b>	0.5-5 m	0.1-1 knots	10-90°	Video frame grabs	-	72 dpi	2.1 mp	25 fps	768 kBits sec <sup>-1</sup>	1440X1080	2.1 mp
<b>ROV Ropos</b>	0.5-8 m	0.1-1 knots	10-90°	Nikon D700/D810	-	300 dpi	12 mp/ 36 mp	30 fps	50,384 kBits sec <sup>-1</sup>	1920X1080	2.1 mp

## Megafaunal imagery analysis

All taxa visible in photographs and video were annotated, cut out, and the individuals identified to the lowest taxonomic level possible. Photographic analysis was carried out using Adobe Photoshop Lightroom 5.7 (©2019 Adobe Systems Software Ireland Ltd.; www.adobe.com). Photographs were imported and automatically white-balanced and tone-corrected; year and station were added to the metadata for standardisation purposes and use in an imagery database.

Each photograph was magnified until identification was impossible due to pixelation and each section searched for both sessile and motile animals (Schoening et al. 2012). For each individual organism, a copy was created and the section containing the animal cut out. Folders were created in Lightroom in a taxonomic hierarchy following the classification in the World Register of Marine Species (WoRMS Editorial Board 2021). The morphotype or species and the abundance in the photographs were written into the metadata and

resulted in up to 100 cut-outs from different photographs of individual taxa. The initial identification was based on taxonomic and imagery databases, photograph and video imagery galleries and scientific publications. In addition, selected images of all taxa were validated by the respective taxonomic experts of the team to check for consistency of the initial identification (Suppl. material 1).

The metadata of the processed photographs were exported and included taxon, abundance, expedition, year, station, GPS coordinates and technical information about the camera using the plug-in ListView ([www.lightroomsolutions.com](http://www.lightroomsolutions.com)) for Adobe Photoshop Lightroom; the fauna catalogue shows selected images of each taxon.

The video imagery analysis was carried out with the video processing programme Magix Video deluxe 2014 Premium (©2003-2020 MAGIX Software GmbH; [www.magix.com](http://www.magix.com)) primarily using video tracks from the ROVs; MFT video imagery was only processed in addition to photographs, if supporting the identification.

Both frame grabs from the video and short video films were exported and the frame grabs were used for the extension of the fauna catalogue. Short video films were cut out and added if the movement was characteristic for the animal and, therefore, helpful for identification (pers. comm. H. Singh Woods Hole Oceanographic Institute, Massachusetts, USA). The identification process was carried out in the same way as for the photographs. Detailed metadata information, such as sample locations, gear, depth, sampled specimens and camera information are listed in Suppl. material 1.

## Sample collection

A total of 89 specimens were collected throughout the expeditions using ROVs, mainly within active hydrothermal vent fields. Megafaunal specimens were quickly transferred to chilled seawater and photographed, and tissue subsamples or the entire animal were preserved in 96% ethanol for molecular analysis. Onboard photographs of the sampled specimens were included in this manuscript if they showed characteristic details helpful for taxonomic identification. In the laboratory, the specimens were assigned to the lowest taxonomic level possible using a sequenced segment of approximately 650 bp of the cytochrome oxidase subunit I (COI) gene. Molecular samples were used to verify identifications based on images.

## Applied open taxonomic nomenclature and technical notes

Note: Scaling of photographs was, in most cases, not possible due to missing lasers or lasers visible on a different focal plane. Only size estimates, based on samples or in relation to known sizes of taxa, are given. The identification of taxa, based only on imagery, is very difficult and many of the taxa presented herein might be new species. Life traces and the phylum Porifera, with the exception of a single trace listed as poriferan taxon, *Paleodictyon nodosum*, are excluded from this catalogue. The phylum Porifera was excluded from this megafauna catalogue because of the high diversity of this group and

the difficulties to discriminate these morphologically very similar taxa from one another, based on imagery alone without physical samples within the INDEX area.

Some putative taxa presented have an asterisk followed by an additional taxon name in squared brackets as, for example, “Genus species \*[Genus species sp. inc.]”. This means that the image shown in the catalogue has the “Genus species” identification level, even though there do exist certain images in Suppl. material 1, where the species level identification remains uncertain. These images are indicated by “\*[Genus species sp. inc.]”, but are assumed to belong to this higher ranked identification level. This was applied where only part, but not all, of the imagery samples could confirm a taxonomic group, based on morphological or molecular results (or both). It has been suggested, in these cases, to move the identification rank up to the level where all images could be reliably identified (Horton et al. 2021). Since this meant a loss of accuracy of the generated dataset and omission of valid identifications made, we decided to keep the higher level of accuracy and introduced and defined the use of the asterisk and squared brackets.

Several abbreviations were used in this fauna catalogue following the recommendations for standardisation of imagery-based annotations by Horton et al. (2021). The taxonomic ranks 'cl.' (“class”), 'ord.' (“order”), 'fam.' (“family”), 'gen.' (“genus”) and 'sp.' (species) indicate the taxonomic rank and are always combined with the open nomenclature (ON) signs 'indet.', 'inc.' or a unique code applied for this taxon (*taxon rank (unique code)*). Several morphotypes have a unique code in brackets (DZMB\_2021\_00xx), that has been assigned to all morphotypes where more than one taxon could be distinguished, but not identified to species level, based on the available imagery. These ON signs are defined according to Horton et al. (2021) as follows:

- The 'spp.' (“species (plural)”) was used when there is more than one species present within an identified group of organisms, but could not be further distinguished, based on the imagery.
- The 'indet.' (“indeterminabilis”) means that no further identification was possible because diagnostic characteristics were not visible. Missing diagnostic characteristics are often related to blurry imagery, low resolution, orientation of the organism and missing physical samples.
- The 'inc.' (“incerta”) means that diagnostic characteristics and (or) physical sample were present, but the identification is still uncertain and needs further comparable material for validation.

Table 3 contains all taxa included in this catalogue.

Table 3.

List of all taxa in this fauna catalogue including phylum and the scientific name authority for the taxon. The asterisk and species names in squared brackets means that a taxon has been identified in several images, but a given identification level could not be supported in all images because not every single observation could be supported by morphological or molecular methods or contradictory results of different methods exist. Some putative taxa presented have an asterisk followed by an additional taxon name in squared brackets, as, for example, “Genus species \*[Genus species sp. inc.]”, meaning that the image shown in the catalogue has the “Genus species” identification level, with further images, where the species level identification remains uncertain, indicated by “\*[Genus species sp. inc.]”. The taxonomic ranks 'cl.' (“class”), 'ord.' (“order”), 'fam.' (“family”), 'gen.' (“genus”) and 'sp.' (species) indicate the taxonomic rank and are always combined with the open nomenclature (ON) signs 'indet.', 'inc.' according to Horton et al. (2021) or a unique code applied for this taxon (*taxon rank (unique code)*).

Phylum	Taxon	Authority
Annelida	<i>Archinome jasoni</i> *[ <i>Archinome jasoni</i> sp. inc.]	Borda, Kudenov, Chevaldonné, Blake, Desbruyères, Fabri, Hourdez, Pleijel, Shank, Wilson, Schulze & Rouse, 2013
	Polynoidae gen. indet.	Kinberg, 1856
	<i>Branchiopolynoe</i> gen. inc.	Pettibone, 1984
	<i>Lepidonotopodium</i> gen. inc. (DZMB_2021_0001)	Pettibone, 1983
	<i>Lepidonotopodium</i> gen. inc. (DZMB_2021_0002)	Pettibone, 1983
	<i>Lepidonotopodium</i> gen. inc. (DZMB_2021_0003)	Pettibone, 1983
	Sabellidae gen. indet.	Latreille, 1825
	<i>Oasisia</i> gen. inc.	Jones, 1985
	<i>Alvinella</i> gen. inc.	Desbruyeres & Laubier, 1980
	Arthropoda	<i>Glyptelasma</i> gen. inc.
<i>Neolepas marisindica</i> sp. inc.		Watanabe, Chen & Chan, 2018
<i>Regioscalpellum regium</i> sp. inc.		(Wyville Thomson, 1873)
Verrucidae fam. inc.		Darwin, 1854
Amphipoda ord. inc.		Latreille, 1816
Anomura fam. indet.		MacLeay, 1838
Galatheidae fam. inc.		Samouelle, 1819
<i>Munidopsis aries</i> sp. inc.		(A. Milne Edwards, 1880)
<i>Munidopsis pallida</i> sp. inc.		Alcock, 1894
Paguroidea superfam. inc.		Latreille, 1802
<i>Thymopides laurentae</i> sp. inc.	Segonzac & Macpherson, 2003	
<i>Austinograea rodriguezensis</i>	Tsuchida & Hashimoto, 2002	



Phylum	Taxon	Authority
	<i>Alvinocaris solitaire</i> sp. inc. *[ <i>Alvinocaris solitaire</i> ]	Yahagi, Watanabe, Kojima & Beedesse, 2014
	<i>Mirocaris indica</i> sp. inc.	Komai, Martin, Zala, Tsuchida & Hashimoto, 2006
	<i>Rimicaris kairei</i>	Watabe & Hashimoto, 2002
	<i>Nematocarcinus</i> gen. inc. (DZMB_2021_0004)	A. Milne-Edwards, 1881
	<i>Nematocarcinus</i> gen. inc. (DZMB_2021_0005)	A. Milne-Edwards, 1881
	Dendrobranchiata subord. inc.	Bate, 1888
	<i>Cerataspis monstrosus</i> sp. inc.	Gray, 1828
	Munnopsidae fam. inc. (DZMB_2021_0006)	Lilljeborg, 1864
	Munnopsidae fam. inc. (DZMB_2021_0007)	Lilljeborg, 1864
	Pantopoda ord. inc.	Gerstaecker, 1863
<b>Bryozoa</b>	Cheilostomatida fam. indet. (DZMB_2021_0008)	Busk, 1852
	Cheilostomatida fam. indet. (DZMB_2021_0009)	Busk, 1852
	<i>Bifaxaria</i> gen. inc.	Busk, 1884
	<i>Tessaradoma</i> gen. inc.	Norman, 1869
<b>Chordata</b>	Synaphobranchidae gen. indet.	Johnson, 1862
	<i>Histiobranchus</i> gen. inc.	Gill, 1883
	Synaphobranchidae <i>Ilyophis brunneus</i> fam. inc.	Gilbert, 1891
	<i>Bathysaurus mollis</i> sp. inc.	Günther, 1878
	<i>Bathypterois</i> sp. indet.	Günther, 1878
	<i>Ipnops agassizii</i> sp. inc.	Garman, 1899
	Gadiformes Macrouridae ord. inc. (DZMB_2021_0010)	Bonaparte, 1831
	Gadiformes Macrouridae ord. inc. (DZMB_2021_0011)	Bonaparte, 1831
	<i>Coryphaenoides</i> gen. inc. (DZMB_2021_0012)	Gunnerus, 1765
	<i>Coryphaenoides</i> gen. inc. (DZMB_2021_0013)	Gunnerus, 1765
	<i>Coryphaenoides armatus</i> sp. inc.	(Hector, 1875)
	<i>Coryphaenoides longifilis</i> sp. inc.	Günther, 1877
	<i>Antimora rostrata</i>	(Günther, 1878)
	<i>Chaunacops</i> gen. inc.	Garman, 1899
	Notacanthiformes ord. inc.	L. S. Berg, 1947

Phylum	Taxon	Authority
	<i>Aldrovandia affinis</i> gen. inc.	(Günther, 1877)
	<i>Halosauropsis macrochir</i> gen. inc.	(Günther, 1878)
	Ophidiidae gen. indet. (DZMB_2021_0014)	Rafinesque, 1810
	Ophidiidae gen. indet. (DZMB_2021_0015)	Rafinesque, 1810
	Ophidiidae fam. inc. (DZMB_2021_0016)	Rafinesque, 1810
	<i>Acanthonus armatus</i> gen. inc.	Günther, 1878
	<i>Barathrites iris</i> gen. inc.	Zugmayer, 1911
	<i>Bassozetes</i> gen. inc.	Gill, 1883
	<i>Spectrunculus crassus</i> sp. inc.	(Vaillant, 1888)
	<i>Spectrunculus grandis</i> sp. inc.	(Günther, 1877)
	<i>Xyelacyba myersi</i> gen. inc.	Cohen, 1961
	<i>Pachycara angeloi</i>	Thiel, Knebelberger, Kihara & Gerdes, 2021
	Octacnemidae gen. indet.	-
	<i>Culeolus</i> spp. indet.	Herdman, 1881
	<i>Bathyraja tunae</i> sp. inc.	Stehmann, 2005
<b>Cnidaria</b>	Cnidaria cl. indet.	Hatschek, 1888
	Ceriantharia ord. indet.	Perrier, 1893
	Spirularia fam. indet.	den Hartog, 1977
	Actiniaria fam. indet. (DZMB_2021_0017)	Hertwig, 1882
	Actiniaria fam. indet. (DZMB_2021_0018)	Hertwig, 1882
	Actiniaria fam. indet. (DZMB_2021_0019)	Hertwig, 1882
	Actiniaria fam. indet. (DZMB_2021_0020)	Hertwig, 1882
	Actiniaria fam. indet. (DZMB_2021_0021)	Hertwig, 1882
	Actiniaria fam. indet. (DZMB_2021_0022)	Hertwig, 1882
	Actiniaria fam. indet. (DZMB_2021_0023)	Hertwig, 1882
	Actiniaria fam. indet. (DZMB_2021_0024)	Hertwig, 1882
	Actiniaria fam. indet. (DZMB_2021_0025)	Hertwig, 1882
	Actinoscyphiidae gen. indet. (DZMB_2021_0026)	Stephenson, 1920
	Actinoscyphiidae gen. indet. (DZMB_2021_0027)	Stephenson, 1920
	<i>Actinoscyphia</i> sp. indet.	Stephenson, 1920
	Actinostolidae gen. indet.	Carlgren, 1932
	<i>Actinostola</i> sp. indet. (DZMB_2021_0028)	Verrill, 1883
	<i>Actinostola</i> sp. indet. (DZMB_2021_0029)	Verrill, 1883
	<i>Actinostola</i> sp. indet. (DZMB_2021_0030)	Verrill, 1883
	<i>Actinostola</i> sp. indet. (DZMB_2021_0031)	Verrill, 1883

Phylum	Taxon	Authority
	<i>Bathypheilia</i> sp. indet. (DZMB_2021_0032)	Carlgren, 1932
	<i>Bathypheilia</i> sp. indet. (DZMB_2021_0033)	Carlgren, 1932
	<i>Chondropheilia</i> sp. indet.	Carlgren, 1925
	<i>Maractis</i> sp. indet.	Fautin & Barber, 1999
	<i>Relicanthus daphneae</i> sp. inc.	(Daly, 2006)
	Alcyonacea fam. indet.	Lamouroux, 1812
	Alcyonacea <i>Anthomastus</i> gen. inc.	Verrill, 1878
	<i>Anthomastus</i> sp. indet.	Verrill, 1878
	<i>Chrysogorgia</i> sp. indet. (DZMB_2021_0034)	Duchassaing & Michelotti, 1864
	<i>Chrysogorgia</i> sp. indet. (DZMB_2021_0035)	Duchassaing & Michelotti, 1864
	<i>Iridogorgia magnispiralis</i> sp. inc.	Watling, 2007
	Clavulariidae gen. indet. (DZMB_2021_0036)	Hickson, 1894
	Clavulariidae gen. indet. (DZMB_2021_0037)	Hickson, 1894
	Clavulariidae fam. inc. (DZMB_2021_0038)	Hickson, 1894
	Clavulariidae fam. inc. (DZMB_2021_0039)	Hickson, 1894
	Isididae gen. indet. (DZMB_2021_0040)	Lamouroux, 1812
	Isididae gen. indet. (DZMB_2021_0041)	Lamouroux, 1812
	Isididae gen. indet. (DZMB_2021_0042)	Lamouroux, 1812
	Isididae gen. indet. (DZMB_2021_0043)	Lamouroux, 1812
	Isididae fam. inc. (DZMB_2021_0044)	Lamouroux, 1812
	Isididae gen. indet. (DZMB_2021_0045)	Lamouroux, 1812
	Isididae <i>Acanella</i> gen. inc.	Gray, 1870
	Isididae <i>Bathygorgia</i> gen. inc.	Wright, 1885
	Isididae <i>Jasonisis</i> gen. inc.	Alderslade & McFadden, 2012
	Isididae <i>Keratoisis</i> gen. inc. (DZMB_2021_0046)	Wright, 1869
	Isididae <i>Keratoisis</i> gen. inc. (DZMB_2021_0047)	Wright, 1869
	Isididae <i>Lepidisis</i> gen. inc.	Verrill, 1883
	<i>Lepidisis</i> spp. indet.	Verrill, 1883
	Paragorgiidae fam. inc.	Kükenthal, 1916
	Primnoidae gen. indet. (DZMB_2021_0048)	Milne Edwards, 1857
	Primnoidae gen. indet. (DZMB_2021_0049)	Milne Edwards, 1857
	Stalk of Alcyonacea or Antipatharia ord. inc.	Lamouroux, 1812/ -
	<i>Heteropathes</i> sp. indet.	Opresko, 2011
	<i>Heteropathes americana</i> sp. inc.	(Opresko, 2003)
	<i>Bathypathes</i> sp. indet. (DZMB_2021_0050)	Brook, 1889

Phylum	Taxon	Authority
	<i>Bathypathes</i> gen. inc. (DZMB_2021_0051)	Brook, 1889
	<i>Bathypathes patula</i> sp. inc.	Brook, 1889
	<i>Schizopathes</i> spp. indet.	Brook, 1889
	Pennatulacea ord. inc. (DZMB_2021_0052)	Verrill, 1865
	Pennatulacea fam. indet. (DZMB_2021_0053)	Verrill, 1865
	Pennatulacea <i>Kophobelemnon</i> ord. inc.	Asbjørnsen, 1856
	<i>Umbellula</i> sp. indet. (DZMB_2021_0054)	Gray, 1870
	<i>Umbellula</i> sp. indet. (DZMB_2021_0055)	Gray, 1870
	<i>Zoantharia</i> fam. indet. (DZMB_2021_0056)	Gray, 1832
	<i>Zoantharia</i> fam. indet. (DZMB_2021_0057)	Gray, 1832
	<i>Zoantharia</i> fam. indet. (DZMB_2021_0058)	Gray, 1832
	<i>Epizoanthus</i> sp. indet.	Gray, 1867
	Hydrozoa ord. indet. (DZMB_2021_0059)	Owen, 1843
	Hydrozoa ord. indet. (DZMB_2021_0060)	Owen, 1843
	Hydrozoa ord. indet. (DZMB_2021_0061)	Owen, 1843
	Hydrozoa ord. indet. (DZMB_2021_0062)	Owen, 1843
	Hydrozoa ord. indet. (DZMB_2021_0063)	Owen, 1843
	Hydrozoa ord. indet. (DZMB_2021_0064)	Owen, 1843
	Hydrozoa ord. indet. (DZMB_2021_0065)	Owen, 1843
	<i>Candelabrum</i> sp. indet	de Blainville, 1830
	Corymorphidae gen. indet.	Allman, 1872
	Siphonophorae Rhodaliidae <i>Thermopalìa</i> gen. inc.	Pugh, 1983
<b>Echinodermata</b>	<i>Hymenodiscus</i> gen. inc.	Perrier, 1884
	Freyellidae fam. inc.	Downey, 1986
	<i>Freyastera</i> gen. inc.	Downey, 1986
	<i>Freyella</i> gen. inc.	Perrier, 1885
	<i>Styracaster</i> gen. inc.	Sladen, 1883
	<i>Henricia</i> gen. inc.	Gray, 1840
	Goniasteridae gen. indet. (DZMB_2021_0066)	Forbes, 1841
	Goniasteridae gen. indet. (DZMB_2021_0067)	Forbes, 1841
	<i>Circeaster</i> gen. inc.	Koehler, 1909
	<i>Evoplosoma</i> gen. inc.	Fisher, 1906
	<i>Lydiaster johannae</i> sp. inc.	Koehler, 1909
	Solasteridae fam. inc.	Viguier, 1878

Phylum	Taxon	Authority
	<i>Asthenactis</i> gen. inc.	Fisher, 1906
	<i>Hymenaster</i> sp. indet.	Wyville Thomson, 1873
	<i>Pteraster</i> gen. inc.	Müller & Troschel, 1842
	Antedonidae gen. indet. (DZMB_2021_0068)	Norman, 1865
	Antedonidae fam. inc. (DZMB_2021_0069)	Norman, 1865
	<i>Bathymetra</i> gen. inc.	AH Clark, 1908
	<i>Pentametrocrinus</i> sp. indet.	AH Clark, 1908
	Hyocrinidae gen. indet.	Carpenter, 1884
	<i>Irregularia</i> infractl. inc.	Latreille, 1825
	Cidaroida fam. indet.	Claus, 1880
	<i>Hapalosoma</i> sp. indet.	Mortensen, 1903
	<i>Salenocidaris</i> sp. indet.	Agassiz, 1869
	<i>Chiridota hydrothermica</i> sp. inc.	Smirnov & Gebruk, 2000
	Elpidiidae gen. indet. (DZMB_2021_0070)	Théel, 1882
	Elpidiidae gen. indet. (DZMB_2021_0071)	Théel, 1882
	Elpidiidae gen. indet. (DZMB_2021_0072)	Théel, 1882
	<i>Peniagone purpurea</i>	(Théel, 1882)
	Laetmogonidae gen. indet.	Ekman, 1926
	<i>Enypniastes eximia</i>	Théel, 1882
	<i>Benthodytes</i> sp. indet.	Théel, 1882
	<i>Benthothuria</i> gen. inc.	Perrier R., 1898
	<i>Pseudostichopus</i> gen. inc. (DZMB_2021_0073)	Théel, 1886
	<i>Pseudostichopus</i> sp. indet. (DZMB_2021_0074)	Théel, 1886
	<i>Oneirophanta</i> sp. indet.	Théel, 1879
	Synallactidae gen. indet. (DZMB_2021_0075)	Ludwig, 1894
	Synallactidae gen. indet. (DZMB_2021_0076)	Ludwig, 1894
	Synallactidae gen. indet. (DZMB_2021_0077)	Ludwig, 1894
	Synallactidae gen. indet. (DZMB_2021_0078)	Ludwig, 1894
	Synallactidae fam. inc. (DZMB_2021_0079)	Ludwig, 1894
	<i>Synallactes</i> sp. indet.	Ludwig, 1894
	Amphilepidida ord. inc.	O'Hara, Hugall, Thuy, Stöhr & Martynov, 2017
	<i>Asteronyx</i> gen. inc.	Müller & Troschel, 1842
	Ophiacanthida ord. inc.	O'Hara, Hugall, Thuy, Stöhr & Martynov, 2017
	<i>Ophiophyllum petilum</i> sp. inc.	Lyman, 1878
	<i>Ophiosphalma</i> gen. inc.	H.L. Clark, 1941

Phylum	Taxon	Authority
	<i>Ophiosphalma armigerum</i> sp. inc.	(Lyman, 1878)
<b>Hemichordata</b>	Torquaratoridae fam. inc.	Holland, Clague, Gordon, Gebruk, Pawson & Vecchione, 2005
<b>Mollusca</b>	<i>Bathymodiolus septemdierum</i> *[ <i>Bathymodiolus septemdierum</i> sp. inc.]	Hashimoto & Okutani, 1994
	<i>Bathypolypus</i> sp. indet.	Grimpe, 1921
	<i>Cirroteuthis</i> sp. indet.	Eschricht, 1838
	<i>Grimpoteuthis</i> gen. inc.	Robson, 1932
	<i>Magnapinna</i> sp. indet.	Vecchione & Young, 1998
	Abyssochrysoidea superfam. inc.	Tomlin, 1927
	<i>Speculator</i> gen. inc.	Waren & Bouchet, 2001
	<i>Alviniconcha marisindica</i>	Okutani, 2014
	Lepetodrilidae fam. inc.	McLean, 1988
	<i>Lepetodrilus</i> gen. inc.	McLean, 1988
	Lepetodrilidae <i>Lepetodrilus</i> sp. indet. *[Lepetodrilidae <i>Lepetodrilus</i> gen. inc.]	McLean, 1988
	<i>Phymorhynchus</i> sp. indet.	Dall, 1908
	<i>Phymorhynchus</i> sp. indet. (Egg capsules)	Dall, 1908
	Melanodrymiidae fam. inc.	Salvini-Plawen & Steiner, 1995
	<i>Chrysomallon squamiferum</i>	C. Chen, Linse, Copley & Rogers, 2015
	Scaphopoda ord. indet.	Bronn, 1862
	Solenogastres ord. indet.	Gegenbaur, 1878
<b>Nemertea</b>	<i>Thermanemertes</i> gen. inc.	Rogers, Gibson & Tunnicliffe, 1996
<b>Platyhelminthes</b>	Polycladida fam. indet. *[Polycladida ord. inc.]	Lang, 1884
<b>Porifera</b>	<i>Paleodictyon nodosum</i>	Seilacher, 1977
<b>Foraminifera</b>	Monothalamea ord. indet. (DZMB_2021_0080)	Haeckel, 1862 (as emended by Pawlowski et al., 2013)
	Monothalamea ord. indet. (DZMB_2021_0081)	Haeckel, 1862 (as emended by Pawlowski et al., 2013)
	Monothalamea ord. indet. (DZMB_2021_0082)	Haeckel, 1862 (as emended by Pawlowski et al., 2013)
	<i>Luffamina</i> gen. inc.	Kamenskaya, Bagirov & Simdianov, 2002
	<i>Psammina</i> gen. inc. (DZMB_2021_0083)	Haeckel, 1889
	<i>Psammina</i> gen. inc. (DZMB_2021_0084)	Haeckel, 1889
	<i>Stannoma</i> gen. inc.	Haeckel, 1889

## Data resources

The following Table 4 contains a brief description of content of all fields present in the Suppl. material 1.

Table 4.	
Brief description of the 78 fields of the Suppl. material 1, including the Field name and a Field data description in a separate column.	
Field name	Field data description
<b>Field ID</b>	Unique ID for each data entry
<b>Cruise Name</b>	Name of the research expedition
<b>Research Vessel</b>	Name of the vessel on which the expedition took place
<b>Leg Number</b>	Contains the leg of a single expedition during which the data were generated
<b>Geographical Area</b>	Mid Ocean Ridge segment where the data were collected
<b>Area sector</b>	Contains information if the data were collected within or outside a cluster and in which cluster the data were collected. The clusters are within the German licence area for the exploration of polymetallic sulphide occurrences and were issued by the Federal Institute for Geosciences and Natural Resources ( <a href="http://www.bgr.de">www.bgr.de</a> ) on behalf of the International Seabed Authority ( <a href="http://www.isa.org.jm">www.isa.org.jm</a> )
<b>Year</b>	Year of the expedition
<b>Sampling Date</b>	Date of data collection (year-month-day)
<b>Time stamp (on video/ still photo)</b>	Time (hours:minutes:seconds) of the data collection in UTC
<b>Sampling start time</b>	Start time of the individual transect (hours:minutes)
<b>Sampling start depth</b>	Depth (m) at the starting point of the transect
<b>Sampling start latitude</b>	Latitude at the starting point of the transect
<b>Sampling start longitude</b>	Longitude at the starting point of the transect
<b>Sampling end time</b>	End time of the individual transect (hours:minutes)
<b>Sampling end depth</b>	Depth (m) at the end point of the transect
<b>Sampling end latitude</b>	Latitude at the end point of the transect
<b>Sampling end longitude</b>	Longitude at the end point of the transect
<b>Area or Volume sampled (m)</b>	Length (m) of the entire transect
<b>Locality</b>	Local name of the sampling area or hydrothermal vent field name
<b>Geodetic Datum</b>	Global reference frame for precisely measuring locations on Earth
<b>Coordinate uncertainty in Meters</b>	Accuracy deviation of the underwater acoustic Ultra-short-baseline (USBL) positioning in metres
<b>Station ID</b>	Name of individual station including the year of expedition
<b>Transect ID</b>	Name of the individual transect
<b>Sample ID</b>	Name of the individual sample collected

Field name	Field data description
<b>Voucher Specimen Code</b>	Unique code for each sampled specimen
<b>Marker</b>	Genetic marker targeted
<b>PCR Result</b>	Descriptor for the success of extracting DNA with the Polymerase chain reaction (PCR)
<b>Sequence Result</b>	Descriptor for the successful sequencing result of the extracted DNA
<b>Photograph frame code of sampled specimen</b>	Photograph name of the sampled specimen
<b>Sampling Gear (code)</b>	Abbreviation of the tool or gear used for the data collection
<b>Preparations</b>	Descriptor for the preparation of collected data including information of the fixation of sampled specimens
<b>Institution Storing Imagery and Samples</b>	Abbreviation of Institute where samples are stored
<b>Recorded By</b>	Abbreviation of Institute that has the copyright of imagery
<b>Occurrence Status</b>	Indication for the occurrence status of the identified taxon in the data
<b>Identification Remarks</b>	Indicating potential limitations related to the available material and data type used for the identification (imagery, physical sample or both)
<b>Language</b>	Language of the data entry
<b>Basis of Record</b>	Descriptor if the identification record was based on Human observtaion (indirect, imagery only) or Preserved Specimen (direct, including physical samples)
<b>Dataset Name</b>	Name of the Dataset, equivalent with the project name INDEX (Indian Ocean Exploration Project)
<b>Number of sampled individuals</b>	Indicating how many of the photographed individuals were collected and are present as a physical sample
<b>Number of counted individuals</b>	Number of individuals of a specific taxon that were counted in the photograph present. The number "0" indicates different photograph or sample of an identical specimen, the number "100" indicates that precise counting was not possible and an uncountable number of individuals was present.
<b>Frame Code (on video/ still photo)</b>	Name of the photograph or frame grab showing the identified taxon
<b>Area of image</b>	Showing the total area of each photograph or frame grab in pixels (length x width)
<b>Video/photo sled ID code</b>	Name of the tool or gear used for the data collection
<b>Technical specifications of camera equipment</b>	Specification of the camera used or if a frame grab was extracted from a high definition (hd) or standard definition (sd) video
<b>Kingdom</b>	Taxonomic classification hierarchy level: Kingdom
<b>Identification: Phylum</b>	Taxonomic classification hierarchy level: Phylum
<b>Identification: Class</b>	Taxonomic classification hierarchy level: Class
<b>Identification: Order</b>	Taxonomic classification hierarchy level: Order
<b>Identification: Family</b>	Taxonomic classification hierarchy level: Family
<b>Identification: Genus</b>	Taxonomic classification hierarchy level: Genus
<b>Identification: Species</b>	Taxonomic classification hierarchy level: Species



Field name	Field data description
<b>Taxon rank</b>	Lowest possible identification level
<b>Identification Qualifier</b>	Descriptor for the confidence of the identification level
<b>Scientific Name authorship</b>	Authority and year of the original taxon description
<b>Identification: putative species name or number</b>	Putative taxon name regardless the identification level including the identification qualifier
<b>Identification Molecular</b>	Result of the molecular identification if present
<b>Morphological Taxonomist</b>	Responsible taxonomist who identified the taxon the putative taxon name or number
<b>Morphological Taxonomist E-mail</b>	Current email adress of the taxonomist
<b>Morphological Taxonomist Institution</b>	Current Institution of the taxonomist
<b>Behaviour</b>	Behaviour of the observed and identified individual
<b>Specimen Details: Life Stage</b>	Life stage of the identified individual, if possible
<b>Specimen Details : Tissue Descriptor</b>	Tissue used for the molecular DNA extraction
<b>Specimen Details: Associated Taxa</b>	Associated taxa in the close vicinity of the identified taxon
<b>Specimen Details : Associated Specimens</b>	Associated specimens in symbiosis or attached to the identified individual
<b>Hydrothermal activity</b>	Indicating if the identified taxon was observed in an area with hydrothermal activity or not
<b>Activity of hydrothermal vent site (active/ inactive/dormant/diffuse flow)</b>	Indicating the level of hydrothermal activity from high to low/no activity in the categories "active", "diffuse flow", "inactive", "dormant", "non-vent", respectively
<b>Age of hydrothermal vent (100 - &gt;10,000 years)</b>	Estimated and categorised age of hydrothermal vent field from young (100 years) to old (10,000 years)
<b>Water Body</b>	Ocean in which data or samples were collected
<b>Water Temperature (°C)</b>	Water temperature in degrees Celsius at the location of the observed individual (if measured)
<b>Salinity (ppt)</b>	Salinity in parts per thousand at the location of the observed individual (if measured)
<b>Depth (m)</b>	Depth (m) at the location of the observed individual
<b>Image Type</b>	Indicating if the data were derived from a photograph or from video imagery
<b>Exposure</b>	Exposure time of the camera used
<b>ISO-speed</b>	Indicating the sensitivity of the CMOS sensor towards light. A higher ISO speed indicates higher sensitivity to light.
<b>Focal length</b>	Measure of how strongly the camera converges the light

Field name	Field data description
Use of picture	Descriptor of which photographs were extracted for identification, were extracted and send to taxonomists for precise identification and extracted, identified and shown in the publication as an example of that taxon
Latitude	Latitude in decimal degrees of the observed individual
Longitude	Longitude in decimal degrees of the observed individual

## Megafauna of the German exploration license area

### Kingdom Animalia

### Phylum Annelida Lamarck, 1809

### Class Polychaeta Grube, 1850

### Order Amphinomida

### Family Amphinomidae Lamarck, 1818

### Genus *Archinome* Kudenov, 1991

### *Archinome jasoni* Borda, Kudenov, Chevaldonné, Blake, Desbruyères, Fabri, Hourdez, Pleijel, Shank, Wilson, Schulze & Rouse, 2013

#### Material

- a. scientificName: *Archinome jasoni*; taxonConceptID: *Archinome jasoni*; taxonID: I13\_390; scientificNameID: *Archinome jasoni*; kingdom: Animalia; phylum: Annelida; class: Polychaeta; order: Amphinomida; family: Amphinomidae; taxonRank: Species; genus: *Archinome*; scientificNameAuthorship: Borda, Kudenov, Chevaldonné, Blake, Desbruyères, Fabri, Hourdez, Pleijel, Shank, Wilson, Schulze & Rouse, 2013; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Kairei; verbatimLocality: Cluster 5; maximumDepthInMeters: 2432; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; decimalLatitude: -25.3205; decimalLongitude: 70.0401; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2013-12-05; eventTime: 11:07:30 am; year: 2013; fieldNumber: INDEX2013-28ROV; fieldNotes: 1.8°C; individualCount: 100; lifeStage: Adult; preparations: DNA voucher and animal stored in 96% ethanol; behavior: moving at basis of active chimney; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-05\_11-07-30\_Sonne\_INDEX2013-2\_028ROV01\_Logo.jpg; associatedOccurrences: none; associatedSequences: COI; identifiedBy: Theresa Guggolz; identificationRemarks: Identified by morphology and DNA of collected specimen; language: en; institutionCode: DZMB; collectionCode: I13\_28RO\_SG1\_2; datasetName: INDEX; basisOfRecord: Preserved Specimen

Notes: Fig. 2

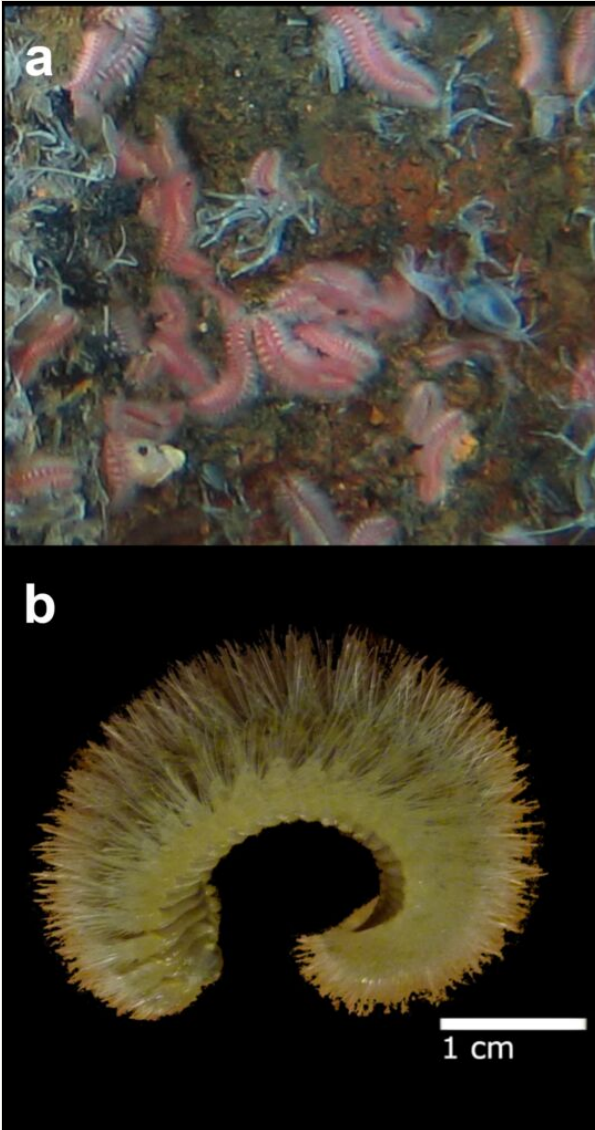


Figure 2. [doi](#)

*Archinome jasoni* in situ (a) and sampled specimen (b) within the Kairei hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR and GEOMAR).

## Order Phyllodocida Dales, 1962

### Family Polynoidae Kinberg, 1856

#### Polynoidae gen. indet.

##### Material

- a. taxonConceptID: Polynoidae gen. indet.; kingdom: Animalia; phylum: Annelida; class: Polychaeta; order: Phyllodocida; family: Polynoidae; taxonRank: Family; scientificNameAuthorship: Kinberg, 1856; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: RTJ; verbatimLocality: Cluster 5; maximumDepthInMeters: 2398; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-12-03; eventTime: 9:02:06 am; year: 2018; fieldNumber: INDEX2018-82ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 2; lifeStage: Adult; preparations: Imaged only; behavior: on anemone; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2103\_00177.jpg; associatedOccurrences: *Actinostolidae* gen. indet.; identifiedBy: Theresa Guggolz; identificationRemarks: Identified only from imagery - commensal morphotype only observed on *Actinostolidae* gen. indet.; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 3



Figure 3. [doi](#)

Commensal Polynoidae gen. indet. in situ on Actinaria anemone in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Branchipolynoe* Pettibone, 1984

### *Branchipolynoe* gen. inc.

#### Material

- a. taxonConceptID: *Branchipolynoe* gen. inc.; kingdom: Animalia; phylum: Annelida; class: Polychaeta; order: Phyllodocida; family: Polynoidae; taxonRank: Genus; genus: *Branchipolynoe*; scientificNameAuthorship: Pettibone, 1984; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: EGS; verbatimLocality: Cluster 4; maximumDepthInMeters: 3280; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 33; eventDate: 2015-12-06; eventTime: 5:19:55 am; year: 2015; fieldNumber: INDEX2015-58ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1913\_01678.jpg; identifiedBy: Theresa Guggolz; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 4



Figure 4. [doi](#)

*Branchipolynoe* gen. inc. in situ within the Edmond hydrothermal vent field in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Lepidonotopodium* Pettibone, 1983

### *Lepidonotopodium* gen. inc. (DZMB\_2021\_0001)

#### Material

- a. taxonConceptID: *Lepidonotopodium* gen. inc. (DZMB\_2021\_0001); kingdom: Animalia; phylum: Annelida; class: Polychaeta; order: Phyllodocida; family: Polynoidae; taxonRank: Genus; genus: *Lepidonotopodium*; scientificNameAuthorship: Pettibone, 1983; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2630; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 23; eventDate: 2018-12-10; eventTime: 5:51:39 am; year: 2018; fieldNumber: INDEX2018-97ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: moving on active chimney; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2106\_00050.jpg; identifiedBy: Theresa Guggolz; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 5



Figure 5. [doi](#)

*Lepidonotopodium* gen. inc. (DZMB\_2021\_0001) in situ within the vent site 4 hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### *Lepidonotopodium* gen. inc. (DZMB\_2021\_0002)

#### Material

- a. taxonConceptID: *Lepidonotopodium* gen. inc. (DZMB\_2021\_0002); kingdom: Animalia; phylum: Annelida; class: Polychaeta; order: Phyllodocida; family: Polynoidae; taxonRank: Genus; genus: *Lepidonotopodium*; scientificNameAuthorship: Pettibone, 1983;



waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 5; verbatimLocality: Cluster 11; maximumDepthInMeters: 2911; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2018-12-01; eventTime: 6:15:16 am; year: 2018; fieldNumber: INDEX2018-80ROPOS; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: moving on active chimney; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2102\_00026.jpg; associatedOccurrences: none; identifiedBy: Theresa Guggolz; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 6



Figure 6. [doi](#)

*Lepidonotopodium* gen. inc. (DZMB\_2021\_0002) in situ within the vent site 5 hydrothermal vent field in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### *Lepidonotopodium* gen. inc. (DZMB\_2021\_0003)

#### Material

- a. taxonConceptID: *Lepidonotopodium* gen. inc. (DZMB\_2021\_0003); kingdom: Animalia; phylum: Annelida; class: Polychaeta; order: Phyllodocida; family: Polynoidae; taxonRank: Genus; genus: *Lepidonotopodium*; scientificNameAuthorship: Pettibone, 1983; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2479; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-23; eventTime: 9:42:28 am; year: 2018; fieldNumber: INDEX2018-63ROPOS; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: moving on active chimney; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2095\_00136.jpg; identifiedBy: Theresa Guggolz; identificationRemarks: Identified only from imagery;

identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 7



Figure 7. [doi](#)

*Lepidonotopodium* gen. inc. (DZMB\_2021\_0003) in situ within the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Sabellida Levinsen, 1883

### Family Sabellidae Latreille, 1825

#### Sabellidae gen. indet.

##### Material

- a. taxonConceptID: Sabellidae gen. indet.; kingdom: Animalia; phylum: Annelida; class: Polychaeta; order: Sabellida; family: Sabellidae; taxonRank: Family; scientificNameAuthorship: Latreille, 1825; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: SEIR; verbatimLocality: Cluster 11; maximumDepthInMeters: 2928; locationRemarks: FS Sonne Cruise INDEX2017 Leg 1; decimalLatitude: -27.2562; decimalLongitude: 72.7216; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 29; eventDate: 2017-09-25; eventTime: 3:47:53 am; year: 2017; fieldNumber: INDEX2017-86STR; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: BGR; occurrenceStatus: present; associatedMedia: IMG\_5003.jpg; identifiedBy: Theresa Guggolz; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 8





Figure 8. [doi](#)

Sabellidae gen. indet. in situ on the seafloor in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Siboglinidae Caullery, 1914

### Genus *Oasisia* Jones, 1985

#### *Oasisia* gen. inc.

##### Material

- a. taxonConceptID: *Oasisia* gen. inc.; kingdom: Animalia; phylum: Annelida; class: Polychaeta; order: Sabellida; family: Siboglinidae; taxonRank: Genus; genus: *Oasisia*; scientificNameAuthorship: Jones, 1985; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Edmond; verbatimLocality: Cluster 4; maximumDepthInMeters: 3269; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 33; eventDate: 2013-12-08; eventTime: 10:50:40 am; year: 2013; fieldNumber: INDEX2013-36ROV; fieldNotes: 1.8°C; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: in sulphidic sediment; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-08\_10-50-40\_Sonne\_INDEX2013-2\_036ROV04\_Logo.jpg; identifiedBy: Theresa Guggolz; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 9

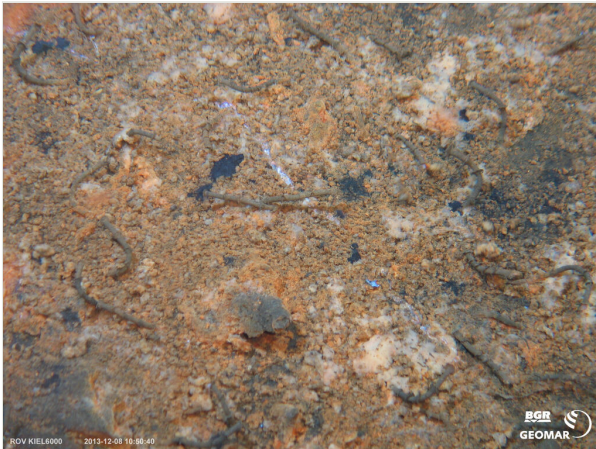


Figure 9. [doi](#)

*Oasisia* gen. inc. in situ within the Edmond hydrothermal vent field in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR and GEOMAR).

## Order Terebellida sensu Rouse & Fauchald, 1997

### Family Alvinellidae Desbruyeres & Laubier, 1986

### Genus *Alvinella* Desbruyères & Laubier, 1980

#### *Alvinella* gen. inc.

##### Material

- a. taxonConceptID: *Alvinella* gen. inc.; taxonID: I18\_1138; scientificNameID: -; kingdom: Animalia; phylum: Annelida; class: Polychaeta; order: Terebellida; family: Alvinellidae; taxonRank: Genus; genus: *Alvinella*; scientificNameAuthorship: Desbruyeres & Laubier, 1980; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2449; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-24; eventTime: 9:31:00 am; year: 2018; fieldNumber: INDEX2018-65ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 100; lifeStage: Adult; preparations: DNA voucher and animal stored in 96% ethanol; behavior: attached to active chimney; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: *Alvinella* sp.tif; associatedOccurrences: none; associatedSequences: COI; identifiedBy: Theresa Guggolz; identificationRemarks: Identified by morphology and DNA of collected specimen; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; collectionCode: I18\_065RO\_B\_005; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 10



Figure 10. [doi](#)

*Alvinella* gen. inc. in situ (white arrow) within the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Phylum Arthropoda von Siebold, 1848

### Class Hexanauplia Oakley, Wolfe, Lindgren & Zaharof, 2013

#### Superorder Thoracica Darwin, 1854

#### Order Lepadiformes Buckeridge & Newman, 2006

#### Family Poecilasmatidae Annandale, 1909

#### Genus *Glyptelasma* Pilsbry, 1907

#### *Glyptelasma* gen. inc.

##### Material

- a. taxonConceptID: *Glyptelasma* gen. inc.; kingdom: Animalia; phylum: Arthropoda; class: Hexanauplia; order: Lepadiformes; family: Poecilasmatidae; taxonRank: Genus; genus: *Glyptelasma*; scientificNameAuthorship: Pilsbry, 1907; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2374; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-25; eventTime: 8:14:41 am; year: 2018; fieldNumber: INDEX2018-67ROPOS; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: Attached to coral stalk; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2097\_00145.jpg; associatedOccurrences: Isididae *Jasonisis* gen. inc.; identifiedBy: Kate

Shalaeva; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 11

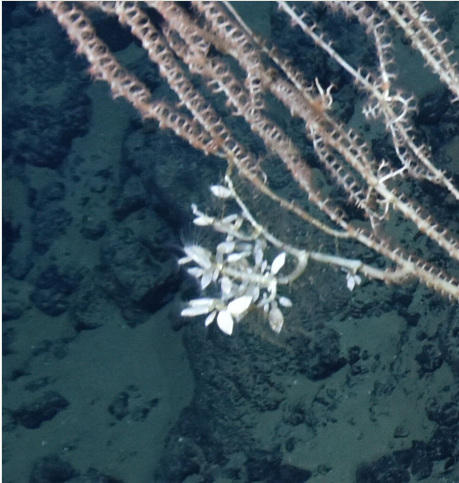


Figure 11. [doi](#)

*Glyptelasma* gen. inc. in situ within the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Scalpelliformes Buckeridge & Newman, 2006

### Family Eolepadidae Buckeridge, 1983

#### Genus *Neolepas* Newman, 1979

#### *Neolepas marisindica* sp. inc. Watanabe, Chen & Chan, 2018

##### Material

- a. scientificName: *Neolepas marisindica*; taxonConceptID: *Neolepas marisindica* sp. inc.; kingdom: Animalia; phylum: Arthropoda; class: Hexanauplia; order: Scalpelliformes; family: Eolepadidae; taxonRank: Species; genus: *Neolepas*; scientificNameAuthorship: Watanabe, Chen & Chan, 2018; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2468; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-23; eventTime: 9:25:45 am; year: 2018; fieldNumber: INDEX2018-63ROPOS; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: attached to active chimney; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2095\_00131.jpg; identifiedBy: Kate Shalaeva; identificationRemarks: Identified only from imagery;



identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 12



Figure 12. [doi](#)

*Neolepas marisindica* sp. inc. in situ within the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Scalpellidae Pilsbry, 1907

### Genus *Regioscalpellum* Gale, 2015

#### *Regioscalpellum regium* sp. inc. (Wyville Thomson, 1873)

##### Material

- a. scientificName: *Regioscalpellum regium*; taxonConceptID: *Regioscalpellum regium* sp. inc.; kingdom: Animalia; phylum: Arthropoda; class: Hexanauplia; order: Scalpelliformes; family: Scalpellidae; taxonRank: Species; genus: *Regioscalpellum*; scientificNameAuthorship: (Wyville Thomson, 1873); waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2380; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-23; eventTime: 5:50:33 am; year: 2018; fieldNumber: INDEX2018-63ROPOS; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: attached to sulfides; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2095\_00029-1.jpg; identifiedBy: Kate Shalaeva; identificationRemarks: Identified only from imagery; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 13



Figure 13. [doi](#)

*Regioscalpellum regium* sp. inc. in situ within the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Sessilia Lamarck, 1818

### Family Verrucidae Darwin, 1854

#### Verrucidae fam. inc.

##### Material

- a. taxonConceptID: Verrucidae fam. inc.; kingdom: Animalia; phylum: Arthropoda; class: Hexanauplia; order: Sessilia; family: Verrucidae; taxonRank: Family; scientificNameAuthorship: Darwin, 1854; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2380; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-23; eventTime: 5:50:33 am; year: 2018; fieldNumber: INDEX2018-63ROPOS; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: attached to sulfides; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2095\_00029-2.jpg; identifiedBy: Kate Shalaeva; identificationRemarks: Identified only from imagery; identificationQualifier: fam. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 14



Figure 14. [doi](#)

Verrucidae fam. inc. in situ within the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Class Malacostraca Latreille, 1802

### Order Amphipoda Latreille, 1816

#### Amphipoda ord. inc.

##### Material

- a. taxonConceptID: Amphipoda ord. inc.; kingdom: Animalia; phylum: Arthropoda; class: Malacostraca; order: Amphipoda; taxonRank: Order; scientificNameAuthorship: Latreille, 1816; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Kairei; verbatimLocality: Cluster 5; maximumDepthInMeters: 2468; locationRemarks: RV Pourquoi pas? Cruise INDEX2016 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2016-01-11; eventTime: 10:17:31 pm; year: 2016; fieldNumber: INDEX2016-06ROV; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: sitting on hydrozoa stalk; recordedBy: IFREMER; occurrenceStatus: present; associatedMedia: 160111221731A Kopie.jpg; associatedOccurrences: Hydrozoa ord. indet.; identifiedBy: Simon Bober; identificationRemarks: Identified only from imagery; identificationQualifier: ord. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 15



Figure 15. [doi](#)

Amphipoda ord. inc. in situ within the Kairei hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Decapoda Latreille, 1802

### Infraorder Anomura MacLeay, 1838

#### Anomura fam. indet.

##### Material

- a. taxonConceptID: Anomura fam. indet.; kingdom: Animalia; phylum: Arthropoda; class: Malacostraca; order: Decapoda; taxonRank: Infraorder; scientificNameAuthorship: MacLeay, 1838; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2825; locationRemarks: FS Sonne Cruise INDEX2013 Leg 1; decimalLatitude: -23.3922; decimalLongitude: 69.2423; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 28; eventDate: 2013-11-25; eventTime: 3:21:40 am; year: 2013; fieldNumber: INDEX2013-17MFT; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: moving on seafloor; recordedBy: BGR; occurrenceStatus: present; associatedMedia: 17MFT Fotos 2013-63-2.jpg; identifiedBy: Magdalini Christodoulou, Terue C. Kihara; identificationRemarks: Identified only from imagery; identificationQualifier: fam. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 16





Figure 16. [doi](#)

Anomura fam. indet. in situ within the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Galatheidae Samouelle, 1819

### Galatheidae fam. inc.

#### Material

- a. taxonConceptID: Galatheidae fam. inc.; kingdom: Animalia; phylum: Arthropoda; class: Malacostraca; order: Decapoda; family: Galatheidae; taxonRank: Family; scientificNameAuthorship: Samouelle, 1819; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 3; verbatimLocality: Cluster 12; maximumDepthInMeters: 2478; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-11-26; eventTime: 6:16:31 am; year: 2018; fieldNumber: INDEX2018-70ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2098\_00075.jpg; identifiedBy: Magdalini Christodoulou, Terue C. Kihara; identificationRemarks: Identified only from imagery; identificationQualifier: fam. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 17



Figure 17. [doi](#)

Galatheidae fam. inc. in situ close to the vent site 3 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Munidopsidae Ortmann, 1898

### Genus *Munidopsis* Whiteaves, 1874

#### *Munidopsis aries* sp. inc. (A. Milne Edwards, 1880)

##### Material

- a. scientificName: *Munidopsis aries*; taxonConceptID: *Munidopsis aries* sp. inc.; kingdom: Animalia; phylum: Arthropoda; class: Malacostraca; order: Decapoda; family: Munidopsidae; taxonRank: Species; genus: *Munidopsis*; scientificNameAuthorship: (A. Milne Edwards, 1880); waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2576; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-12-09; eventTime: 5:42:12 am; year: 2018; fieldNumber: INDEX2018-95ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on seafloor; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2105\_00030.jpg; identifiedBy: Enrique MacPherson; identificationRemarks: Identified only from imagery; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 18



Figure 18. [doi](#)

*Munidopsis aries* sp. inc. in situ at the border of the vent site 4 hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## *Munidopsis pallida* sp. inc. Alcock, 1894

### Material

- a. scientificName: *Munidopsis pallida*; taxonConceptID: *Munidopsis pallida* sp. inc.; kingdom: Animalia; phylum: Arthropoda; class: Malacostraca; order: Decapoda; family: Munidopsidae; taxonRank: Species; genus: *Munidopsis*; scientificNameAuthorship: Alcock, 1894; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Vent site 2; verbatimLocality: Cluster 4; maximumDepthInMeters: 3048; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2013-12-13; eventTime: 9:23:30 am; year: 2013; fieldNumber: INDEX2013-51ROV; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on seafloor; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-13\_09-23-30\_Sonne\_INDEX2013-2\_051ROV07\_Logo.jpg; identifiedBy: Enrique MacPherson; identificationRemarks: Identified only from imagery; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 19



Figure 19. [doi](#)

*Munidopsis pallida* sp. inc. in situ within the inactive vent site 2 hydrothermal vent field in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR and GEOMAR).

## Superfamily Paguroidea Latreille, 1802

### Paguroidea superfam. inc.

#### Material

- a. taxonConceptID: Paguroidea superfam. inc.; kingdom: Animalia; phylum: Arthropoda; class: Malacostraca; order: Decapoda; taxonRank: Superfamily; scientificNameAuthorship: Latreille, 1802; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Vent site 1; verbatimLocality: Cluster 4; maximumDepthInMeters: 3072; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2015-11-27; eventTime: 9:20:39 am; year: 2015; fieldNumber: INDEX2015-37ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: moving on sediment; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1905\_00014.jpg; associatedOccurrences: *Epizoanthus* sp. indet.; identifiedBy: Magdalini Christodoulou, Terue C. Kihara; identificationRemarks: Identified only from imagery; identificationQualifier: superfam. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 20





Figure 20. [doi](#)

Paguroidea superfam. inc. (in symbiosis with *Epizoanthus* sp. indet.) in situ within the vent site 1 area in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Infraorder Astacidea Latraeille, 1802

### Family Nephropidae Dana, 1852

#### Genus *Thymopides* Burukovsky & Averin, 1977

#### *Thymopides laurentae* sp. inc. Segonzac & Macpherson, 2003

##### Material

- a. scientificName: *Thymopides laurentae*; taxonConceptID: *Thymopides laurentae* sp. inc.; kingdom: Animalia; phylum: Arthropoda; class: Malacostraca; order: Decapoda; family: Nephropidae; taxonRank: Species; genus: *Thymopides*; scientificNameAuthorship: Segonzac & Macpherson, 2003; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Vent site 1; verbatimLocality: Cluster 4; maximumDepthInMeters: 3036; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2015-11-29; eventTime: 8:55:19 am; year: 2015; fieldNumber: INDEX2015-43ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1906\_00143.jpg; identifiedBy: Enrique MacPherson; identificationRemarks: Identified only from imagery; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 21



Figure 21. [doi](#)

*Thymopides laurentae* sp. inc. in situ within the vent site 1 area in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Infraorder Brachyura Linnaeus, 1754

### Family Bythograeidae Williams, 1980

#### Genus *Austinograea* Hessler & Martin, 1989

#### *Austinograea rodriguezensis* Tsuchida & Hashimoto, 2002

##### Material

- a. scientificName: *Austinograea rodriguezensis*; taxonConceptID: *Austinograea rodriguezensis*; taxonID: I13\_80; scientificNameID: *Austinograea rodriguezensis*; kingdom: Animalia; phylum: Arthropoda; class: Malacostraca; order: Decapoda; family: Bythograeidae; taxonRank: Species; genus: *Austinograea*; scientificNameAuthorship: Tsuchida & Hashimoto, 2002; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Kairei; verbatimLocality: Cluster 5; maximumDepthInMeters: 2424; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; decimalLatitude: -25.3203; decimalLongitude: 70.0404; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2013-12-06; eventTime: 10:57:36 am; year: 2013; fieldNumber: INDEX2013-31ROV; fieldNotes: 2°C; individualCount: 3; lifeStage: Adult; preparations: DNA voucher and animal stored in 96% ethanol; behavior: moving on seafloor; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-06\_10-57-36\_Sonne\_INDEX2013-2\_031ROV02\_Logo-4.jpg; associatedOccurrences: none; associatedSequences: COI; identifiedBy: Magdalini Christodoulou, Terue C. Kihara; identificationRemarks: Identified by morphology and DNA of collected specimen; language: en; institutionCode: DZMB; collectionCode: I13\_31RO\_SG2\_1; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 22



Figure 22. [doi](#)

*Austinograea rodriguezensis* in situ within the Kaiei hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR and GEOMAR).

## Infraorder Caridea Dana, 1852

### Family Alvinocaridae Christoffersen, 1986

#### Genus *Alvinocaris* Williams & Chace, 1982

#### *Alvinocaris solitaire* sp. inc. Yahagi, Watanabe, Kojima & Beedesse, 2014

##### Material

- a. scientificName: *Alvinocaris solitaire*; taxonConceptID: *Alvinocaris solitaire* sp. inc.; kingdom: Animalia; phylum: Arthropoda; class: Malacostraca; order: Decapoda; family: Alvinocaridae; taxonRank: Species; genus: *Alvinocaris*; scientificNameAuthorship: Yahagi, Watanabe, Kojima & Beedesse, 2014; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2631; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 23; eventDate: 2018-12-10; eventTime: 5:59:55 am; year: 2018; fieldNumber: INDEX2018-97ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: moving on seafloor; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2106\_00061.jpg; identifiedBy: Magdalini Christodoulou, Terue C. Kihara; identificationRemarks: Identified only from imagery; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 23



Figure 23. [doi](#)

*Alvinocaris solitaria* sp. inc. in situ within the vent site 4 hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Mirocaris* Vereshchaka, 1997

### *Mirocaris indica* sp. inc. Komai, Martin, Zala, Tsuchida & Hashimoto, 2006

#### Material

- a. scientificName: *Mirocaris indica*; taxonConceptID: *Mirocaris indica* sp. inc.; kingdom: Animalia; phylum: Arthropoda; class: Malacostraca; order: Decapoda; family: Alvinocarididae; taxonRank: Species; genus: *Mirocaris*; scientificNameAuthorship: Komai, Martin, Zala, Tsuchida & Hashimoto, 2006; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: EGS; verbatimLocality: Cluster 4; maximumDepthInMeters: 3270; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 32; eventDate: 2015-12-03; eventTime: 7:08:32 am; year: 2015; fieldNumber: INDEX2015-51ROV; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: moving on sulfides; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1910\_00877.jpg; identifiedBy: Magdalini Christodoulou, Terue C. Kihara; identificationRemarks: Identified only from imagery; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 24





Figure 24. [doi](#)

*Mirocaris indica* sp. inc. in situ within the Edmond hydrothermal vent field in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Rimicaris* Williams & Rona, 1986

### *Rimicaris kairei* Watabe & Hashimoto, 2002

#### Material

- a. scientificName: *Rimicaris kairei*; taxonConceptID: *Rimicaris kairei*; taxonID: I18\_1337; scientificNameID: *Rimicaris kairei*; kingdom: Animalia; phylum: Arthropoda; class: Malacostraca; order: Decapoda; family: Alvinocarididae; taxonRank: Species; genus: *Rimicaris*; scientificNameAuthorship: Watabe & Hashimoto, 2002; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2629; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-12-09; eventTime: 7:16:44 am; year: 2018; fieldNumber: INDEX2018-95ROPOS; fieldNotes: 2.4°C, 34.6 ppt; individualCount: 100; lifeStage: Adult; preparations: DNA voucher and animal stored freeze dried; behavior: moving on active chimney; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2105\_00156.jpg; associatedOccurrences: Bacteria; associatedSequences: COI; identifiedBy: Magdalini Christodoulou, Terue C. Kihara; identificationRemarks: Identified by morphology and DNA of collected specimen; language: en; institutionCode: DZMB; collectionCode: I18\_095RO\_SG1\_002; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 25



Figure 25. [doi](#)

*Rimicaris kairei* in situ within the vent site 4 hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Nematocarcinidae Smith, 1884

### Genus *Nematocarcinus* A. Milne-Edwards, 1881

#### *Nematocarcinus* gen. inc. (DZMB\_2021\_0004)

##### Material

- a. taxonConceptID: *Nematocarcinus* gen. inc. (DZMB\_2021\_0004); kingdom: Animalia; phylum: Arthropoda; class: Malacostraca; order: Decapoda; family: Nematocarcinidae; taxonRank: Genus; genus: *Nematocarcinus*; scientificNameAuthorship: A. Milne-Edwards, 1881; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: RTJ; verbatimLocality: Cluster 5; maximumDepthInMeters: 2642; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-12-03; eventTime: 12:10:26 pm; year: 2018; fieldNumber: INDEX2018-82ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on seafloor; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2103\_00288.jpg; identifiedBy: Magdalini Christodoulou, Terue C. Kihara; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 26



Figure 26. [doi](#)

*Nematocarcinus* gen. inc. (DZMB\_2021\_0004) in situ at the Rodriguez Triple Junction in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### ***Nematocarcinus* gen. inc. (DZMB\_2021\_0005)**

#### **Material**

- a. taxonConceptID: *Nematocarcinus* gen. inc. (DZMB\_2021\_0005); kingdom: Animalia; phylum: Arthropoda; class: Malacostraca; order: Decapoda; family: Nematocarcinidae; taxonRank: Genus; genus: *Nematocarcinus*; scientificNameAuthorship: A. Milne-Edwards, 1881; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: EGS; verbatimLocality: Cluster 4; maximumDepthInMeters: 3075; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2015-12-04; eventTime: 6:16:41 am; year: 2015; fieldNumber: INDEX2015-53ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sulfides; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1911\_01051.jpg; identifiedBy: Magdalini Christodoulou, Terue C. Kihara; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 27





Figure 27. [doi](#)

*Nematocarcinus* gen. inc. (DZMB\_2021\_0005) in situ within the Edmond-vent site 2-vent site 7 hydrothermal area in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Suborder Dendrobranchiata Bate, 1888

### Dendrobranchiata subord. inc.

#### Material

- a. taxonConceptID: Dendrobranchiata subord. inc.; kingdom: Animalia; phylum: Arthropoda; class: Malacostraca; order: Decapoda; taxonRank: Suborder; scientificNameAuthorship: Bate, 1888; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 5; verbatimLocality: Cluster 11; maximumDepthInMeters: 2913; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 29; eventDate: 2018-11-28; eventTime: 8:12:11 am; year: 2018; fieldNumber: INDEX2018-73ROPOS; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2100\_00098.jpg; identifiedBy: Magdalini Christodoulou, Terue C. Kihara; identificationRemarks: Identified only from imagery; identificationQualifier: subord. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 28

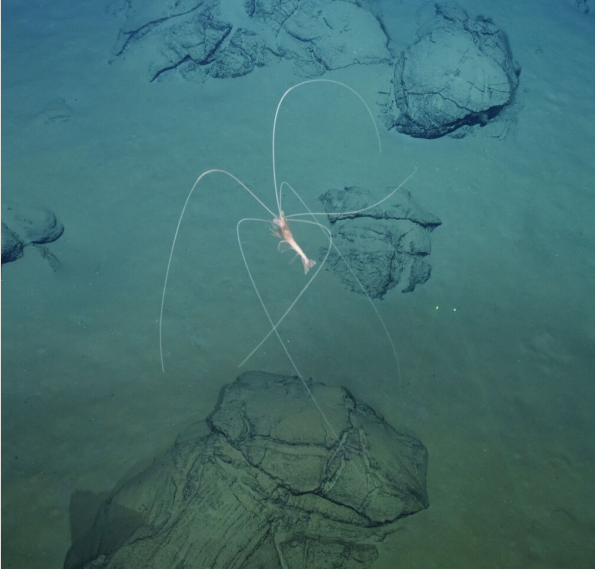


Figure 28. [doi](#)

Dendrobranchiata subord. inc. in situ in the surrounding area of the vent site 5 hydrothermal vent field in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Aristeidae Wood-Mason in Wood-Mason & Alcock, 1891

### Genus *Cerataspis* Gray, 1828

#### *Cerataspis monstrosus* sp. inc. Gray, 1828

##### Material

- a. scientificName: *Cerataspis monstrosus*; taxonConceptID: *Cerataspis monstrosus* sp. inc.; kingdom: Animalia; phylum: Arthropoda; class: Malacostraca; order: Decapoda; family: Aristeidae; taxonRank: Species; genus: *Cerataspis*; scientificNameAuthorship: Gray, 1828; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2382; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-23; eventTime: 5:48:25 am; year: 2018; fieldNumber: INDEX2018-63ROPOS; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2095\_00024.jpg; identifiedBy: Magdalini Christodoulou, Terue C. Kihara; identificationRemarks: Identified only from imagery; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 29



Figure 29. [doi](#)

*Cerataspis monstrosus* sp. inc. in situ in the surrounding area of the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Isopoda Latreille, 1817

### Family Munnopsidae Lilljeborg, 1864

#### Munnopsidae fam. inc. (DZMB\_2021\_0006)

##### Material

- a. taxonConceptID: Munnopsidae fam. inc. (DZMB\_2021\_0006); taxonID: I15\_53; scientificNameID: -; kingdom: Animalia; phylum: Arthropoda; class: Malacostraca; order: Isopoda; family: Munnopsidae; taxonRank: Family; scientificNameAuthorship: Lilljeborg, 1864; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Vent site 1; verbatimLocality: Cluster 4; maximumDepthInMeters: 3036; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2015-11-29; eventTime: 8:54:59 am; year: 2015; fieldNumber: INDEX2015-43ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 100; lifeStage: Adult; preparations: DNA voucher and animal stored in 96% ethanol; behavior: on basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1906\_00142.jpg; associatedOccurrences: none; associatedSequences: COI; identifiedBy: Simon Bober; identificationRemarks: Identified by morphology and DNA of collected specimen; identificationQualifier: fam. inc.; language: en; institutionCode: DZMB; collectionCode: I15\_43RO\_D\_11; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 30

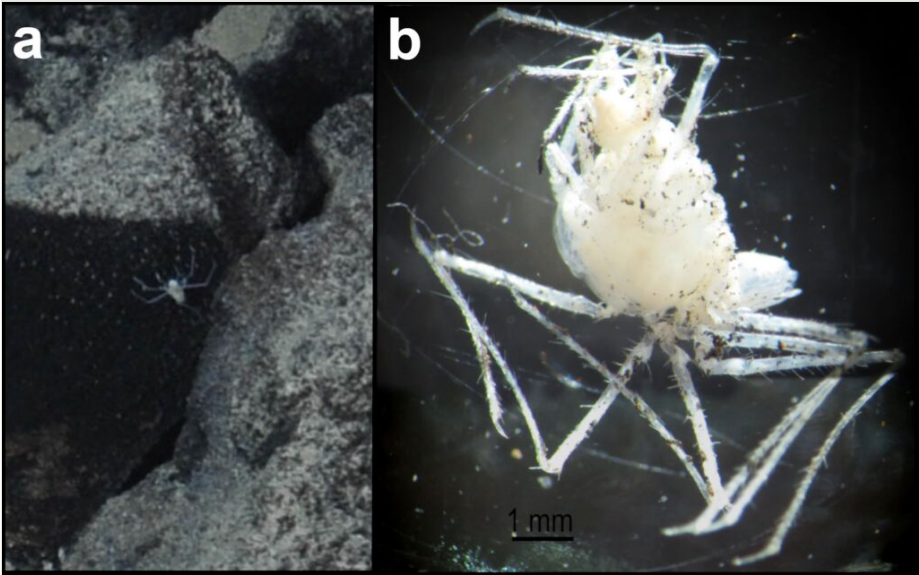


Figure 30. [doi](#)

Munnopsidae fam. inc. (DZMB\_2021\_0006) in situ (a) and sampled specimen (b) within the vent site 1 area in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### Munnopsidae fam. inc. (DZMB\_2021\_0007)

#### Material

- a. taxonConceptID: Munnopsidae fam. inc. (DZMB\_2021\_0007); kingdom: Animalia; phylum: Arthropoda; class: Malacostraca; order: Isopoda; family: Munnopsidae; taxonRank: Family; scientificNameAuthorship: Lilljeborg, 1864; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2652; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-12-09; eventTime: 9:36:47 am; year: 2018; fieldNumber: INDEX2018-95ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: on sulfides; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2105\_00319.jpg; identifiedBy: Simon Bober; identificationRemarks: Identified only from imagery; identificationQualifier: fam. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 31





Figure 31. [doi](#)

Munnopsidae fam. inc. (DZMB\_2021\_0007) in situ within the vent site 4 hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Class Pycnogonida Latreille, 1810

### Order Pantopoda Gerstaecker, 1863

#### Pantopoda ord. inc.

##### Material

- a. taxonConceptID: Pantopoda ord. inc.; kingdom: Animalia; phylum: Arthropoda; class: Pycnogonida; order: Pantopoda; taxonRank: Order; scientificNameAuthorship: Gerstaecker, 1863; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 5; verbatimLocality: Cluster 11; maximumDepthInMeters: 2908; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 29; eventDate: 2018-11-28; eventTime: 10:53:01 am; year: 2018; fieldNumber: INDEX2018-73ROPOS; fieldNotes: 1.7°C, 34.8 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: moving at basis of active chimney; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2100\_00194.jpg; identifiedBy: Magdalini Christodoulou, Terue C. Kihara; identificationRemarks: Identified only from imagery; identificationQualifier: ord. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 32



Figure 32. [doi](#)

Pantopoda ord. inc. in situ within the vent site 5 hydrothermal vent field in Cluster 11 of the INDEX area. Image corresponds with the data below (Image attribution: BGR).

## Phylum Bryozoa

### Class Gymnolaemata Allman, 1856

### Order Cheilostomatida Busk, 1852

### Cheilostomatida fam. indet. (DZMB\_2021\_0008)

#### Material

- a. taxonConceptID: Cheilostomatida fam. indet. (DZMB\_2021\_0008); kingdom: Animalia; phylum: Bryozoa; class: Gymnolaemata; order: Cheilostomatida; taxonRank: Order; scientificNameAuthorship: Busk, 1852; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2820; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 28; eventDate: 2013-12-17; eventTime: 9:26:37 am; year: 2013; fieldNumber: INDEX2013-62ROV; individualCount: 5; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-17\_09-26-37\_Sonne\_INDEX2013-2\_062ROV11\_Logo-2.jpg; identifiedBy: Dennis Gordon; identificationRemarks: Identified only from imagery; identificationQualifier: fam. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 33

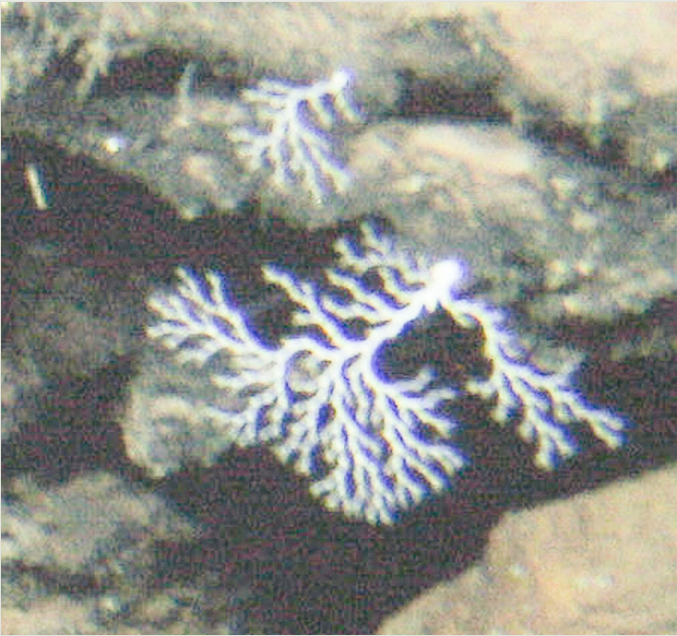


Figure 33. [doi](#)

Cheilostomatida fam. indet. (DZMB\_2021\_0008) in situ in the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR and GEOMAR).

### Cheilostomatida fam. indet. (DZMB\_2021\_0009)

#### Material

- a. taxonConceptID: Cheilostomatida fam. indet. (DZMB\_2021\_0009); kingdom: Animalia; phylum: Bryozoa; class: Gymnolaemata; order: Cheilostomatida; taxonRank: Order; scientificNameAuthorship: Busk, 1852; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 5; verbatimLocality: Cluster 11; maximumDepthInMeters: 2917; locationRemarks: FS Sonne Cruise INDEX2017 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 29; eventDate: 2017-09-27; eventTime: 9:16:24 am; year: 2017; fieldNumber: INDEX2017-94STR; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: BGR; occurrenceStatus: present; associatedMedia: IMG\_5416.jpg; identifiedBy: Dennis Gordon; identificationRemarks: Identified only from imagery; identificationQualifier: fam. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 34



Figure 34. [doi](#)

Cheilostomatida fam. indet. (DZMB\_2021\_0009) in situ close to the vent site 5 hydrothermal vent field in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Bifaxariidae Busk, 1884

### Genus *Bifaxaria* Busk, 1884

#### *Bifaxaria* gen. inc.

##### Material

- a. taxonConceptID: *Bifaxaria* gen. inc.; kingdom: Animalia; phylum: Bryozoa; class: Gymnolaemata; order: Cheilostomatida; family: Bifaxariidae; taxonRank: Genus; genus: *Bifaxaria*; scientificNameAuthorship: Busk, 1884; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 5; verbatimLocality: Cluster 11; maximumDepthInMeters: 2909; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 29; eventDate: 2018-11-29; eventTime: 10:01:21 am; year: 2018; fieldNumber: INDEX2018-75ROPOS; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2101\_00131.jpg; identifiedBy: Dennis Gordon; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 35



Figure 35. [doi](#)

*Bifaxaria* gen. inc. in situ close to the vent site 5 hydrothermal vent field in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Tessaradomidae Jullien, 1903

### Genus *Tessaradoma* Norman, 1869

#### *Tessaradoma* gen. inc.

##### Material

- a. taxonConceptID: *Tessaradoma* gen. inc.; kingdom: Animalia; phylum: Bryozoa; class: Gymnolaemata; order: Cheilostomatida; family: Tessaradomidae; taxonRank: Genus; genus: *Tessaradoma*; scientificNameAuthorship: Norman, 1869; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2823; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2013-12-15; eventTime: 7:25:31 am; year: 2013; fieldNumber: INDEX2013-57ROV; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-15\_07-25-31\_Sonne\_INDEX2013-2\_057ROV09\_Logo-2.jpg; identifiedBy: Dennis Gordon; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 36



Figure 36. [doi](#)

*Tessaradoma* gen. inc. in situ within the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR and GEOMAR).

## Phylum Chordata Haeckel, 1874

### Class Actinopterygii

### Order Anguilliformes

### Family Synaphobranchidae Johnson, 1862

### Synaphobranchidae gen. indet.

#### Material

- a. **taxonConceptID:** Synaphobranchidae gen. indet.; **kingdom:** Animalia; **phylum:** Chordata; **class:** Actinopterygii; **order:** Anguilliformes; **family:** Synaphobranchidae; **taxonRank:** Family; **scientificNameAuthorship:** Johnson, 1862; **waterBody:** Indian Ocean; **stateProvince:** South East Indian Ridge; **locality:** Vent site 6; **verbatimLocality:** Cluster 12; **maximumDepthInMeters:** 2479; **locationRemarks:** RV Pelagia Cruise INDEX2018 Leg 2; **geodeticDatum:** WGS84; **coordinateUncertaintyInMeters:** 24; **eventDate:** 2018-11-25; **eventTime:** 10:09:43 am; **year:** 2018; **fieldNumber:** INDEX2018-67ROPOS; **fieldNotes:** 1.8°C, 34.7 ppt; **individualCount:** 1; **lifeStage:** Adult; **preparations:** Imaged only; **behavior:** Swimming; **recordedBy:** ROPOS.COM; **occurrenceStatus:** present; **associatedMedia:** R2097\_00220.jpg; **identifiedBy:** Thomas D. Linley; **identificationRemarks:** Identified only from imagery; **identificationQualifier:** gen. indet.; **language:** en; **institutionCode:** DZMB; **datasetName:** INDEX; **basisOfRecord:** Human Observation

**Notes:** Fig. 37





Figure 37. [doi](#)

Synaphobranchidae gen. indet. in situ within the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Histiobranchus* Gill, 1883

### *Histiobranchus* gen. inc.

#### Material

- a. taxonConceptID: *Histiobranchus* gen. inc.; kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Anguilliformes; family: Synaphobranchidae; taxonRank: Genus; genus: *Histiobranchus*; scientificNameAuthorship: Gill, 1883; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Vent site 1; verbatimLocality: Cluster 4; maximumDepthInMeters: 3025; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2015-11-27; eventTime: 9:47:09 am; year: 2015; fieldNumber: INDEX2015-37ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1905\_00044.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 38





Figure 38. [doi](#)

*Histiobranchus* gen. inc. in situ within the vent site 1 area in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Ilyophis* Gilbert, 1891

### Synaphobranchidae *Ilyophis brunneus* fam. inc. Gilbert, 1891

#### Material

- a. scientificName: *Ilyophis brunneus*; taxonConceptID: Synaphobranchidae *Ilyophis brunneus* fam. inc.; kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Anguilliformes; family: Synaphobranchidae; taxonRank: Species; genus: *Ilyophis*; scientificNameAuthorship: Gilbert, 1891; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Kairei; verbatimLocality: Cluster 5; maximumDepthInMeters: 2498; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2013-12-05; eventTime: 10:02:51 am; year: 2013; fieldNumber: INDEX2013-28ROV; fieldNotes: 1.8°C; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-05\_10-02-51\_Sonne\_INDEX2013-2\_028ROV01\_Logo.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: fam. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 39



Figure 39. [doi](#)

Synphobranchidae *Ilyophis brunneus* fam. inc. in situ within the Kairei hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR and GEOMAR).

## Order Aulopiformes

### Family Bathysauridae Fowler, 1944

### Genus *Bathysaurus* Günther, 1878

### *Bathysaurus mollis* sp. inc. Günther, 1878

#### Material

- a. scientificName: *Bathysaurus mollis*; taxonConceptID: *Bathysaurus mollis* sp. inc.; kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Aulopiformes; family: Bathysauridae; taxonRank: Species; genus: *Bathysaurus*; scientificNameAuthorship: Günther, 1878; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Vent site 1; verbatimLocality: Cluster 4; maximumDepthInMeters: 3041; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2015-11-30; eventTime: 8:37:35 am; year: 2015; fieldNumber: INDEX2015-45ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on seafloor; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1907\_00295.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 40

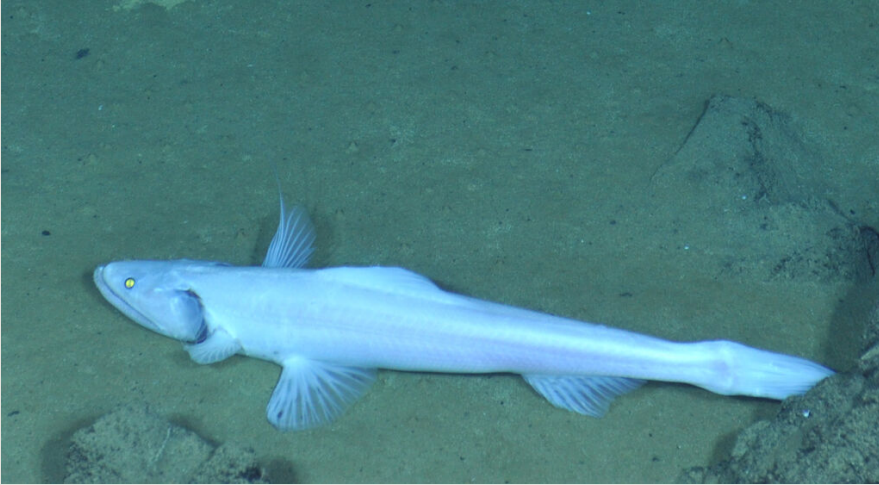


Figure 40. [doi](#)

*Bathysaurus mollis* sp. inc. in situ within the vent site 1 area in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Ipnopidae Gill, 1884

### Genus *Bathypterois* Günther, 1878

#### *Bathypterois* sp. indet.

##### Material

- a. taxonConceptID: *Bathypterois* sp. indet.; kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Aulopiformes; family: Ipnopidae; taxonRank: Genus; genus: *Bathypterois*; scientificNameAuthorship: Günther, 1878; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: EGS; verbatimLocality: Cluster 4; maximumDepthInMeters: 3301; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 31; eventDate: 2015-12-07; eventTime: 7:29:18 am; year: 2015; fieldNumber: INDEX2015-60ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1914\_00197.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 41



Figure 41. [doi](#)

*Bathypterois* sp. indet. in situ in the Edmond-vent site 2-vent site 7 area in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Ipnops* Günther, 1878

### *Ipnops agassizii* sp. inc. Garman, 1899

#### Material

- a. scientificName: *Ipnops agassizii*; taxonConceptID: *Ipnops agassizii* sp. inc.; kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Aulopiformes; family: Ipnopidae; taxonRank: Species; genus: *Ipnops*; scientificNameAuthorship: Garman, 1899; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Edmond; verbatimLocality: Cluster 4; maximumDepthInMeters: 3284; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; decimalLatitude: -23.8787; decimalLongitude: 69.6007; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 33; eventDate: 2013-12-09; eventTime: 1:46:37 am; year: 2013; fieldNumber: INDEX2013-38MFT; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on seafloor; recordedBy: BGR; occurrenceStatus: present; associatedMedia: 38MFT Fotos 2013-284.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 42



Figure 42. [doi](#)

*Ipnops agassizii* sp. inc. in situ close to the Edmond hydrothermal vent field in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Gadiformes

### Family Macrouridae Bonaparte, 1831

#### Gadiformes Macrouridae ord. inc. (DZMB\_2021\_0010)

##### Material

- a. taxonConceptID: Gadiformes Macrouridae ord. inc. (DZMB\_2021\_0010); kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Gadiformes; family: Macrouridae; taxonRank: Family; scientificNameAuthorship: Bonaparte, 1831; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2544; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 23; eventDate: 2018-11-21; eventTime: 6:23:52 am; year: 2018; fieldNumber: INDEX2018-59ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2093\_00612.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: ord. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 43





Figure 43. [doi](#)

Gadiformes Macrouridae ord. inc. (DZMB\_2021\_0010) in situ close to the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Gadiformes Macrouridae ord. inc. (DZMB\_2021\_0011)

### Material

- a. taxonConceptID: Gadiformes Macrouridae ord. inc. (DZMB\_2021\_0011); kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Gadiformes; family: Macrouridae; taxonRank: Family; scientificNameAuthorship: Bonaparte, 1831; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2463; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-11-20; eventTime: 10:43:48 am; year: 2018; fieldNumber: INDEX2018-57ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2092\_00558.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: ord. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 44



Figure 44. [doi](#)

Gadiformes Macrouridae ord. inc. (DZMB\_2021\_0011) in situ close to the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Coryphaenoides* Gunnerus, 1765

### *Coryphaenoides* gen. inc. (DZMB\_2021\_0012)

#### Material

- a. taxonConceptID: *Coryphaenoides* gen. inc. (DZMB\_2021\_0012); kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Gadiformes; family: Macrouridae; taxonRank: Genus; genus: *Coryphaenoides*; scientificNameAuthorship: Gunnerus, 1765; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 5; verbatimLocality: Cluster 11; maximumDepthInMeters: 2922; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 29; eventDate: 2018-11-29; eventTime: 5:20:34 am; year: 2018; fieldNumber: INDEX2018-75ROPOS; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2101\_00005.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 45





Figure 45. [doi](#)

*Coryphaenoides* gen. inc. (DZMB\_2021\_0012) in situ within the vent site 5 hydrothermal vent field in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### *Coryphaenoides* gen. inc. (DZMB\_2021\_0013)

#### Material

- a. taxonConceptID: *Coryphaenoides* gen. inc. (DZMB\_2021\_0013); kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Gadiformes; family: Macrouridae; taxonRank: Genus; genus: *Coryphaenoides*; scientificNameAuthorship: Gunnerus, 1765; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2462; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-11-20; eventTime: 7:23:30 am; year: 2018; fieldNumber: INDEX2018-57ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2092\_00403.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 46



Figure 46. [doi](#)

*Coryphaenoides* gen. inc. (DZMB\_2021\_0013) in situ close to the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### *Coryphaenoides armatus* sp. inc. (Hector, 1875)

#### Material

- a. scientificName: *Coryphaenoides armatus*; taxonConceptID: *Coryphaenoides armatus* sp. inc.; kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Gadiformes; family: Macrouridae; taxonRank: Species; genus: *Coryphaenoides*; scientificNameAuthorship: (Hector, 1875); waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2816; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2013-12-15; eventTime: 9:28:38 am; year: 2013; fieldNumber: INDEX2013-57ROV; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: BGR/GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-15\_09-28-38\_Sonne\_INDEX2013-2\_057ROV09\_Logo.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 47

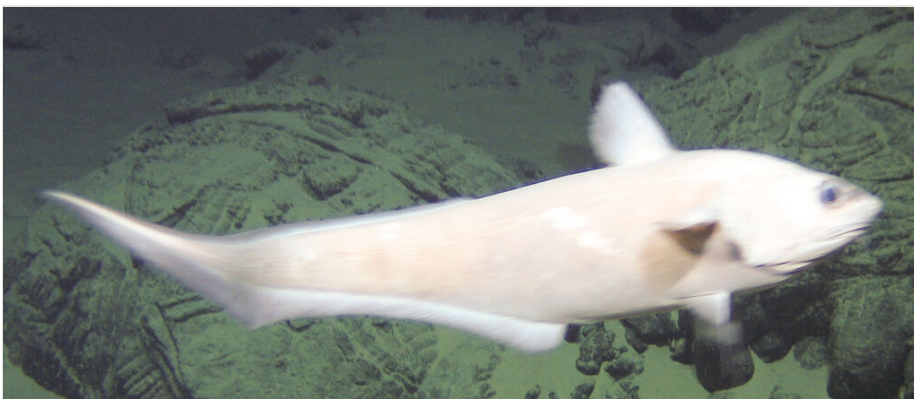


Figure 47. [doi](#)

*Coryphaenoides armatus* sp. inc. in situ within the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR and GEOMAR).

## *Coryphaenoides longifilis* sp. inc. Günther, 1877

### Material

- a. scientificName: *Coryphaenoides longifilis*; taxonConceptID: *Coryphaenoides longifilis* sp. inc.; kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Gadiformes; family: Macrouridae; taxonRank: Species; genus: *Coryphaenoides*; scientificNameAuthorship: Günther, 1877; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Kairei; verbatimLocality: Cluster 5; maximumDepthInMeters: 2554; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2013-12-05; eventTime: 9:26:25 am; year: 2013; fieldNumber: INDEX2013-28ROV; fieldNotes: 1.8°C; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-05\_09-26-25\_Sonne\_INDEX2013-2\_028ROV01\_Logo.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 48

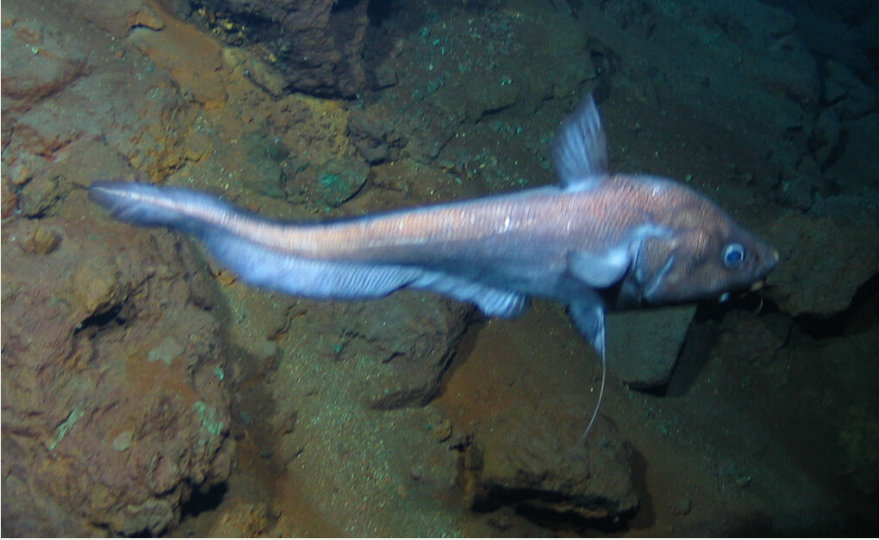


Figure 48. [doi](#)

*Coryphaenoides longifilis* sp. inc. in situ within the Kairei hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR and GEOMAR).

## Family Moridae Moreau, 1881

### Genus *Antimora* Günther, 1878

#### *Antimora rostrata* (Günther, 1878)

##### Material

- a. scientificName: *Antimora rostrata*; taxonConceptID: *Antimora rostrata*; kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Gadiformes; family: Moridae; taxonRank: Species; genus: *Antimora*; scientificNameAuthorship: (Günther, 1878); waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2281; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 23; eventDate: 2018-12-10; eventTime: 12:22:53 pm; year: 2018; fieldNumber: INDEX2018-97ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2106\_00291.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 49



Figure 49. [doi](#)

*Antimora rostrata* in situ in the surrounding area of the vent site 4 hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Lophiiformes

### Family Chaunacidae Gill, 1863

### Genus *Chaunacops* Garman, 1899

### *Chaunacops* gen. inc.

#### Material

- a. taxonConceptID: *Chaunacops* gen. inc.; kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Lophiiformes; family: Chaunacidae; taxonRank: Genus; genus: *Chaunacops*; scientificNameAuthorship: Garman, 1899; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 5; verbatimLocality: Cluster 11; maximumDepthInMeters: 2922; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 29; eventDate: 2018-11-29; eventTime: 6:55:14 am; year: 2018; fieldNumber: INDEX2018-75ROPOS; fieldNotes: 1.7°C, 34.7 ppt; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2101\_00051.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 50





Figure 50. [doi](#)

*Chaunacops* gen. inc. in situ in the surrounding area of the vent site 5 hydrothermal vent field in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Notacanthiformes L. S. Berg, 1947

### Notacanthiformes ord. inc.

#### Material

- a. taxonConceptID: Notacanthiformes ord. inc.; kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Notacanthiformes; taxonRank: Order; scientificNameAuthorship: L. S. Berg, 1947; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Edmond; verbatimLocality: Cluster 4; maximumDepthInMeters: 3252; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; decimalLatitude: -23.8769; decimalLongitude: 69.6009; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 33; eventDate: 2013-12-10; eventTime: 10:41:13 pm; year: 2013; fieldNumber: INDEX2013-44MFT; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: BGR; occurrenceStatus: present; associatedMedia: 44MFT Fotos 2013-298.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: ord. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 51





Figure 51. [doi](#)

Notacanthiformes ord. inc. in situ in the surrounding area of the Edmond hydrothermal vent field in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Halosauridae Günther, 1868

### Genus *Aldrovandia* Goode & Bean, 1896

#### *Aldrovandia affinis* gen. inc. (Günther, 1877)

##### Material

- a. scientificName: *Aldrovandia affinis*; taxonConceptID: *Aldrovandia affinis* gen. inc.; kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Notacanthiformes; family: Halosauridae; taxonRank: Species; genus: *Aldrovandia*; scientificNameAuthorship: (Günther, 1877); waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2494; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-25; eventTime: 10:02:00 am; year: 2018; fieldNumber: INDEX2018-67ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2097\_00204.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 52



Figure 52. [doi](#)

*Aldrovandia affinis* gen. inc. in situ in the surrounding area of the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Halosauropsis* Collett, 1896

### *Halosauropsis macrochir* gen. inc. (Günther, 1878)

#### Material

- a. scientificName: *Halosauropsis macrochir*; taxonConceptID: *Halosauropsis macrochir* gen. inc.; kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Notacanthiformes; family: Halosauridae; taxonRank: Species; genus: *Halosauropsis*; scientificNameAuthorship: (Günther, 1878); waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: RTJ; verbatimLocality: Cluster 5; maximumDepthInMeters: 2431; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-12-03; eventTime: 9:26:58 am; year: 2018; fieldNumber: INDEX2018-82ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2103\_00196.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 53



Figure 53. [doi](#)

*Halosauropsis macrochir* gen. inc. in situ at the Rodriguez Triple Junction in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Ophidiiformes

### Family Ophidiidae Rafinesque, 1810

#### Ophidiidae gen. indet. (DZMB\_2021\_0014)

##### Material

- a. taxonConceptID: Ophidiidae gen. indet. (DZMB\_2021\_0014); kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Ophidiiformes; family: Ophidiidae; taxonRank: Family; scientificNameAuthorship: Rafinesque, 1810; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2347; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-25; eventTime: 6:17:39 am; year: 2018; fieldNumber: INDEX2018-67ROPOS; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2097\_00050.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 54



Figure 54. [doi](#)

Ophiidiidae gen. indet. (DZMB\_2021\_0014) in situ close to the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### Ophiidiidae gen. indet. (DZMB\_2021\_0015)

#### Material

- a. taxonConceptID: Ophiidiidae gen. indet. (DZMB\_2021\_0015); kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Ophiidiiformes; family: Ophiidiidae; taxonRank: Family; scientificNameAuthorship: Rafinesque, 1810; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: RTJ; verbatimLocality: Cluster 5; maximumDepthInMeters: 2415; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-12-03; eventTime: 6:11:25 am; year: 2018; fieldNumber: INDEX2018-82ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2103\_00080.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 55



Figure 55. [doi](#)

Ophidiidae gen. indet. (DZMB\_2021\_0015) in situ at the Rodriguez Triple Junction in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Ophidiidae fam. inc. (DZMB\_2021\_0016)

### Material

- a. taxonConceptID: Ophidiidae fam. inc. (DZMB\_2021\_0016); kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Ophidiiformes; family: Ophidiidae; taxonRank: Family; scientificNameAuthorship: Rafinesque, 1810; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Kairei; verbatimLocality: Cluster 5; maximumDepthInMeters: 2687; locationRemarks: RV Pourquoi pas? Cruise INDEX2016 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 28; eventDate: 2016-01-09; eventTime: 12:15:10 pm; year: 2016; fieldNumber: INDEX2016-02ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: IFREMER; occurrenceStatus: present; associatedMedia: 160109121510914\_02\_1080i Kopie.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: fam. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 56





Figure 56. [doi](#)

Ophidiidae fam. inc. (DZMB\_2021\_0016) in situ in the surrounding area of the Kairei hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Acanthonus* Günther, 1878

### *Acanthonus armatus* gen. inc. Günther, 1878

#### Material

- a. scientificName: *Acanthonus armatus*; taxonConceptID: *Acanthonus armatus* gen. inc.; kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Ophidiiformes; family: Ophidiidae; taxonRank: Species; genus: *Acanthonus*; scientificNameAuthorship: Günther, 1878; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2544; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 23; eventDate: 2018-11-21; eventTime: 6:20:48 am; year: 2018; fieldNumber: INDEX2018-59ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2093\_00611.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 57





Figure 57. [doi](#)

*Acanthonus armatus* gen. inc. in situ in the surrounding area of the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Barathrites* Zugmayer, 1911

### *Barathrites iris* sp. inc. Zugmayer, 1911

#### Material

- a. scientificName: *Barathrites iris*; taxonConceptID: *Barathrites iris* gen. inc.; kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Ophidiiformes; family: Ophidiidae; taxonRank: Species; genus: *Barathrites*; scientificNameAuthorship: Zugmayer, 1911; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Vent site 1; verbatimLocality: Cluster 4; maximumDepthInMeters: 3039; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2015-12-02; eventTime: 7:57:31 am; year: 2015; fieldNumber: INDEX2015-49ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1909\_00549.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 58



Figure 58. [doi](#)

*Barathrites iris* gen. inc. in situ within the vent site 1 area in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Bassozetus* Gill, 1883

### *Bassozetus* gen. inc.

#### Material

- a. taxonConceptID: *Bassozetus* gen. inc.; kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Ophidiiformes; family: Ophidiidae; taxonRank: Genus; genus: *Bassozetus*; scientificNameAuthorship: Gill, 1883; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: EGS; verbatimLocality: Cluster 4; maximumDepthInMeters: 3314; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 33; eventDate: 2015-12-06; eventTime: 11:05:00 am; year: 2015; fieldNumber: INDEX2015-58ROV; fieldNotes: 1.9°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1913\_01969.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 59



Figure 59. [doi](#)

*Bassozetus* gen. inc. in situ in the Edmond-vent site 2-vent site 7 area in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Spectrunculus* Jordan & Thompson, 1914

### *Spectrunculus crassus* sp. inc. (Vaillant, 1888)

#### Material

- a. scientificName: *Spectrunculus crassus*; taxonConceptID: *Spectrunculus crassus* sp. inc.; kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Ophidiiformes; family: Ophidiidae; taxonRank: Species; genus: *Spectrunculus*; scientificNameAuthorship: (Vaillant, 1888); waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2462; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-24; eventTime: 10:27:36 am; year: 2018; fieldNumber: INDEX2018-65ROPOS; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2096\_00237.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 60



Figure 60. [doi](#)

*Spectrunculus crassus* sp. inc. in situ in the surrounding area of the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### *Spectrunculus grandis* sp. inc. (Günther, 1877)

#### Material

- a. scientificName: *Spectrunculus grandis*; taxonConceptID: *Spectrunculus grandis* sp. inc.; kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Ophidiiformes; family: Ophidiidae; taxonRank: Species; genus: *Spectrunculus*; scientificNameAuthorship: (Günther, 1877); waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 5; verbatimLocality: Cluster 11; maximumDepthInMeters: 2896; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2018-12-01; eventTime: 6:36:14 am; year: 2018; fieldNumber: INDEX2018-80ROPOS; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2102\_00053.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 61





Figure 61. [doi](#)

*Spectrunculus grandis* sp. inc. in situ in the surrounding area of the vent site 5 hydrothermal vent field in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Xyelacyba* Cohen, 1961

### *Xyelacyba myersi* gen. inc. Cohen, 1961

#### Material

- a. scientificName: *Xyelacyba myersi*; taxonConceptID: *Xyelacyba myersi* gen. inc.; kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Ophidiiformes; family: Ophidiidae; taxonRank: Species; genus: *Xyelacyba*; scientificNameAuthorship: Cohen, 1961; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: RTJ; verbatimLocality: Cluster 5; maximumDepthInMeters: 2304; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-12-03; eventTime: 5:10:56 am; year: 2018; fieldNumber: INDEX2018-82ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2103\_00024.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 62



Figure 62. [doi](#)

*Xyelacyba myersi* gen. inc. in situ in the area of the Rodriguez Triple Junction in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Perciformes

### Family Zoarcidae Swainson, 1839

### Genus *Pachycara* Zugmayer, 1911

### *Pachycara angelo* Thiel, Knebelsberger, Kihara & Gerdes, 2021

#### Material

- a. scientificName: *Pachycara angelo*; taxonConceptID: *Pachycara angelo*; taxonID: I18\_1240; kingdom: Animalia; phylum: Chordata; class: Actinopterygii; order: Perciformes; family: Zoarcidae; taxonRank: Species; genus: *Pachycara*; scientificNameAuthorship: Thiel, Knebelsberger, Kihara & Gerdes, 2021; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 5; verbatimLocality: Cluster 11; maximumDepthInMeters: 2908; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 29; eventDate: 2018-11-28; eventTime: 10:53:01 am; year: 2018; fieldNumber: INDEX2018-73ROPOS; fieldNotes: 1.7°C, 34.8 ppt; individualCount: 1; lifeStage: Adult; preparations: DNA voucher and animal stored in 96% ethanol; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2100\_00194.jpg; associatedOccurrences: none; associatedSequences: COI; identifiedBy: Thomas D. Linley; identificationRemarks: Identified by morphology and DNA of collected specimen; language: en; institutionCode: DZMB; collectionCode: I18\_073RO\_SG1\_001; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 63





Figure 63. [doi](#)

*Pachycara angeloi* in situ (a) and sampled specimen (b) within the vent site 5 hydrothermal vent field in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Class Ascidiacea Blainville, 1824

### Order Phlebobranchia Lahille, 1886

#### Family Octacnemidae

#### Octacnemidae gen. indet.

##### Material

- a. `taxonConceptID: Octacnemidae gen. indet.; kingdom: Animalia; phylum: Chordata; class: Ascidiacea; order: Phlebobranchia; family: Octacnemidae; taxonRank: Family; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2839; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 28; eventDate: 2013-12-16; eventTime: 6:40:29 am; year: 2013; fieldNumber: INDEX2013-59ROV; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-16_06-40-29_Sonne_INDEX2013-2_059ROV10_Logo.jpg; identifiedBy: Karen Sanamyan; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation`

Notes: Fig. 64



Figure 64. [doi](#)

Octacnemidae gen. indet. in situ in the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR and GEOMAR).

## Order Stoliobranchia Lahille, 1886

### Family Pyuridae Hartmeyer, 1908

#### Genus *Culeolus* Herdman, 1881

#### *Culeolus* spp. indet.

##### Material

- a. taxonConceptID: *Culeolus* spp. indet.; kingdom: Animalia; phylum: Chordata; class: Ascidiacea; order: Stolidobranchia; family: Pyuridae; taxonRank: Genus; genus: *Culeolus*; scientificNameAuthorship: Herdman, 1881; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2508; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-12-04; eventTime: 8:09:09 am; year: 2018; fieldNumber: INDEX2018-85ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2104\_00106.jpg; identifiedBy: Karen Sanamyan; identificationRemarks: Identified only from imagery; identificationQualifier: spp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 65



Figure 65. [doi](#)

*Culeolus* sp. indet. in situ in the surrounding area of the vent site 4 hydrothermal vent field in Cluster 5 of the INDEX area. The individual is an example for the species complex *Culeolus* spp. indet., with more images and entries in the supplementary imagery and data table. Image corresponds with the data (Image attribution: BGR).

## Class Elasmobranchii

### Order Rajiformes

#### Family Arhynchobatidae Fowler, 1934

#### Genus *Bathyraja* Ishiyama, 1958

#### *Bathyraja tunae* sp. inc. Stehmann, 2005

##### Material

- a. scientificName: *Bathyraja tunae*; taxonConceptID: *Bathyraja tunae* sp. inc.; kingdom: Animalia; phylum: Chordata; class: Elasmobranchii; order: Rajiformes; family: Arhynchobatidae; taxonRank: Species; genus: *Bathyraja*; scientificNameAuthorship: Stehmann, 2005; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2482; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 23; eventDate: 2018-12-10; eventTime: 10:16:47 am; year: 2018; fieldNumber: INDEX2018-97ROPOS; fieldNotes: 1.8°C, 34.7 ppt; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2106\_00207.jpg; identifiedBy: Thomas D. Linley; identificationRemarks: Identified only from imagery; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 66

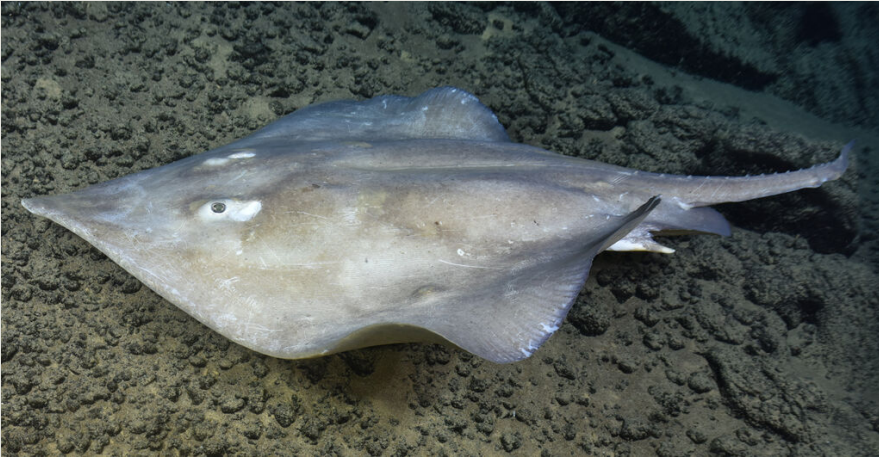


Figure 66. [doi](#)

*Bathyraja tunae* sp. inc. in situ in the surrounding area of the vent site 4 hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Phylum Cnidaria Hatschek, 1888

### Cnidaria cl. indet.

#### Material

- a. taxonConceptID: Cnidaria cl. indet.; kingdom: Animalia; phylum: Cnidaria; class: -; order: -; family: -; taxonRank: Phylum; genus: -; scientificNameAuthorship: Hatschek, 1888; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: SEIR; verbatimLocality: Cluster 6; maximumDepthInMeters: 3582; locationRemarks: RV Pelagia Cruise INDEX2014 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 37; eventDate: 2014-12-04; eventTime: 1:11:00 am; year: 2014; fieldNumber: INDEX2014-55VS; fieldNotes: 1.8°C; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: NIOZ; occurrenceStatus: present; associatedMedia: 20141204011100792.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: cl. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 67



Figure 67. [doi](#)

Cnidaria cl. indet. in situ at the South East Indian Ridge in Cluster 6 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Class Anthozoa Ehrenberg, 1834

### Subclass Ceriantharia Perrier, 1893

#### Ceriantharia ord. indet.

##### Material

- a. taxonConceptID: Ceriantharia ord. indet.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: -; family: -; taxonRank: Subclass; genus: -; scientificNameAuthorship: Perrier, 1893; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Kairei; verbatimLocality: Cluster 5; maximumDepthInMeters: 2148; locationRemarks: RV Pourquoi pas? Cruise INDEX2016 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2016-01-11; eventTime: 6:55:33 am; year: 2016; fieldNumber: INDEX2016-06ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to hard substrates; recordedBy: IFREMER; occurrenceStatus: present; associatedMedia: 160111221731A Kopie.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: ord. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 68





Figure 68. [doi](#)

Ceriantharia ord. indet. in situ at the Rodriguez Triple Junction within the Kairei hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Spirularia den Hartog, 1977

### Spirularia fam. indet.

#### Material

- a. taxonConceptID: Spirularia fam. indet.; taxonID: I15\_191; scientificNameID: -; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Spirularia; family: -; taxonRank: Order; genus: -; scientificNameAuthorship: den Hartog, 1977; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: EGS; verbatimLocality: Cluster 4; maximumDepthInMeters: 3223; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; decimalLatitude: -23.9206; decimalLongitude: 69.6157; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 31; eventDate: 2015-12-07; eventTime: 6:25:26 am; year: 2015; fieldNumber: INDEX2015-60ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: DNA voucher and animal stored in 96% ethanol; behavior: on sediment; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1914\_00139.jpg; associatedSequences: COI; identifiedBy: Tina Molodtsova; identificationRemarks: Identified by morphology and DNA of collected specimen; identificationQualifier: fam. indet.; language: en; institutionCode: DZMB; collectionCode: I15\_60RO\_S\_2; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 69





Figure 69. [doi](#)

Spirularia fam. indet. in situ at the Central Indian Ridge in the Edmond-Vent site 2-vent site 7 area in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Actiniaria Hertwig, 1882

### Actiniaria fam. indet. (DZMB\_2021\_0017)

#### Material

- a. taxonConceptID: Actiniaria fam. indet. (DZMB\_2021\_0017); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actiniaria; family: -; taxonRank: Order; genus: -; scientificNameAuthorship: Hertwig, 1882; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: EGS; verbatimLocality: Cluster 4; maximumDepthInMeters: 3220; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 33; eventDate: 2015-12-05; eventTime: 10:48:55 am; year: 2015; fieldNumber: INDEX2015-56ROV; fieldNotes: 1.8°C; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to hard substrates; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1912\_01544.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: fam. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 70



Figure 70. [doi](#)

Actiniaria fam. indet. (DZMB\_2021\_0017) in situ at the Central Indian Ridge in the Edmond-Vent site 2-vent site 7 area in Cluster 4 of the INDEX area. Image corresponds with the data below (Image attribution: BGR).

### Actiniaria fam. indet. (DZMB\_2021\_0018)

#### Material

- a. taxonConceptID: Actiniaria fam. indet. (DZMB\_2021\_0018); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actiniaria; family: -; taxonRank: Order; genus: -; scientificNameAuthorship: Hertwig, 1882; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: SEIR; verbatimLocality: Cluster 11; maximumDepthInMeters: 2899; locationRemarks: FS Sonne Cruise INDEX2017 Leg 1; decimalLatitude: -27.2565; decimalLongitude: 72.7243; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 29; eventDate: 2017-09-24; eventTime: 3:26:59 pm; year: 2017; fieldNumber: INDEX2017-83STR; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to hard substrates; recordedBy: BGR; occurrenceStatus: present; associatedMedia: IMG\_4539.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: fam. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 71



Figure 71. [doi](#)

Actiniaria fam. indet. (DZMB\_2021\_0018) in situ at the South East Indian Ridge in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### Actiniaria fam. indet. (DZMB\_2021\_0019)

#### Material

- a. taxonConceptID: Actiniaria fam. indet. (DZMB\_2021\_0019); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actiniaria; family: -; taxonRank: Order; genus: -; scientificNameAuthorship: Hertwig, 1882; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Vent site 1; verbatimLocality: Cluster 4; maximumDepthInMeters: 3048; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2015-12-02; eventTime: 7:31:44 am; year: 2015; fieldNumber: INDEX2015-49ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to hard substrates; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1909\_00494-4.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: fam. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 72



Figure 72. [doi](#)

Actiniaria fam. indet. (DZMB\_2021\_0019) in situ at the Central Indian Ridge within Vent site 1 in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### Actiniaria fam. indet. (DZMB\_2021\_0020)

#### Material

- a. taxonConceptID: Actiniaria fam. indet. (DZMB\_2021\_0020); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actiniaria; family: -; taxonRank: Order; genus: -; scientificNameAuthorship: Hertwig, 1882; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Vent site 1; verbatimLocality: Cluster 4; maximumDepthInMeters: 3065; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2015-12-01; eventTime: 6:22:02 am; year: 2015; fieldNumber: INDEX2015-47ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to hard substrates; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1908\_00374.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: fam. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 73



Figure 73. [doi](#)

Actiniaria fam. indet. (DZMB\_2021\_0020) in situ at the Central Indian Ridge within Vent site 1 in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### Actiniaria fam. indet. (DZMB\_2021\_0021)

#### Material

- a. taxonConceptID: Actiniaria fam. indet. (DZMB\_2021\_0021); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actiniaria; family: -; taxonRank: Order; genus: -; scientificNameAuthorship: Hertwig, 1882; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Edmond; verbatimLocality: Cluster 4; maximumDepthInMeters: 3301; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; decimalLatitude: -23.8763; decimalLongitude: 69.5966; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 33; eventDate: 2013-12-09; eventTime: 12:20:26 am; year: 2013; fieldNumber: INDEX2013-38MFT; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: BGR; occurrenceStatus: present; associatedMedia: 38MFT Fotos 2013-9.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: fam. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 74





Figure 74. [doi](#)

Actiniaria fam. indet. (DZMB\_2021\_0021) in situ at the Central Indian Ridge within the Edmond hydrothermal vent field in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Actiniaria fam. indet. (DZMB\_2021\_0022)

### Material

- a. taxonConceptID: Actiniaria fam. indet. (DZMB\_2021\_0022); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actiniaria; family: -; taxonRank: Order; genus: -; scientificNameAuthorship: Hertwig, 1882; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: SEIR; verbatimLocality: Cluster 11; maximumDepthInMeters: 2859; locationRemarks: FS Sonne Cruise INDEX2017 Leg 1; decimalLatitude: -27.2462; decimalLongitude: 72.7151; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 29; eventDate: 2017-09-24; eventTime: 1:39:04 pm; year: 2017; fieldNumber: INDEX2017-83STR; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on basalt/ sediment; recordedBy: BGR; occurrenceStatus: present; associatedMedia: IMG\_3346.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: fam. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 75

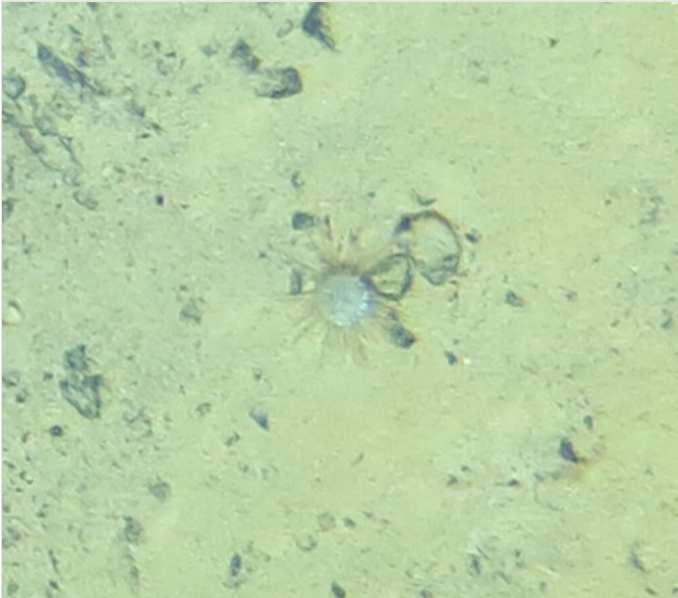


Figure 75. [doi](#)

Actinaria fam. indet. (DZMB\_2021\_0022) in situ at the South East Indian Ridge in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### Actinaria fam. indet. (DZMB\_2021\_0023)

#### Material

- a. taxonConceptID: Actinaria fam. indet. (DZMB\_2021\_0023); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actinaria; family: -; taxonRank: Order; genus: -; scientificNameAuthorship: Hertwig, 1882; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Edmond; verbatimLocality: Cluster 4; maximumDepthInMeters: 3311; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; decimalLatitude: -23.8764; decimalLongitude: 69.5969; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 33; eventDate: 2013-12-09; eventTime: 12:27:34 am; year: 2013; fieldNumber: INDEX2013-38MFT; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on basalt/sediment; recordedBy: BGR; occurrenceStatus: present; associatedMedia: 38MFT Fotos 2013-31.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: fam. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 76

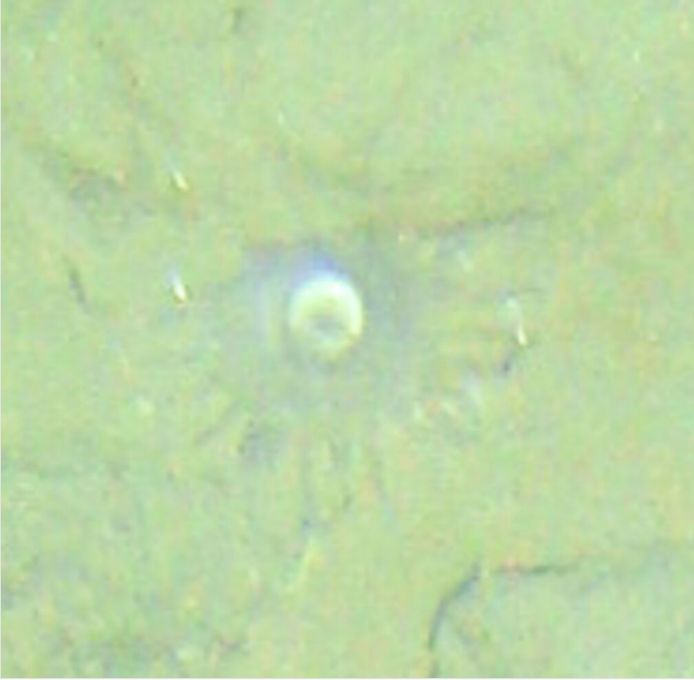


Figure 76. [doi](#)

Actinaria fam. indet. (DZMB\_2021\_0023) in situ at the Central Indian Ridge within the Edmond hydrothermal vent field in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Actinaria fam. indet. (DZMB\_2021\_0024)

### Material

- a. taxonConceptID: Actinaria fam. indet. (DZMB\_2021\_0024); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actinaria; family: -; taxonRank: Order; genus: -; scientificNameAuthorship: Hertwig, 1882; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Edmond; verbatimLocality: Cluster 4; maximumDepthInMeters: 3327; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; decimalLatitude: -23.8792; decimalLongitude: 69.5965; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 33; eventDate: 2013-12-09; eventTime: 2:57:30 am; year: 2013; fieldNumber: INDEX2013-38MFT; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 2; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: BGR; occurrenceStatus: present; associatedMedia: 38MFT Fotos 2013-471-3.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: fam. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 77

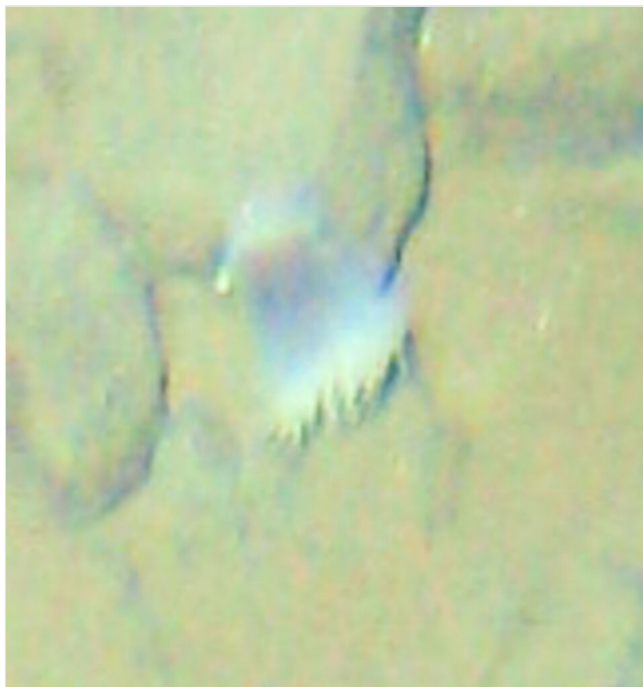


Figure 77. [doi](#)

Actiniaria fam. indet. (DZMB\_2021\_0024) in situ at the Central Indian Ridge within the Edmond hydrothermal vent field in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Actiniaria fam. indet. (DZMB\_2021\_0025)

### Material

- a. taxonConceptID: Actiniaria fam. indet. (DZMB\_2021\_0025); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actiniaria; family: -; taxonRank: Order; genus: -; scientificNameAuthorship: Hertwig, 1882; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Vent site 1; verbatimLocality: Cluster 4; maximumDepthInMeters: 3024; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2015-11-29; eventTime: 9:13:39 am; year: 2015; fieldNumber: INDEX2015-43ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to sulphides/ basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1906\_00149-2.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: fam. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 78



Figure 78. [doi](#)

Actinaria fam. indet. (DZMB\_2021\_0025) in situ at the Central Indian Ridge within Vent site 1 in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Actinoscyphiidae Stephenson, 1920

### Actinoscyphiidae gen. indet. (DZMB\_2021\_0026)

#### Material

- a. taxonConceptID: Actinoscyphiidae gen. indet. (DZMB\_2021\_0026); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actiniaria; family: Actinoscyphiidae; taxonRank: Family; genus: -; scientificNameAuthorship: Stephenson, 1920; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Vent site 1; verbatimLocality: Cluster 4; maximumDepthInMeters: 3035; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2015-11-29; eventTime: 8:51:41 am; year: 2015; fieldNumber: INDEX2015-43ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to hard substrates; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1906\_00140-3.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 79





Figure 79. [doi](#)

Actinoscyphiidae gen. indet. (DZMB\_2021\_0026) in situ at the Central Indian Ridge within Vent site 1 in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Actinoscyphiidae gen. indet. (DZMB\_2021\_0027)

### Material

- a. taxonConceptID: Actinoscyphiidae gen. indet. (DZMB\_2021\_0027); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actiniaria; family: Actinoscyphiidae; taxonRank: Family; genus: -; scientificNameAuthorship: Stephenson, 1920; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2386; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-23; eventTime: 7:10:30 am; year: 2018; fieldNumber: INDEX2018-63ROPOS; fieldNotes: 1.8°C; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Attached to coral stalk; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2095\_00100-2.jpg; associatedOccurrences: Isididae *Acanella* gen. inc.; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 80



Figure 80. [doi](#)

Actinoscyphiidae gen. indet. (DZMB\_2021\_0027) in situ at the South East Indian Ridge within Vent site 6 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Actinoscyphia* Stephenson, 1920

### *Actinoscyphia* sp. indet.

#### Material

- a. taxonConceptID: *Actinoscyphia* sp. indet.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actiniaria; family: Actinoscyphiidae; taxonRank: Genus; genus: *Actinoscyphia*; scientificNameAuthorship: Stephenson, 1920; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2661; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-12-09; eventTime: 9:21:20 am; year: 2018; fieldNumber: INDEX2018-95ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Attached to coral stalk; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2105\_00314-2.jpg; associatedOccurrences: Isididae *Keratoisis* gen. inc.; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 81



Figure 81. [doi](#)

*Actinoscyphia* sp. indet. in situ at the Rodriguez Triple Junction within Vent site 4 in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Actinostolidae Carlgren, 1932

### *Actinostolidae* gen. indet.

#### Material

- a. taxonConceptID: Actinostolidae gen. indet.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actiniaria; family: Actinostolidae; taxonRank: Family; genus: -; scientificNameAuthorship: Carlgren, 1932; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2485; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-25; eventTime: 11:37:11 am; year: 2018; fieldNumber: INDEX2018-67ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to hard substrates; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2097\_00308.jpg; associatedOccurrences: Polynoidae gen. indet. (commensal); identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 82



Figure 82. [doi](#)

Actinostolidae gen. indet. in situ at the South East Indian Ridge within Vent site 6 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Actinostola* Verrill, 1883

### *Actinostola* sp. indet. (DZMB\_2021\_0028)

#### Material

- a. taxonConceptID: *Actinostola* sp. indet. (DZMB\_2021\_0028); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actiniaria; family: Actinostolidae; taxonRank: Genus; genus: *Actinostola*; scientificNameAuthorship: Verrill, 1883; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 5; verbatimLocality: Cluster 11; maximumDepthInMeters: 2991; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2018-12-01; eventTime: 8:42:41 am; year: 2018; fieldNumber: INDEX2018-80ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to hard substrates; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2102\_00166.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 83





Figure 83. [doi](#)

*Actinostola* sp. indet. (DZMB\_2021\_0028) in situ at the South East Indian Ridge within Vent site 5 in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### ***Actinostola* sp. indet. (DZMB\_2021\_0029)**

#### **Material**

- a. taxonConceptID: *Actinostola* sp. indet. (DZMB\_2021\_0029); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actiniaria; family: Actinostolidae; taxonRank: Genus; genus: *Actinostola*; scientificNameAuthorship: Verrill, 1883; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 5; verbatimLocality: Cluster 11; maximumDepthInMeters: 2910; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 29; eventDate: 2018-11-28; eventTime: 6:11:14 am; year: 2018; fieldNumber: INDEX2018-73ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to hard substrates; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2100\_00020.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery - burrowing morphotype; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 84





Figure 84. [doi](#)

*Actinostola* sp. in det. (DZMB\_2021\_0029) in situ at the South East Indian Ridge within the Vent site 5 in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### *Actinostola* sp. in det. (DZMB\_2021\_0030)

#### Material

- a. taxonConceptID: *Actinostola* sp. in det. (DZMB\_2021\_0030); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actiniaria; family: Actinostolidae; taxonRank: Genus; genus: *Actinostola*; scientificNameAuthorship: Verrill, 1883; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Vent site 1; verbatimLocality: Cluster 4; maximumDepthInMeters: 3023; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2015-11-29; eventTime: 8:40:12 am; year: 2015; fieldNumber: INDEX2015-43ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to hard substrates; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1906\_00139.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: sp. in det.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 85



Figure 85. [doi](#)

*Actinostola* sp. indet. (DZMB\_2021\_0030) in situ at the Central Indian Ridge within Vent site 1 in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### ***Actinostola* sp. indet. (DZMB\_2021\_0031)**

#### **Material**

- a. taxonConceptID: *Actinostola* sp. indet. (DZMB\_2021\_0031); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actiniaria; family: Actinostolidae; taxonRank: Genus; genus: *Actinostola*; scientificNameAuthorship: Verrill, 1883; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 5; verbatimLocality: Cluster 11; maximumDepthInMeters: 2408; locationRemarks: FS Sonne Cruise INDEX2017 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 29; eventDate: 2017-09-27; eventTime: 9:16:09 am; year: 2017; fieldNumber: INDEX2017-94STR; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on basalt/ sediment; recordedBy: BGR; occurrenceStatus: present; associatedMedia: IMG\_5410.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

**Notes:** Fig. 86

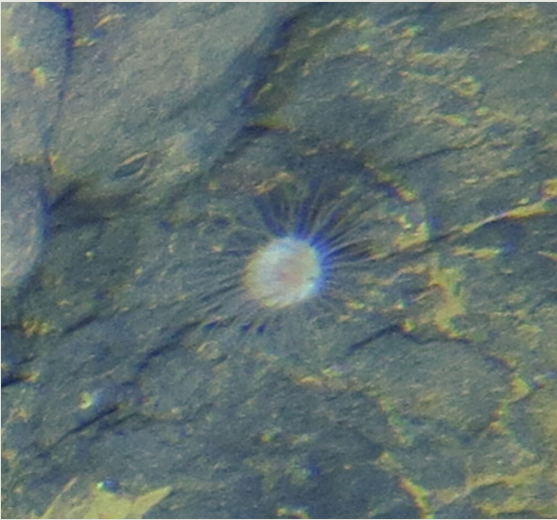


Figure 86. [doi](#)

*Actinostola* sp. indet. (DZMB\_2021\_0031) in situ at the South East Indian Ridge within Vent site 5 in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Bathypheiliidae Carlgren, 1932

### Genus *Bathypheilia* Carlgren, 1932

#### *Bathypheilia* sp. indet. (DZMB\_2021\_0032)

##### Material

- a. taxonConceptID: *Bathypheilia* sp. indet. (DZMB\_2021\_0032); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actiniaria; family: Bathypheiliidae; taxonRank: Genus; genus: *Bathypheilia*; scientificNameAuthorship: Carlgren, 1932; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: SEIR; verbatimLocality: Cluster 11; maximumDepthInMeters: 2784; locationRemarks: FS Sonne Cruise INDEX2017 Leg 1; decimalLatitude: -27.2562; decimalLongitude: 72.7216; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 29; eventDate: 2017-09-25; eventTime: 3:51:39 am; year: 2017; fieldNumber: INDEX2017-86STR; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 2; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: BGR; occurrenceStatus: present; associatedMedia: IMG\_5093.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 87

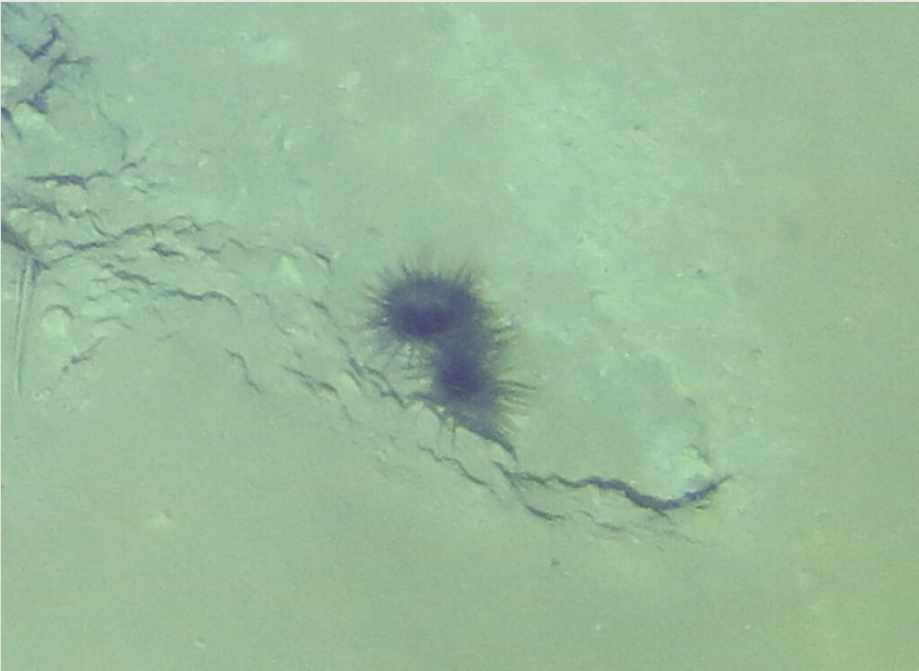


Figure 87. [doi](#)

*BathypHELLIA* sp. indet. (DZMB\_2021\_0032) in situ at the South East Indian Ridge in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### ***BathypHELLIA* sp. indet. (DZMB\_2021\_0033)**

#### **Material**

- a. taxonConceptID: *BathypHELLIA* sp. indet. (DZMB\_2021\_0033); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actiniaria; family: BathypHELLIIDAE; taxonRank: Genus; genus: *BathypHELLIA*; scientificNameAuthorship: Carlgren, 1932; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 5; verbatimLocality: Cluster 11; maximumDepthInMeters: 2920; locationRemarks: FS Sonne Cruise INDEX2017 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 29; eventDate: 2017-09-27; eventTime: 9:16:42 am; year: 2017; fieldNumber: INDEX2017-94STR; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 3; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: BGR; occurrenceStatus: present; associatedMedia: IMG\_5423.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

**Notes:** Fig. 88



Figure 88. [doi](#)

*BathypHELLIA* sp. indet. (DZMB\_2021\_0033) in situ at the South East Indian Ridge within Vent site 5 in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Hormathiidae Carlgren, 1932

### Genus *Chondrophellia* Carlgren, 1925

#### *Chondrophellia* sp. indet.

##### Material

- a. taxonConceptID: *Chondrophellia* sp. indet.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actiniaria; family: Hormathiidae; taxonRank: Genus; genus: *Chondrophellia*; scientificNameAuthorship: Carlgren, 1925; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Vent site 1; verbatimLocality: Cluster 4; maximumDepthInMeters: 3049; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2015-12-02; eventTime: 7:40:38 am; year: 2015; fieldNumber: INDEX2015-49ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to sulphides; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1909\_00519.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 89





Figure 89. [doi](#)

*Chondrophellia* sp. indet. in situ at the Central Indian Ridge within Vent site 1 in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Kadosactinidae Riemann-Zürneck, 1991

### Genus *Maractis* Fautin & Barber, 1999

#### *Maractis* sp. indet.

##### Material

- a. taxonConceptID: *Maractis* sp. indet.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actiniaria; family: Kadosactinidae; taxonRank: Genus; genus: *Maractis*; scientificNameAuthorship: Fautin & Barber, 1999; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Kairei; verbatimLocality: Cluster 5; maximumDepthInMeters: 2446; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2013-12-06; eventTime: 8:13:55 am; year: 2013; fieldNumber: INDEX2013-31ROV; fieldNotes: 1.8°C, 34.6 ppt; individualCount: 2; lifeStage: Adult; preparations: Imaged only; behavior: attached to sulphides/ basalt; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-06\_08-13-55\_Sonne\_INDEX2013-2\_031ROV02\_Logo-2.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Preserved Specimen

Notes: Fig. 90



Figure 90. [doi](#)

*Maractis* sp. indet. in situ at the Rodriguez Triple Junction within the Kairei hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Relicanthidae Rodríguez & Daly, 2014

### Genus *Relicanthus* Rodríguez & Daly, 2014

#### *Relicanthus daphneae* sp. inc. (Daly, 2006)

##### Material

- a. scientificName: *Relicanthus daphneae*; taxonConceptID: *Relicanthus daphneae* sp. inc.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Actiniaria; family: Relicanthidae; taxonRank: Species; genus: *Relicanthus*; scientificNameAuthorship: (Daly, 2006); waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 5; verbatimLocality: Cluster 11; maximumDepthInMeters: 3005; locationRemarks: FS Sonne Cruise INDEX2017 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 29; eventDate: 2017-09-27; eventTime: 7:48:41 am; year: 2017; fieldNumber: INDEX2017-94STR; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on basalt; recordedBy: BGR; occurrenceStatus: present; associatedMedia: IMG\_3341.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 91

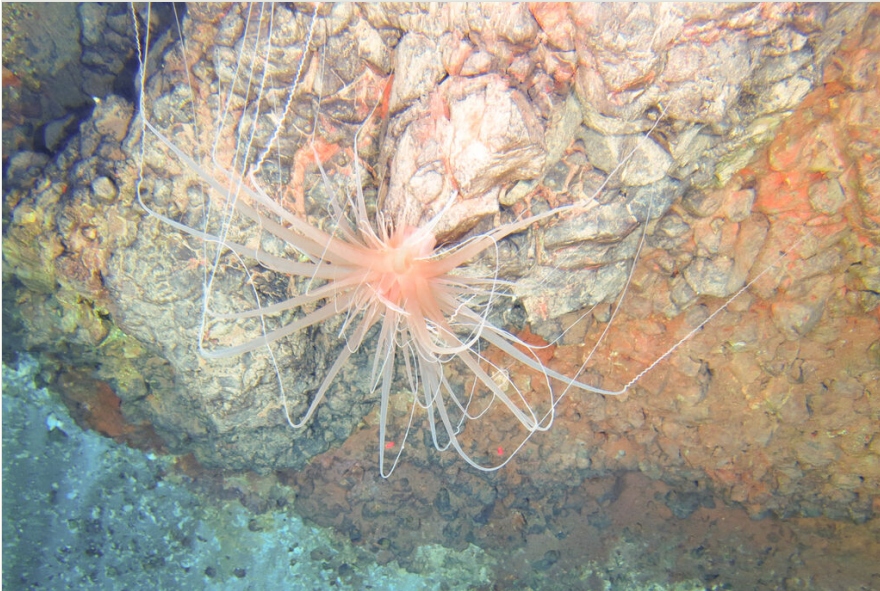


Figure 91. [doi](#)

*Relicanthus daphneae* sp. inc. in situ at the South East Indian Ridge within Vent site 5 in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Alcyonacea Lamouroux, 1812

### *Alcyonacea* fam. indet.

#### Material

- a. taxonConceptID: Alcyonacea fam. indet.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: -; taxonRank: Order; genus: -; scientificNameAuthorship: Lamouroux, 1812; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2824; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2013-12-15; eventTime: 7:35:33 am; year: 2013; fieldNumber: INDEX2013-57ROV; fieldNotes: 1.8°C, 34.5 ppt; individualCount: 2; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-15\_07-35-33\_Sonne\_INDEX2013-2\_057ROV09\_Logo-3.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: fam. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 92



Figure 92. [doi](#)

Alcyonacea fam. indet. in situ at the Central Indian Ridge within the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Alcyoniidae Lamouroux, 1812

### Genus *Anthomastus* Verrill, 1878

#### *Anthomastus* gen. inc.

##### Material

- a. taxonConceptID: Alcyonacea *Anthomastus* gen. inc.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Alcyoniidae; taxonRank: Genus; genus: *Anthomastus*; scientificNameAuthorship: Verrill, 1878; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2361; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 23; eventDate: 2018-11-21; eventTime: 9:20:48 am; year: 2018; fieldNumber: INDEX2018-59ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on basalt/sediment; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2093\_00822.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 93





Figure 93. [doi](#)

Alcyonacea *Anthomastus* gen. inc. in situ at the South East Indian Ridge within Vent site 6 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### *Anthomastus* sp. indet.

#### Material

- a. taxonConceptID: *Anthomastus* sp. indet.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Alcyoniidae; taxonRank: Genus; genus: *Anthomastus*; scientificNameAuthorship: Verrill, 1878; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2826; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2013-12-15; eventTime: 8:18:40 am; year: 2013; fieldNumber: INDEX2013-57ROV; fieldNotes: 1.8°C, 34.5 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-15\_08-18-40\_Sonne\_INDEX2013-2\_057ROV09\_Logo-2.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 94





Figure 94. [doi](#)

*Anthomastus* sp. indet. in situ at the Central Indian Ridge within the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR/ GEOMAR).

## Family Chrysogorgiidae Verrill, 1883

### Genus *Chrysogorgia* Duchassaing & Michelotti, 1864

#### *Chrysogorgia* sp. indet. (DZMB\_2021\_0034)

##### Material

- a. taxonConceptID: *Chrysogorgia* sp. indet. (DZMB\_2021\_0034); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Chrysogorgiidae; taxonRank: Genus; genus: *Chrysogorgia*; scientificNameAuthorship: Duchassaing & Michelotti, 1864; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2817; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 28; eventDate: 2013-12-16; eventTime: 6:53:32 am; year: 2013; fieldNumber: INDEX2013-59ROV; fieldNotes: 1.8°C, 34.5 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to sulphides; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-16\_06-53-32\_Sonne\_INDEX2013-2\_059ROV10\_Logo.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 95



Figure 95. [doi](#)

*Chrysogorgia* sp. indet. (DZMB\_2021\_0034) in situ at the Central Indian Ridge within the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR/ GEOMAR).

### *Chrysogorgia* sp. indet. (DZMB\_2021\_0035)

#### Material

- a. taxonConceptID: *Chrysogorgia* sp. indet. (DZMB\_2021\_0035); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Chrysogorgiidae; taxonRank: Genus; genus: *Chrysogorgia*; scientificNameAuthorship: Duchassaing & Michelotti, 1864; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2828; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 28; eventDate: 2013-12-17; eventTime: 12:37:23 pm; year: 2013; fieldNumber: INDEX2013-62ROV; fieldNotes: 1.8°C, 34.4 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to sulphides; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-17\_12-37-23\_Sonne\_INDEX2013-2\_062ROV11\_Logo-2.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 96

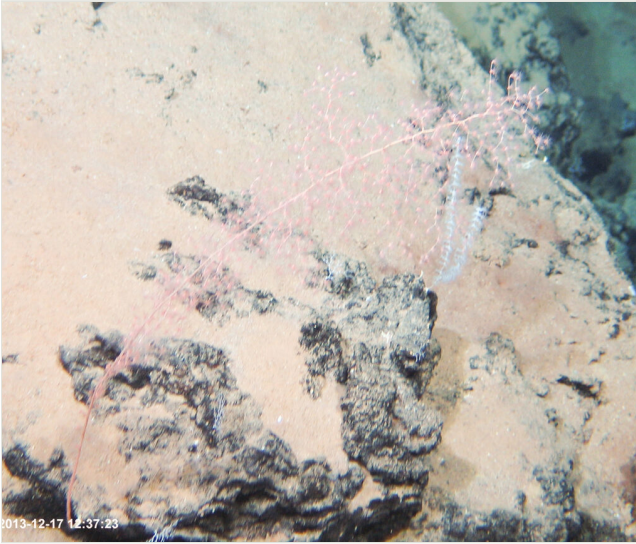


Figure 96. [doi](#)

*Chrysogorgia* sp. indet. (DZMB\_2021\_0035) in situ at the Central Indian Ridge within the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR/ GEOMAR).

## Genus *Iridogorgia* Verrill, 1883

### *Iridogorgia magnispiralis* sp. inc. Watling, 2007

#### Material

- a. scientificName: *Iridogorgia magnispiralis*; taxonConceptID: *Iridogorgia magnispiralis* sp. inc.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Chrysogorgiidae; taxonRank: Species; genus: *Iridogorgia*; scientificNameAuthorship: Watling, 2007; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2461; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-11-20; eventTime: 6:33:26 am; year: 2018; fieldNumber: INDEX2018-57ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2092\_00358.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 97

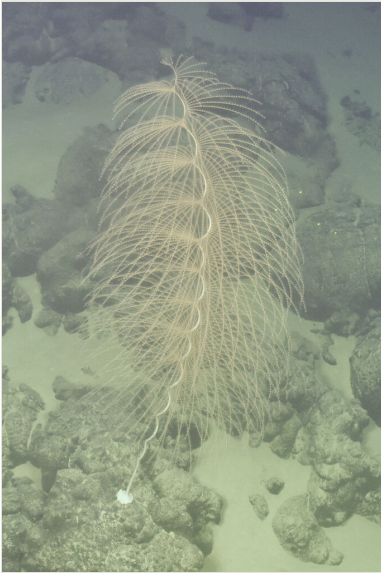


Figure 97. [doi](#)

*Iridogorgia magnispiralis* sp. inc. in situ at the South East Indian Ridge within Vent site 6 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Clavulariidae Hickson, 1894

### Clavulariidae gen. indet. (DZMB\_2021\_0036)

#### Material

- a. taxonConceptID: Clavulariidae gen. indet. (DZMB\_2021\_0036); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Clavulariidae; taxonRank: Family; genus: -; scientificNameAuthorship: Hickson, 1894; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Vent site 1; verbatimLocality: Cluster 4; maximumDepthInMeters: 3048; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2015-12-02; eventTime: 6:51:26 am; year: 2015; fieldNumber: INDEX2015-49ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: attached to sulphides/ basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1909\_00483-2.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 98



Figure 98. [doi](#)

Clavulariidae gen. indet. (DZMB\_2021\_0036) in situ at the Central Indian Ridge within Vent site 1 in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### Clavulariidae gen. indet. (DZMB\_2021\_0037)

#### Material

- a. taxonConceptID: Clavulariidae gen. indet. (DZMB\_2021\_0037); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Clavulariidae; taxonRank: Family; genus: -; scientificNameAuthorship: Hickson, 1894; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2830; locationRemarks: FS Sonne Cruise INDEX2013 Leg 1; decimalLatitude: -23.3799; decimalLongitude: 69.2352; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 28; eventDate: 2013-11-25; eventTime: 6:34:34 am; year: 2013; fieldNumber: INDEX2013-17MFT; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to sulphides/ basalt; recordedBy: BGR; occurrenceStatus: present; associatedMedia: 17MFT Fotos 2013-365.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 99





Figure 99. [doi](#)

Clavulariidae gen. indet. (DZMB\_2021\_0037) in situ at the Central Indian Ridge within the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Clavulariidae fam. inc. (DZMB\_2021\_0038)

### Material

- a. taxonConceptID: Clavulariidae fam. inc. (DZMB\_2021\_0038); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Clavulariidae; taxonRank: Family; genus: -; scientificNameAuthorship: Hickson, 1894; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2799; locationRemarks: FS Sonne Cruise INDEX2013 Leg 1; decimalLatitude: -23.3878; decimalLongitude: 69.2403; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 28; eventDate: 2013-11-25; eventTime: 4:30:29 am; year: 2013; fieldNumber: INDEX2013-17MFT; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: BGR; occurrenceStatus: present; associatedMedia: 17MFT Fotos 2013-200.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: fam. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 100

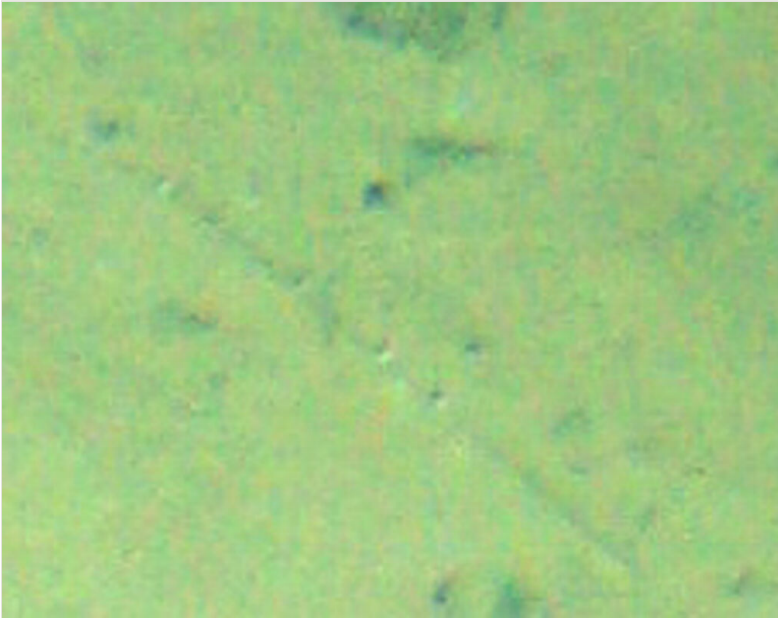


Figure 100. [doi](#)

Clavulariidae fam. inc. (DZMB\_2021\_0038) in situ at the Central Indian Ridge within the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR).

### Clavulariidae fam. inc. (DZMB\_2021\_0039)

#### Material

- a. taxonConceptID: Clavulariidae fam. inc. (DZMB\_2021\_0039); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Clavulariidae; taxonRank: Family; genus: -; scientificNameAuthorship: Hickson, 1894; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Vent site 1; verbatimLocality: Cluster 4; maximumDepthInMeters: 3046; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2015-12-02; eventTime: 7:32:34 am; year: 2015; fieldNumber: INDEX2015-49ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to sulphides; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1909\_00497.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: fam. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 101



Figure 101. [doi](#)

Clavulariidae fam. inc. (DZMB\_2021\_0039) in situ at the Central Indian Ridge within Vent site 1 in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Isididae Lamouroux, 1812

### Isididae gen. indet. (DZMB\_2021\_0040)

#### Material

- a. taxonConceptID: Isididae gen. indet. (DZMB\_2021\_0040); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Isididae; taxonRank: Family; genus: -; scientificNameAuthorship: Lamouroux, 1812; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2481; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-24; eventTime: 10:50:56 am; year: 2018; fieldNumber: INDEX2018-65ROPOS; fieldNotes: 1.8°C; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2096\_00254.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 102

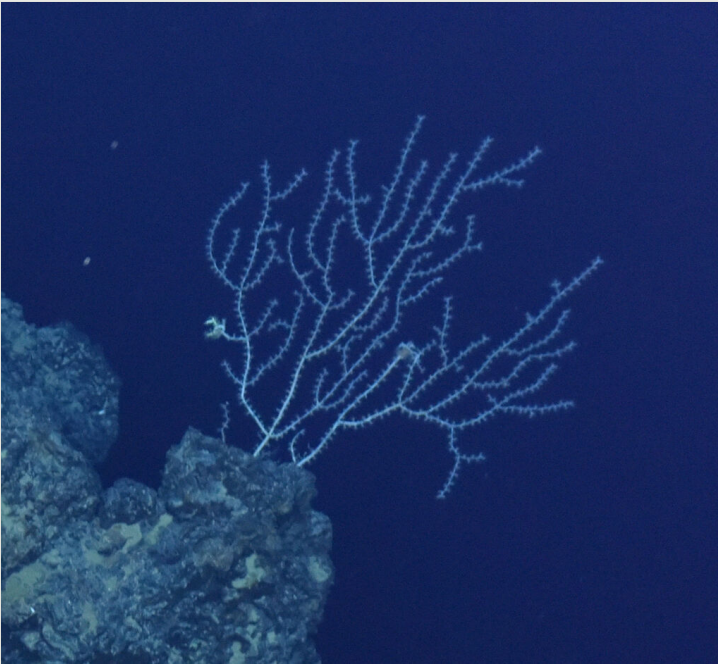


Figure 102. [doi](#)

Isididae gen. indet. (DZMB\_2021\_0040) in situ at the South East Indian Ridge within Vent site 6 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### Isididae gen. indet. (DZMB\_2021\_0041)

#### Material

- a. taxonConceptID: Isididae gen. indet. (DZMB\_2021\_0041); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Isididae; taxonRank: Family; genus: -; scientificNameAuthorship: Lamouroux, 1812; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2465; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-11-20; eventTime: 12:20:38 pm; year: 2018; fieldNumber: INDEX2018-57ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2092\_00602.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 103





Figure 103. [doi](#)

Isididae gen. indet. (DZMB\_2021\_0041) in situ at the South East Indian Ridge within Vent site 6 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### Isididae gen. indet. (DZMB\_2021\_0042)

#### Material

- a. taxonConceptID: Isididae gen. indet. (DZMB\_2021\_0042); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Isididae; taxonRank: Family; genus: -; scientificNameAuthorship: Lamouroux, 1812; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2374; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-25; eventTime: 8:13:14 am; year: 2018; fieldNumber: INDEX2018-67ROPOS; fieldNotes: 1.8°C; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basal; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2097\_00142.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 104





Figure 104. [doi](#)

Isididae gen. indet. (DZMB\_2021\_0042) in situ at the South East Indian Ridge within Vent site 6 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### Isididae gen. indet. (DZMB\_2021\_0043)

#### Material

- a. taxonConceptID: Isididae gen. indet. (DZMB\_2021\_0043); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Isididae; taxonRank: Family; genus: -; scientificNameAuthorship: Lamouroux, 1812; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2465; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-11-20; eventTime: 12:21:14 pm; year: 2018; fieldNumber: INDEX2018-57ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2092\_00603-2.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 105

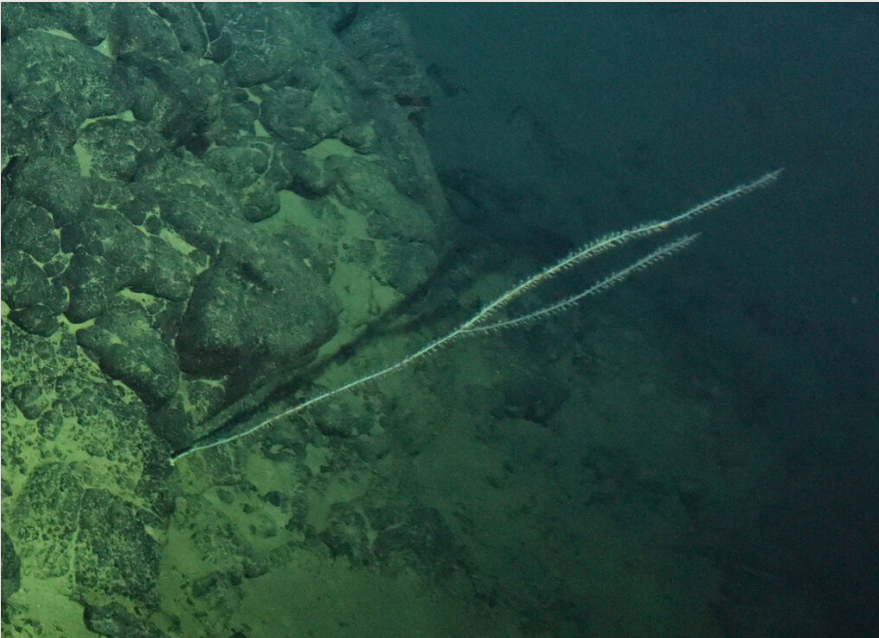


Figure 105. [doi](#)

Isididae gen. indet. (DZMB\_2021\_0043) in situ at the South East Indian Ridge within Vent site 6 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Isididae fam. inc. (DZMB\_2021\_0044)

### Material

- a. taxonConceptID: Isididae fam. inc. (DZMB\_2021\_0044); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Isididae; taxonRank: Family; genus: -; scientificNameAuthorship: Lamouroux, 1812; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2448; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-11-20; eventTime: 8:36:21 am; year: 2018; fieldNumber: INDEX2018-57ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2092\_00475.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: fam. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 106

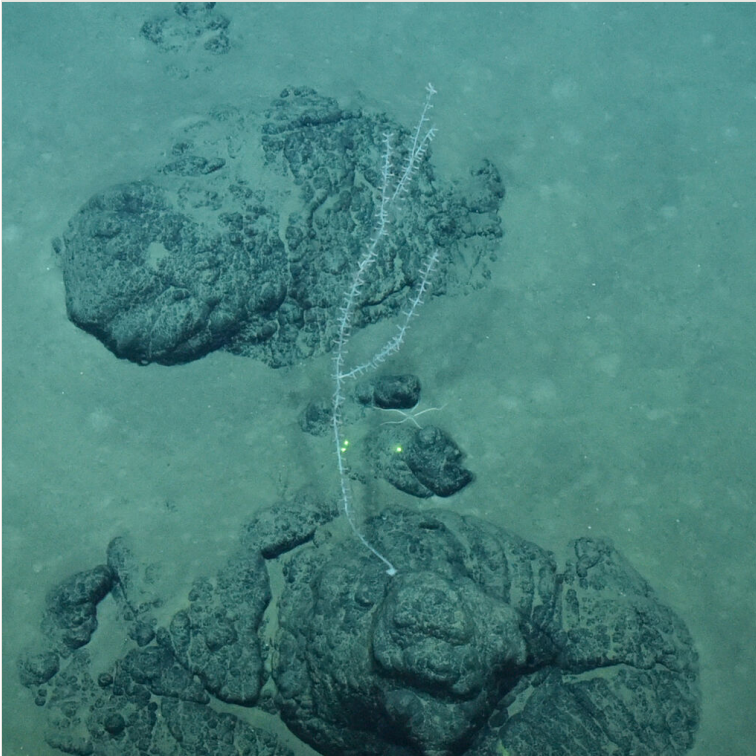


Figure 106. [doi](#)

Isididae fam. inc. (DZMB\_2021\_0044) in situ at the South East Indian Ridge within Vent site 6 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### Isididae gen. indet. (DZMB\_2021\_0045)

#### Material

- a. taxonConceptID: Isididae gen. indet. (DZMB\_2021\_0045); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Isididae; taxonRank: Family; genus: -; scientificNameAuthorship: Lamouroux, 1812; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2828; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 28; eventDate: 2013-12-17; eventTime: 12:37:23 pm; year: 2013; fieldNumber: INDEX2013-62ROV; fieldNotes: 1.8°C, 34.4 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on basalt; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-17\_12-37-23\_Sonne\_INDEX2013-2\_062ROV11\_Logo.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery - forked morphotype; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 107

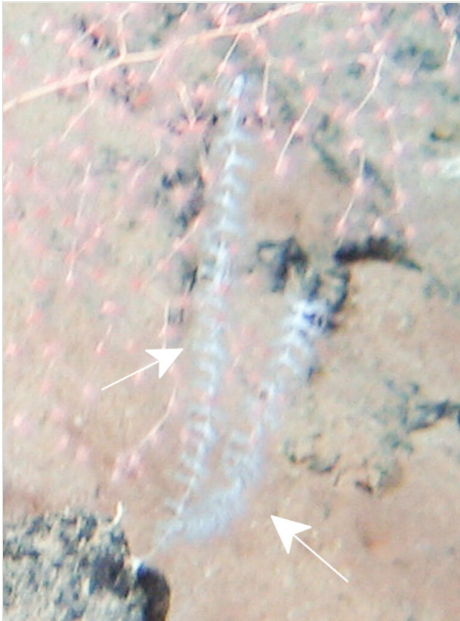


Figure 107. [doi](#)

Isididae gen. indet. (DZMB\_2021\_0045) in situ at the Central Indian Ridge within the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Acanella* Gray, 1870

### Isididae *Acanella* gen. inc.

#### Material

- a. taxonConceptID: Isididae *Acanella* gen. inc.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Isididae; taxonRank: Genus; genus: *Acanella*; scientificNameAuthorship: Gray, 1870; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2370; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-23; eventTime: 6:50:03 am; year: 2018; fieldNumber: INDEX2018-63ROPOS; fieldNotes: 1.8°C; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2095\_00087.jpg; associatedOccurrences: Goniasteridae gen. indet.; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 108





Figure 108. [doi](#)

Isididae *Acanella* gen. inc. in situ at the South East Indian Ridge within Vent site 6 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Bathygorgia* Wright, 1885

### Isididae *Bathygorgia* gen. inc.

#### Material

- a. taxonConceptID: Isididae *Bathygorgia* gen. inc.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Isididae; taxonRank: Genus; genus: *Bathygorgia*; scientificNameAuthorship: Wright, 1885; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2663; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-12-09; eventTime: 6:49:45 am; year: 2018; fieldNumber: INDEX2018-95ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2105\_00090.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 109





Figure 109. [doi](#)

Isididae *Bathygorgia* gen. inc. in situ at the Rodriguez Triple Junction within Vent site 4 in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Jasonisis* Alderslade & McFadden, 2012

### Isididae *Jasonisis* gen. inc.

#### Material

- a. taxonConceptID: Isididae *Jasonisis* gen. inc.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Isididae; taxonRank: Genus; genus: *Jasonisis*; scientificNameAuthorship: Alderslade & McFadden, 2012; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2368; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 23; eventDate: 2018-11-21; eventTime: 10:48:28 am; year: 2018; fieldNumber: INDEX2018-59ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2093\_00938.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 110

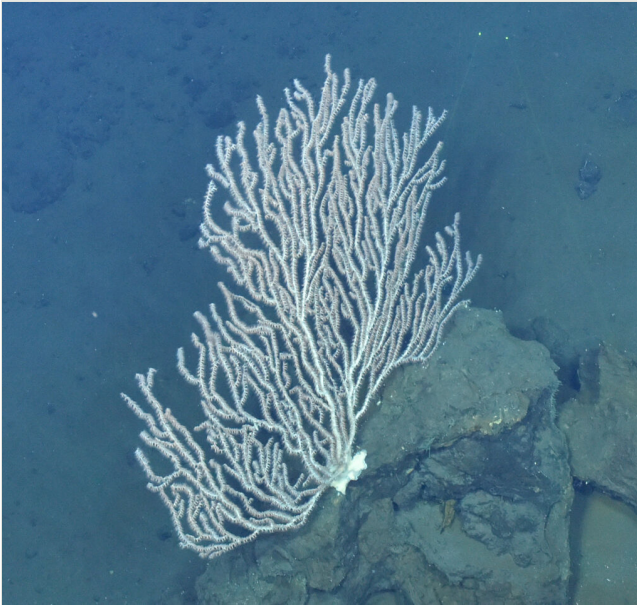


Figure 110. [doi](#)

Isididae *Jasonisis* gen. inc. in situ at the South East Indian Ridge within Vent site 6 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Keratoisis* Wright, 1869

### Isididae *Keratoisis* gen. inc. (DZMB\_2021\_0046)

#### Material

- a. taxonConceptID: Isididae *Keratoisis* gen. inc. (DZMB\_2021\_0046); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Isididae; taxonRank: Genus; genus: *Keratoisis*; scientificNameAuthorship: Wright, 1869; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2662; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-12-09; eventTime: 6:50:43 am; year: 2018; fieldNumber: INDEX2018-95ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2105\_00094.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 111

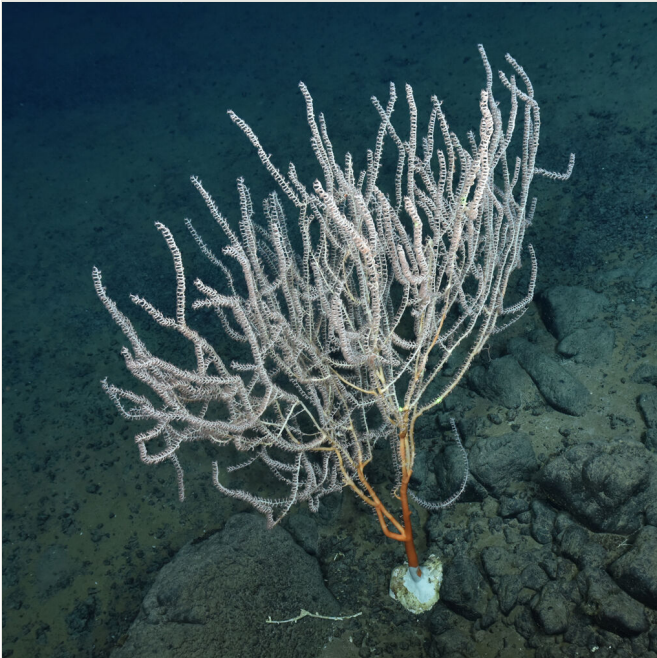


Figure 111. [doi](#)

Isididae *Keratoisis* gen. inc. (DZMB\_2021\_0046) in situ at the Rodriguez Triple Junction within Vent site 4 in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### Isididae *Keratoisis* gen. inc. (DZMB\_2021\_0047)

#### Material

- a. taxonConceptID: Isididae *Keratoisis* gen. inc. (DZMB\_2021\_0047); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Isididae; taxonRank: Genus; genus: *Keratoisis*; scientificNameAuthorship: Wright, 1869; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2658; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-12-09; eventTime: 9:20:43 am; year: 2018; fieldNumber: INDEX2018-95ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2105\_00311.jpg; associatedOccurrences: *Actinoscyphia* sp. indet.; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 112

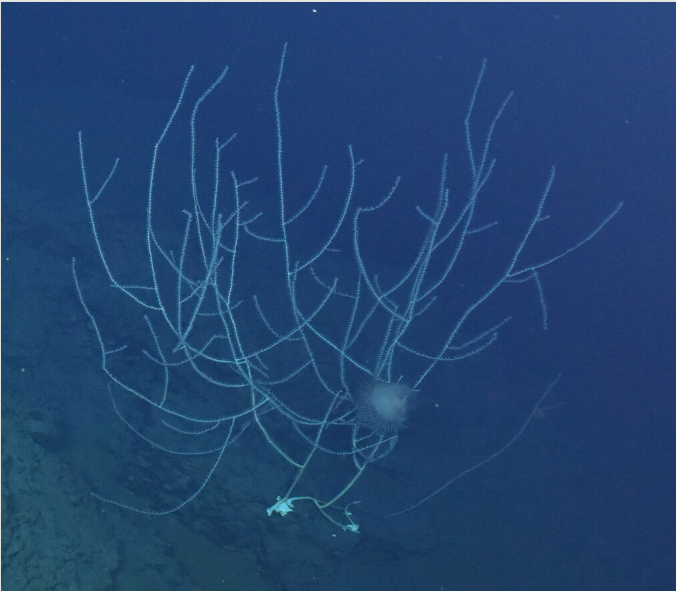


Figure 112. [doi](#)

Isididae *Keratoisis* gen. inc. (DZMB\_2021\_0047) in situ at the Rodriguez Triple Junction within Vent site 4 in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Lepidisis* Verrill, 1883

### Isididae *Lepidisis* gen. inc.

#### Material

- a. taxonConceptID: Isididae *Lepidisis* gen. inc.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Isididae; taxonRank: Genus; genus: *Lepidisis*; scientificNameAuthorship: Verrill, 1883; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 3; verbatimLocality: Cluster 12; maximumDepthInMeters: 2483; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-11-26; eventTime: 6:12:27 am; year: 2018; fieldNumber: INDEX2018-70ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2098\_00067.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 113





Figure 113. [doi](#)

Isididae *Lepidisis* gen. inc. in situ at the South East Indian Ridge at the border of Vent site 3 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### *Lepidisis* spp. indet.

#### Material

- a. taxonConceptID: *Lepidisis* spp. indet.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Isididae; taxonRank: Genus; genus: *Lepidisis*; scientificNameAuthorship: Verrill, 1883; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 5; verbatimLocality: Cluster 11; maximumDepthInMeters: 2969; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2018-12-01; eventTime: 8:27:44 am; year: 2018; fieldNumber: INDEX2018-80ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2102\_00153.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: spp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 114



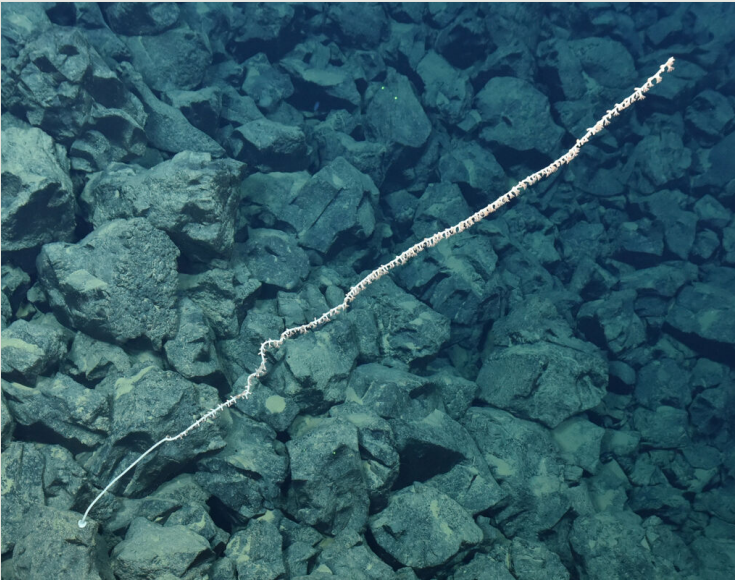


Figure 114. [doi](#)

*Lepidisis* sp. indet. in situ at the South East Indian Ridge within Vent site 5 in Cluster 11 of the INDEX area. The individual is an example for the species complex *Lepidisis* spp. indet., with more images and entries in the supplementary imagery and data table. Image corresponds with the data (Image attribution: BGR).

## Family Paragorgiidae Kükenthal, 1916

### Paragorgiidae fam. inc.

#### Material

- a. taxonConceptID: Paragorgiidae fam. inc.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Paragorgiidae; taxonRank: Family; genus: -; scientificNameAuthorship: Kükenthal, 1916; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2396; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-23; eventTime: 5:40:24 am; year: 2018; fieldNumber: INDEX2018-63ROPOS; fieldNotes: 1.8°C; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2095\_00011.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: fam. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 115



Figure 115. [doi](#)

Paragorgiidae fam. inc. in situ at the South East Indian Ridge within Vent site 6 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Primnoidae Milne Edwards, 1857

### Primnoidae gen. indet. (DZMB\_2021\_0048)

#### Material

- a. taxonConceptID: Primnoidae gen. indet. (DZMB\_2021\_0048); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Primnoidae; taxonRank: Family; genus: -; scientificNameAuthorship: Milne Edwards, 1857; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2632; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-12-11; eventTime: 4:31:09 am; year: 2018; fieldNumber: INDEX2018-99ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt/ sulphides; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2107\_00037.jpg; associatedOccurrences: Arthropoda cl. indet.; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery - branched morphotype; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 116



Figure 116. [doi](#)

Primnoidae gen. indet. (DZMB\_2021\_0048) in situ at the Rodriguez Triple Junction within Vent site 4 in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### Primnoidae gen. indet. (DZMB\_2021\_0049)

#### Material

- a. taxonConceptID: Primnoidae gen. indet. (DZMB\_2021\_0049); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea; family: Primnoidae; taxonRank: Family; genus: -; scientificNameAuthorship: Milne Edwards, 1857; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2483; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-24; eventTime: 10:50:42 am; year: 2018; fieldNumber: INDEX2018-65ROPOS; fieldNotes: 1.8°C; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2096\_00253.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery - unbranched morphotype; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 117

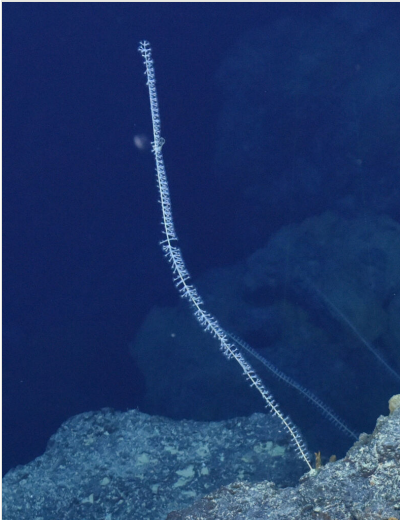


Figure 117. [doi](#)

Primnoidea gen. indet. (DZMB\_2021\_0049) in situ at the South East Indian Ridge at the border of Vent site 6 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Alcyonacea/ Antipatharia Lamouroux, 1812

### Stalk of Alcyonacea or Antipatharia ord. inc.

#### Material

- a. taxonConceptID: Stalk of Alcyonacea or Antipatharia ord. inc.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Alcyonacea/ Antipatharia; family: -; taxonRank: Order; genus: -; scientificNameAuthorship: Lamouroux, 1812/ -; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2816; locationRemarks: FS Sonne Cruise INDEX2013 Leg 1; decimalLatitude: -23.3919; decimalLongitude: 69.2420; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 28; eventDate: 2013-11-25; eventTime: 3:27:11 am; year: 2013; fieldNumber: INDEX2013-17MFT; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: BGR; occurrenceStatus: present; associatedMedia: 17MFT Fotos 2013-289\_Stalk of Gorgonian.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: ord. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 118



Figure 118. [doi](#)

Stalk of Alcyonacea or Antipatharia ord. inc. in situ at the Central Indian Ridge within the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Antipatharia

### Family Cladopathidae Kinoshita, 1910

#### Genus *Heteropathes* Opresko, 2011

#### *Heteropathes* sp. indet.

##### Material

- a. taxonConceptID: *Heteropathes* sp. indet.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Antipatharia; family: Cladopathidae; taxonRank: Genus; genus: *Heteropathes*; scientificNameAuthorship: Opresko, 2011; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2385; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-23; eventTime: 5:46:04 am; year: 2018; fieldNumber: INDEX2018-63ROPOS; fieldNotes: 1.8°C; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basal; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2095\_00020.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 119





Figure 119. [doi](#)

*Heteropathes* sp. indet. in situ at the South East Indian Ridge at the border of Vent site 6 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### ***Heteropathes americana* sp. inc. (Opresko, 2003)**

#### **Material**

- a. scientificName: *Heteropathes americana*; taxonConceptID: *Heteropathes americana* sp. inc.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Antipatharia; family: Cladopathidae; taxonRank: Species; genus: *Heteropathes*; scientificNameAuthorship: (Opresko, 2003); waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2508; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-11-20; eventTime: 7:46:49 am; year: 2018; fieldNumber: INDEX2018-57ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2092\_00428-2.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

**Notes:** Fig. 120

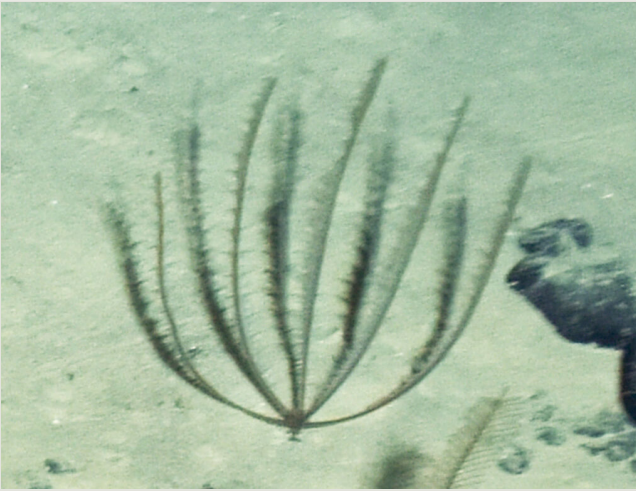


Figure 120. [doi](#)

*Heteropathes americana* sp. inc. in situ at the South East Indian Ridge at the border of Vent site 6 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Schizopathidae Brook, 1889

### Genus *Bathypathes* Brook, 1889

#### *Bathypathes* sp. indet. (DZMB\_2021\_0050)

##### Material

- a. taxonConceptID: *Bathypathes* sp. indet. (DZMB\_2021\_0050); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Antipatharia; family: Schizopathidae; taxonRank: Genus; genus: *Bathypathes*; scientificNameAuthorship: Brook, 1889; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2662; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-12-11; eventTime: 4:46:55 am; year: 2018; fieldNumber: INDEX2018-99ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2107\_00045.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 121



Figure 121. [doi](#)

*Bathypathes* sp. indet. (DZMB\_2021\_0050) in situ at the Rodriguez Triple Junction at the border of Vent site 4 in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### ***Bathypathes* gen. inc. (DZMB\_2021\_0051)**

#### **Material**

- a. taxonConceptID: *Bathypathes* gen. inc. (DZMB\_2021\_0051); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Antipatharia; family: Schizopathidae; taxonRank: Genus; genus: *Bathypathes*; scientificNameAuthorship: Brook, 1889; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2374; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-25; eventTime: 8:14:41 am; year: 2018; fieldNumber: INDEX2018-67ROPOS; fieldNotes: 1.8°C; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2097\_00145-2.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

**Notes:** Fig. 122

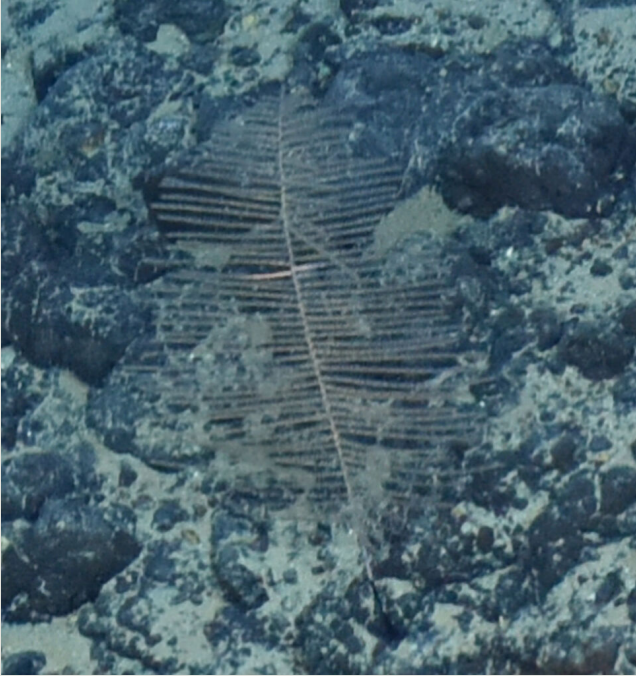


Figure 122. [doi](#)

*Bathypathes* gen. inc. (DZMB\_2021\_0051) in situ at the South East Indian Ridge at the border of Vent site 6 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### ***Bathypathes patula* sp. inc. Brook, 1889**

#### **Material**

- a. scientificName: *Bathypathes patula*; taxonConceptID: *Bathypathes patula* sp. inc.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Antipatharia; family: Schizopathidae; taxonRank: Species; genus: *Bathypathes*; scientificNameAuthorship: Brook, 1889; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Vent site 1; verbatimLocality: Cluster 4; maximumDepthInMeters: 3065; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2015-12-01; eventTime: 7:17:48 am; year: 2015; fieldNumber: INDEX2015-47ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1908\_00414.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

**Notes:** Fig. 123



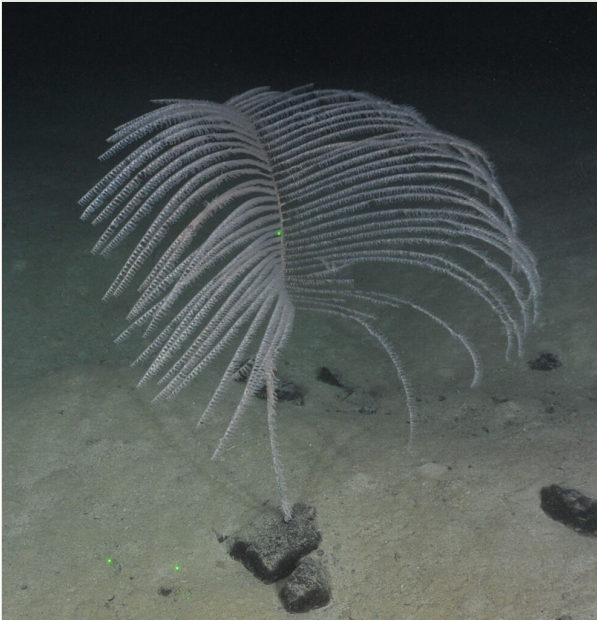


Figure 123. [doi](#)

*Bathypathes patula* sp. inc. in situ at the Central Indian Ridge at the border of Vent site 1 in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Schizopathes* Brook, 1889

### *Schizopathes* spp. indet.

#### Material

- a. taxonConceptID: *Schizopathes* spp. indet.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Antipatharia; family: Schizopathidae; taxonRank: Genus; genus: *Schizopathes*; scientificNameAuthorship: Brook, 1889; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2712; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-12-09; eventTime: 10:19:38 am; year: 2018; fieldNumber: INDEX2018-95ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2105\_00337.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: spp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 124





Figure 124. [doi](#)

*Schizopathes* sp. indet. in situ at the Rodriguez Triple Junction at the border of Vent site 4 in Cluster 5 of the INDEX area. The individual is an example for the species complex *Schizopathes* spp. indet., with more images and entries in the supplementary imagery and data table. Image corresponds with the data (Image attribution: BGR).

## Order Pennatulacea Verrill, 1865

### Pennatulacea ord. inc. (DZMB\_2021\_0052)

#### Material

- a. taxonConceptID: Pennatulacea ord. inc. (DZMB\_2021\_0052); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Pennatulacea; family: -; taxonRank: Order; genus: -; scientificNameAuthorship: Verrill, 1865; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2846; locationRemarks: FS Sonne Cruise INDEX2013 Leg 1; decimalLatitude: -23.3839; decimalLongitude: 69.2377; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 28; eventDate: 2013-11-25; eventTime: 5:31:31 am; year: 2013; fieldNumber: INDEX2013-17MFT; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: BGR; occurrenceStatus: present; associatedMedia: 17MFT Fotos 2013-139.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: ord. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 125



Figure 125. [doi](#)

Pennatulacea ord. inc. (DZMB\_2021\_0052) in situ at the Central Indian Ridge within the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR).

### ***Pennatulacea* fam. indet. (DZMB\_2021\_0053)**

#### **Material**

- a. taxonConceptID: Pennatulacea fam. indet. (DZMB\_2021\_0053); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Pennatulacea; family: -; taxonRank: Order; genus: -; scientificNameAuthorship: Verrill, 1865; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: EGS; verbatimLocality: Cluster 4; maximumDepthInMeters: 3111; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; decimalLatitude: -23.9343; decimalLongitude: 69.6114; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 31; eventDate: 2015-12-07; eventTime: 9:32:22 am; year: 2015; fieldNumber: INDEX2015-60ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1914\_00241.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: fam. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

**Notes:** Fig. 126



Figure 126. [doi](#)

Pennatulacea fam. indet. (DZMB\_2021\_0053) in situ at the Central Indian Ridge within the Edmond-Vent site 2-vent site 7 area in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Kophobelemnidae Gray, 1860

### Genus *Kophobelemnon* Asbjørnsen, 1856

#### Pennatulacea *Kophobelemnon* ord. inc.

##### Material

- a. taxonConceptID: Pennatulacea *Kophobelemnon* ord. inc.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Pennatulacea; family: Kophobelemnidae; taxonRank: Genus; genus: *Kophobelemnon*; scientificNameAuthorship: Asbjørnsen, 1856; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: Cluster 3; maximumDepthInMeters: 2825; locationRemarks: FS Sonne Cruise INDEX2013 Leg 1; decimalLatitude: -23.3926; decimalLongitude: 69.2426; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 28; eventDate: 2013-11-25; eventTime: 3:15:06 am; year: 2013; fieldNumber: INDEX2013-17MFT; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: BGR; occurrenceStatus: present; associatedMedia: 17MFT Fotos 2013-417-2.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: ord. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 127

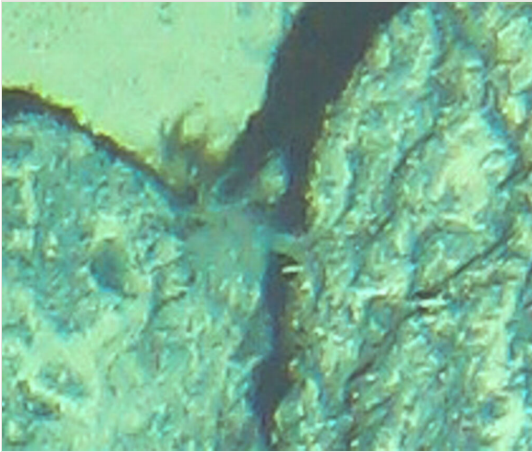


Figure 127. [doi](#)

Pennatulacea *Kophobelemnion* ord. inc. incertae sedis in situ at the Central Indian Ridge within the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Umbellulidae Kölliker, 1880

### Genus *Umbellula* Gray, 1870

#### *Umbellula* sp. indet. (DZMB\_2021\_0054)

##### Material

- a. taxonConceptID: *Umbellula* sp. indet. (DZMB\_2021\_0054); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Pennatulacea; family: Umbellulidae; taxonRank: Genus; genus: *Umbellula*; scientificNameAuthorship: Gray, 1870; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Edmond; verbatimLocality: Cluster 4; maximumDepthInMeters: 3271; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; decimalLatitude: -23.8781; decimalLongitude: 69.6004; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 33; eventDate: 2013-12-09; eventTime: 1:12:01 am; year: 2013; fieldNumber: INDEX2013-38MFT; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: BGR; occurrenceStatus: present; associatedMedia: 38MFT Fotos 2013-160.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 128



Figure 128. [doi](#)

*Umbellula* sp. indet. (DZMB\_2021\_0054) in situ at the Central Indian Ridge at the border of the Edmond hydrothermal vent field in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### ***Umbellula* sp. indet. (DZMB\_2021\_0055)**

#### **Material**

- a. taxonConceptID: *Umbellula* sp. indet. (DZMB\_2021\_0055); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Pennatulacea; family: Umbellulidae; taxonRank: Genus; genus: *Umbellula*; scientificNameAuthorship: Gray, 1870; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2541; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-12-04; eventTime: 7:57:30 am; year: 2018; fieldNumber: INDEX2018-85ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2104\_00100.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

**Notes:** Fig. 129





Figure 129. [doi](#)

*Umbellula* sp. indet. (DZMB\_2021\_0055) in situ at the Rodriguez Triple Junction at the border of Vent site 4 in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Zoantharia Gray, 1832

### *Zoantharia* fam. indet. (DZMB\_2021\_0056)

#### Material

- a. taxonConceptID: *Zoantharia* fam. indet. (DZMB\_2021\_0056); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Zoantharia; family: -; taxonRank: Order; genus: -; scientificNameAuthorship: Gray, 1832; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 3; verbatimLocality: Cluster 12; maximumDepthInMeters: 2547; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-11-26; eventTime: 10:39:16 am; year: 2018; fieldNumber: INDEX2018-70ROPOS; fieldNotes: 1.8°C, 34.8 ppt; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2098\_00275-2.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: fam. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 130



Figure 130. [doi](#)

*Zoantharia* fam. indet. (DZMB\_2021\_0056) in situ at the South East Indian Ridge within Vent site 3 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### ***Zoantharia* fam. indet. (DZMB\_2021\_0057)**

#### **Material**

- a. taxonConceptID: *Zoantharia* fam. indet. (DZMB\_2021\_0057); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Zoantharia; family: -; taxonRank: Order; genus: -; scientificNameAuthorship: Gray, 1832; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2431; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-24; eventTime: 7:24:03 am; year: 2018; fieldNumber: INDEX2018-65ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: attached to sulphides/ basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2096\_00102.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: fam. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

**Notes:** Fig. 131

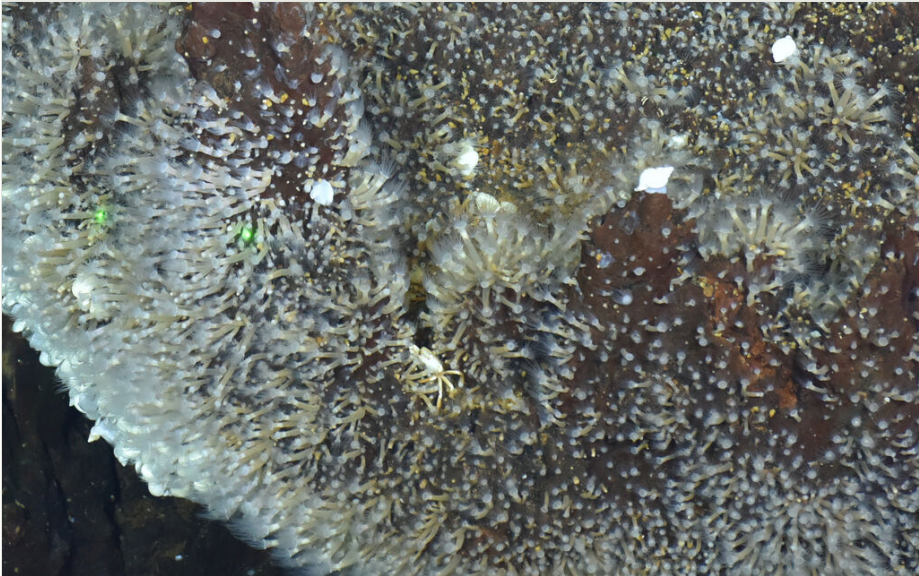


Figure 131. [doi](#)

*Zoantharia* fam. indet. (DZMB\_2021\_0057) in situ at the South East Indian Ridge within Vent site 6 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### ***Zoantharia* fam. indet. (DZMB\_2021\_0058)**

#### **Material**

- a. taxonConceptID: *Zoantharia* fam. indet. (DZMB\_2021\_0058); kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Zoantharia; family: -; taxonRank: Order; genus: -; scientificNameAuthorship: Gray, 1832; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2489; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-25; eventTime: 10:06:31 am; year: 2018; fieldNumber: INDEX2018-67ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: attached to sulphides; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2097\_00212-3.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: fam. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

**Notes:** Fig. 132



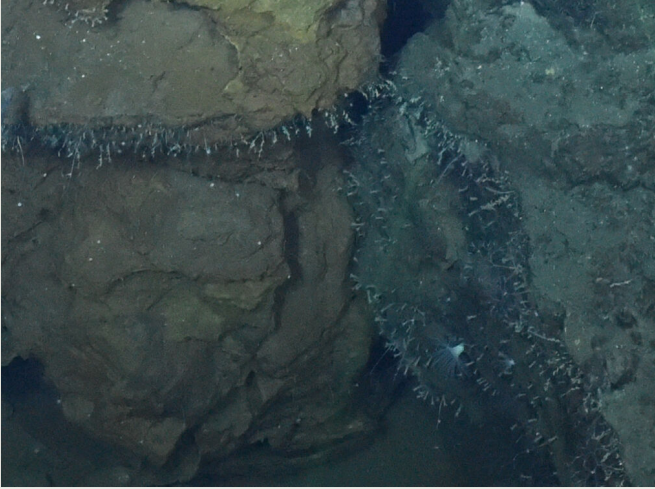


Figure 132. [doi](#)

*Zoantharia* fam. indet. (DZMB\_2021\_0058) in situ at the South East Indian Ridge within Vent site 6 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Epizoanthidae Delage & Hérourard, 1901

### Genus *Epizoanthus* Gray, 1867

#### *Epizoanthus* sp. indet.

##### Material

- a. taxonConceptID: *Epizoanthus* sp. indet.; kingdom: Animalia; phylum: Cnidaria; class: Anthozoa; order: Zoantharia; family: Epizoanthidae; taxonRank: Genus; genus: *Epizoanthus*; scientificNameAuthorship: Gray, 1867; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Vent site 1; verbatimLocality: Cluster 4; maximumDepthInMeters: 3072; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2015-11-27; eventTime: 9:20:39 am; year: 2015; fieldNumber: INDEX2015-37ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: in symbiosis with hermit crab; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1905\_00014.jpg; associatedOccurrences: Paguroidea superfam. inc.; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 133



Figure 133. [doi](#)

*Epizoanthus* sp. indet. (in symbiosis with Paguroidea superfam. inc.) in situ at the Central Indian Ridge in the surrounding of Vent site 1 in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Class Hydrozoa Owen, 1843

### Hydrozoa ord. indet. (DZMB\_2021\_0059)

#### Material

- a. taxonConceptID: Hydrozoa ord. indet. (DZMB\_2021\_0059); kingdom: Animalia; phylum: Cnidaria; class: Hydrozoa; taxonRank: Class; scientificNameAuthorship: Owen, 1843; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2471; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-23; eventTime: 9:45:31 am; year: 2018; fieldNumber: INDEX2018-63ROPOS; fieldNotes: 1.8°C; individualCount: 3; lifeStage: Adult; preparations: Imaged only; behavior: attached to sulphides; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2095\_00138-2.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: ord. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 134





Figure 134. [doi](#)

Hydrozoa ord. indet. (DZMB\_2021\_0059) in situ at the South East Indian Ridge within Vent site 6 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Hydrozoa ord. indet. (DZMB\_2021\_0060)

### Material

- a. taxonConceptID: Hydrozoa ord. indet. (DZMB\_2021\_0060); kingdom: Animalia; phylum: Cnidaria; class: Hydrozoa; taxonRank: Class; scientificNameAuthorship: Owen, 1843; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2628; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-12-11; eventTime: 3:38:22 am; year: 2018; fieldNumber: INDEX2018-99ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: attached to sulphides; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2107\_00010.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: ord. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 135



Figure 135. [doi](#)

Hydrozoa ord. indet. (DZMB\_2021\_0060) in situ at the Rodriguez Triple Junction within Vent site 4 in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Hydrozoa ord. indet. (DZMB\_2021\_0061)

### Material

- a. taxonConceptID: Hydrozoa ord. indet. (DZMB\_2021\_0061); kingdom: Animalia; phylum: Cnidaria; class: Hydrozoa; order: -; taxonRank: Class; scientificNameAuthorship: Owen, 1843; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2629; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-12-11; eventTime: 8:30:44 am; year: 2018; fieldNumber: INDEX2018-99ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: attached to sulphides; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2107\_00117-3.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: ord. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 136



Figure 136. [doi](#)

Hydrozoa ord. indet. (DZMB\_2021\_0061) in situ at the Rodriguez Triple Junction within Vent site 4 in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Hydrozoa ord. indet. (DZMB\_2021\_0062)

### Material

- a. taxonConceptID: Hydrozoa ord. indet. (DZMB\_2021\_0062); kingdom: Animalia; phylum: Cnidaria; class: Hydrozoa; taxonRank: Class; scientificNameAuthorship: Owen, 1843; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2483; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-24; eventTime: 10:50:42 am; year: 2018; fieldNumber: INDEX2018-65ROPOS; fieldNotes: 1.8°C; individualCount: 2; lifeStage: Adult; preparations: Imaged only; behavior: attached to sulphides; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2096\_00253-2.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: ord. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 137



Figure 137. [doi](#)

Hydrozoa ord. indet. (DZMB\_2021\_0062) in situ at the South East Indian Ridge at the border of Vent site 6 in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Hydrozoa ord. indet. (DZMB\_2021\_0063)

### Material

- a. taxonConceptID: Hydrozoa ord. indet. (DZMB\_2021\_0063); kingdom: Animalia; phylum: Cnidaria; class: Hydrozoa; taxonRank: Class; scientificNameAuthorship: Owen, 1843; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2638; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-12-11; eventTime: 8:12:05 am; year: 2018; fieldNumber: INDEX2018-99ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2107\_00097.jpg; associatedOccurrences: *Glyptelasma* gen. inc.; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: ord. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 138



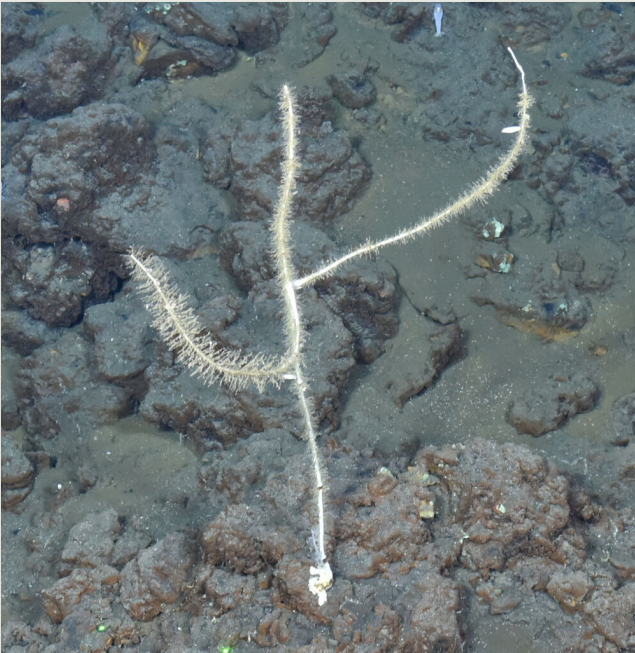


Figure 138. [doi](#)

Hydrozoa ord. indet. (DZMB\_2021\_0063) in situ at the Rodriguez Triple Junction within Vent site 4 in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Hydrozoa ord. indet. (DZMB\_2021\_0064)

### Material

- a. taxonConceptID: Hydrozoa ord. indet. (DZMB\_2021\_0064); kingdom: Animalia; phylum: Cnidaria; class: Hydrozoa; taxonRank: Class; scientificNameAuthorship: Owen, 1843; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2629; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-12-11; eventTime: 8:30:44 am; year: 2018; fieldNumber: INDEX2018-99ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2107\_00117.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: ord. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 139





Figure 139. [doi](#)

Hydrozoa ord. indet. (DZMB\_2021\_0064) in situ at the Rodriguez Triple Junction within Vent site 4 in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Hydrozoa ord. indet. (DZMB\_2021\_0065)

### Material

- a. taxonConceptID: Hydrozoa ord. indet. (DZMB\_2021\_0065); kingdom: Animalia; phylum: Cnidaria; class: Hydrozoa; taxonRank: Class; scientificNameAuthorship: Owen, 1843; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: RTJ; verbatimLocality: Cluster 5; maximumDepthInMeters: 2515; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-12-03; eventTime: 7:15:59 am; year: 2018; fieldNumber: INDEX2018-82ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2103\_00133.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: ord. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 140



Figure 140. [doi](#)

Hydrozoa ord. indet. (DZMB\_2021\_0065) in situ at the Rodriguez Triple Junction in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Anthoathecata Cornelius, 1992

### Family Candelabridae Stechow, 1921

#### Genus *Candelabrum* de Blainville, 1830

#### *Candelabrum* sp. indet.

##### Material

- a. taxonConceptID: *Candelabrum* sp. indet.; kingdom: Animalia; phylum: Cnidaria; class: Hydrozoa; order: Anthoathecata; family: Candelabridae; taxonRank: Genus; genus: *Candelabrum*; scientificNameAuthorship: de Blainville, 1830; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: EGS; verbatimLocality: Cluster 4; maximumDepthInMeters: 3345; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 33; eventDate: 2015-12-06; eventTime: 10:25:54 am; year: 2015; fieldNumber: INDEX2015-58ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 4; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt/sulphides; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1913\_01914.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 141



Figure 141. [doi](#)

*Candelabrum* sp. indet. in situ at the Central Indian Ridge within the Edmond-Vent site 2-vent site 7 area in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Corymorphidae Allman, 1872

### Corymorphidae gen. indet.

#### Material

- a. taxonConceptID: Corymorphidae gen. indet.; kingdom: Animalia; phylum: Cnidaria; class: Hydrozoa; order: Anthoathecata; family: Corymorphidae; taxonRank: Family; genus: -; scientificNameAuthorship: Allman, 1872; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 5; verbatimLocality: Cluster 11; maximumDepthInMeters: 2909; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 29; eventDate: 2018-11-29; eventTime: 6:44:09 am; year: 2018; fieldNumber: INDEX2018-75ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2101\_00040-3.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 142



Figure 142. [doi](#)

Corymorphidae gen. indet. in situ at the South East Indian Ridge at the border of Vent site 5 in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Siphonophorae Eschscholtz, 1829

### Family Rhodaliidae Haeckel, 1888

### Genus *Thermopalia* Pugh, 1983

### Siphonophorae Rhodaliidae *Thermopalia* gen. inc.

#### Material

- a. taxonConceptID: Siphonophorae Rhodaliidae *Thermopalia* gen. inc.; kingdom: Animalia; phylum: Cnidaria; class: Hydrozoa; order: Siphonophorae; family: Rhodaliidae; taxonRank: Genus; genus: *Thermopalia*; scientificNameAuthorship: Pugh, 1983; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: RTJ; verbatimLocality: Cluster 5; maximumDepthInMeters: 2665; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-12-03; eventTime: 11:05:38 am; year: 2018; fieldNumber: INDEX2018-82ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2103\_00254.jpg; identifiedBy: Tina Molodtsova; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 143



Figure 143. [doi](#)

Siphonophorae Rhodaliidae *Thermopalia* gen. inc. in situ at the Rodriguez Triple Junction in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Phylum Echinodermata Bruguiere, 1791 [ex Klein, 1734]

### Class Asterozoa de Blainville, 1830

#### Order Brisingida Fisher, 1928

#### Family Brisingidae G. O. Sars, 1875

#### Genus *Hymenodiscus* Perrier, 1884

#### *Hymenodiscus* gen. inc.

##### Material

- a. taxonConceptID: *Hymenodiscus* gen. inc.; kingdom: Animalia; phylum: Echinodermata; class: Asterozoa; order: Brisingida; family: Brisingidae; taxonRank: Genus; genus: *Hymenodiscus*; scientificNameAuthorship: Perrier, 1884; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: RTJ; verbatimLocality: Cluster 5; maximumDepthInMeters: 2505; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-12-03; eventTime: 6:30:22 am; year: 2018; fieldNumber: INDEX2018-82ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on seafloor; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2103\_00100.jpg; identifiedBy: Christopher Mah; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation



Notes: Fig. 144

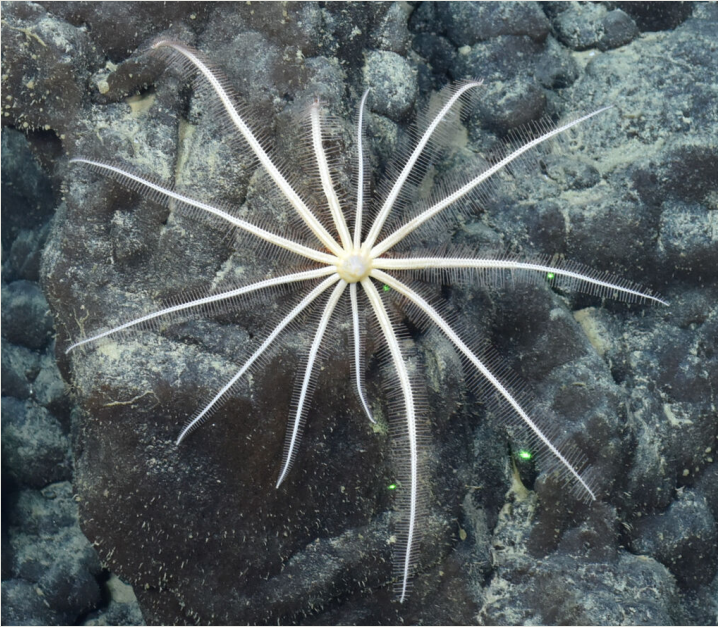


Figure 144. [doi](#)

*Hymenodiscus* gen. inc. in situ at the Rodriguez Triple Junction in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Freyellidae Downey, 1986

### Freyellidae fam. inc.

#### Material

- a. taxonConceptID: Freyellidae fam. inc.; kingdom: Animalia; phylum: Echinodermata; class: Asteroidea; order: Brisingida; family: Freyellidae; taxonRank: Family; scientificNameAuthorship: Downey, 1986; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Pelagia; verbatimLocality: Cluster 8; maximumDepthInMeters: 3668; locationRemarks: RV Pourquoi pas? Cruise INDEX2016 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 37; eventDate: 2016-01-19; eventTime: 9:45:31 am; year: 2016; fieldNumber: INDEX2016-16ROV; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on basalt; recordedBy: IFREMER; occurrenceStatus: present; associatedMedia: 160119094531155\_01\_1080i copy.jpg; identifiedBy: Christopher Mah; identificationRemarks: Identified only from imagery; identificationQualifier: fam. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 145

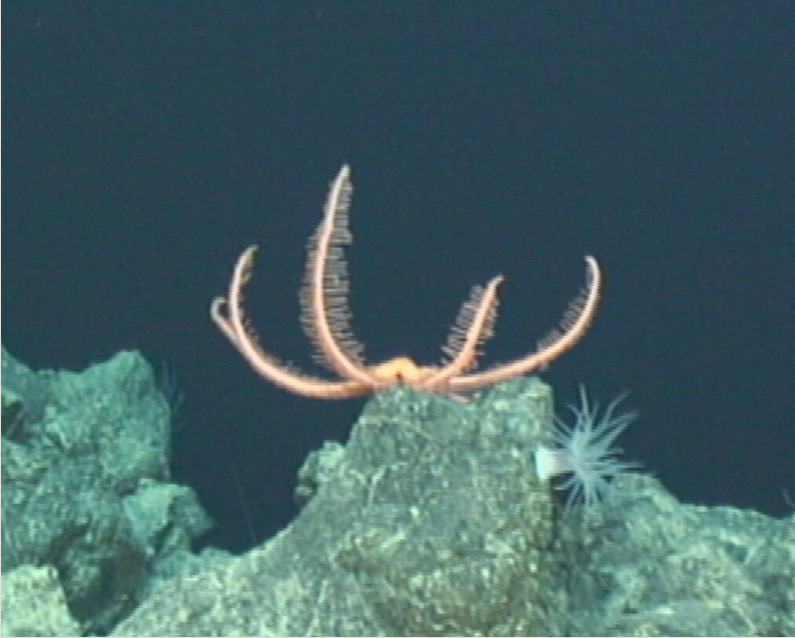


Figure 145. [doi](#)

Freyellidae fam. inc. in situ in the surrounding area of the Pelagia hydrothermal vent field in Cluster 8 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Freyastera* Downey, 1986

### *Freyastera* gen. inc.

#### Material

- a. taxonConceptID: *Freyastera* gen. inc.; kingdom: Animalia; phylum: Echinodermata; class: Asteroidea; order: Brisingida; family: Freyellidae; taxonRank: Genus; genus: *Freyastera*; scientificNameAuthorship: Downey, 1986; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Edmond/ vent site 2; verbatimLocality: Cluster 4; maximumDepthInMeters: 3234; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 31; eventDate: 2013-12-12; eventTime: 10:48:06 am; year: 2013; fieldNumber: INDEX2013-49ROV; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-12\_10-48-06\_Sonne\_INDEX2013-2\_049ROV06\_Logo.jpg; identifiedBy: Christopher Mah; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 146

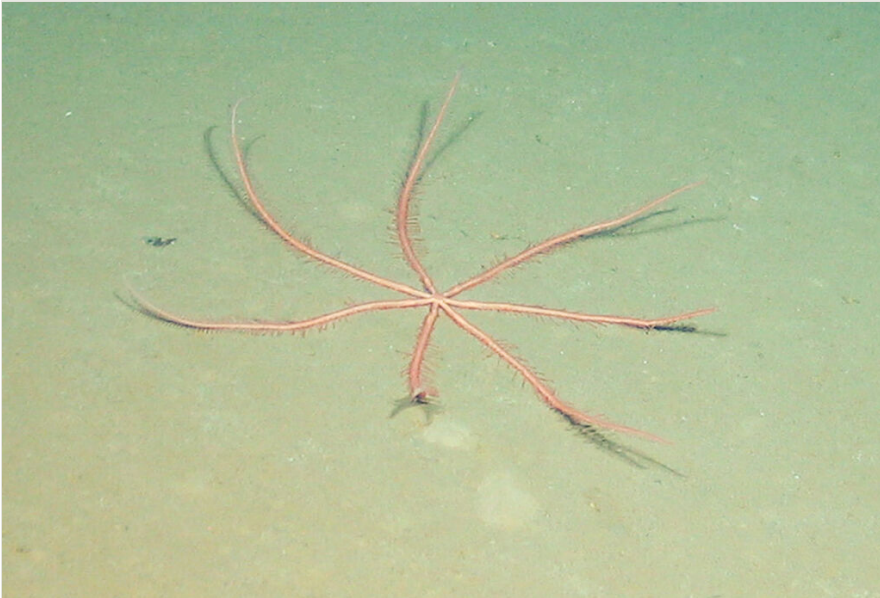


Figure 146. [doi](#)

*Freyastera* gen. inc. in situ in the surrounding area of the Edmond hydrothermal vent field in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR and GEOMAR).

## Genus *Freyella* Perrier, 1885

### *Freyella* gen. inc.

#### Material

- a. taxonConceptID: *Freyella* gen. inc.; kingdom: Animalia; phylum: Echinodermata; class: Asteroidea; order: Brisingida; family: Freyellidae; taxonRank: Genus; genus: *Freyella*; scientificNameAuthorship: Perrier, 1885; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2632; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-12-11; eventTime: 8:21:51 am; year: 2018; fieldNumber: INDEX2018-99ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on seafloor; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2107\_00109.jpg; identifiedBy: Christopher Mah; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 147



Figure 147. [doi](#)

*Freyella* gen. inc. in situ at the border of the vent site 4 hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Paxillosida Perrier, 1884

### Family Porcellanasteridae Sladen, 1883

#### Genus *Styracaster* Sladen, 1883

#### *Styracaster* gen. inc.

##### Material

- a. taxonConceptID: *Styracaster* gen. inc.; kingdom: Animalia; phylum: Echinodermata; class: Asteroidea; order: Paxillosida; family: Porcellanasteridae; taxonRank: Genus; genus: *Styracaster*; scientificNameAuthorship: Sladen, 1883; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2840; locationRemarks: FS Sonne Cruise INDEX2013 Leg 1; decimalLatitude: -23.3860; decimalLongitude: 69.2390; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 28; eventDate: 2013-11-25; eventTime: 4:58:30 am; year: 2013; fieldNumber: INDEX2013-17MFT; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: BGR; occurrenceStatus: present; associatedMedia: 17MFT Fotos 2013-321-2.jpg; identifiedBy: Christopher Mah; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 148



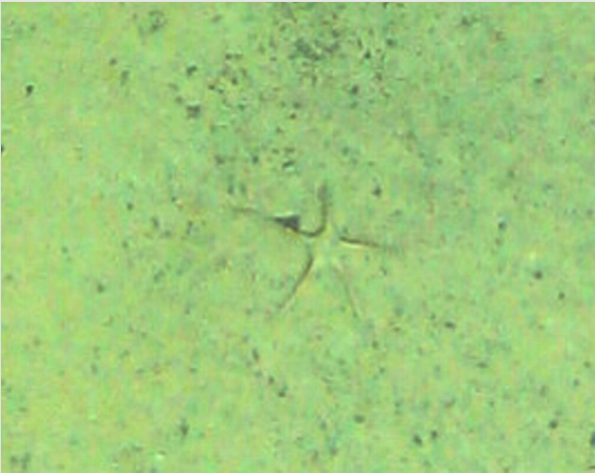


Figure 148. [doi](#)

*Styracaster* gen. inc. in situ in the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Spinulosida Perrier, 1884

### Family Echinasteridae Verrill, 1867

#### Genus *Henricia* Gray, 1840

#### *Henricia* gen. inc.

##### Material

- a. taxonConceptID: *Henricia* gen. inc.; kingdom: Animalia; phylum: Echinodermata; class: Asteroidea; order: Spinulosida; family: Echinasteridae; taxonRank: Genus; genus: *Henricia*; scientificNameAuthorship: Gray, 1840; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2653; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-12-11; eventTime: 4:39:08 am; year: 2018; fieldNumber: INDEX2018-99ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2107\_00042.jpg; identifiedBy: Christopher Mah; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 149





Figure 149. [doi](#)

*Henricia* gen. inc. in situ at the border of the vent site 4 hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Valvatida Perrier, 1884

### Family Goniasteridae Forbes, 1841

#### Goniasteridae gen. indet. (DZMB\_2021\_0066)

##### Material

- a. taxonConceptID: Goniasteridae gen. indet. (DZMB\_2021\_0066); kingdom: Animalia; phylum: Echinodermata; class: Asteroidea; order: Valvatida; family: Goniasteridae; taxonRank: Family; scientificNameAuthorship: Forbes, 1841; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2355; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-23; eventTime: 6:24:30 am; year: 2018; fieldNumber: INDEX2018-63ROPOS; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on hard substrates; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2095\_00067.jpg; identifiedBy: Christopher Mah; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 150



Figure 150. [doi](#)

Goniasteridae gen. indet. (DZMB\_2021\_0066) in situ at the border of the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Goniasteridae gen. indet. (DZMB\_2021\_0067)

### Material

- a. taxonConceptID: Goniasteridae gen. indet. (DZMB\_2021\_0067); kingdom: Animalia; phylum: Echinodermata; class: Asteroidea; order: Valvatida; family: Goniasteridae; taxonRank: Family; scientificNameAuthorship: Forbes, 1841; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Edmond; verbatimLocality: Cluster 4; maximumDepthInMeters: 3328; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; decimalLatitude: -23.8791; decimalLongitude: 69.6003; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 33; eventDate: 2013-12-10; eventTime: 12:16:39 am; year: 2013; fieldNumber: INDEX2013-44MFT; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: BGR; occurrenceStatus: present; associatedMedia: 44MFT Fotos 2013-447\_Circeaster MAYBE.jpg; identifiedBy: Christopher Mah; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 151



Figure 151. [doi](#)

Goniasteridae gen. indet. (DZMB\_2021\_0067) in situ in the surrounding area of the Edmond hydrothermal vent field in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Circeaster* Koehler, 1909

### *Circeaster* gen. inc.

#### Material

- a. taxonConceptID: *Circeaster* gen. inc.; kingdom: Animalia; phylum: Echinodermata; class: Asteroidea; order: Valvatida; family: Goniasteridae; taxonRank: Genus; genus: *Circeaster*; scientificNameAuthorship: Koehler, 1909; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2473; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-11-22; eventTime: 10:33:44 am; year: 2018; fieldNumber: INDEX2018-61ROPOS; fieldNotes: 1.9°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on hard substrates; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2094\_01142.jpg; identifiedBy: Christopher Mah; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 152



Figure 152. [doi](#)

*Circeaster* gen. inc. in situ at the South East Indian Ridge in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Evoplosoma* Fisher, 1906

### *Evoplosoma* gen. inc.

#### Material

- a. taxonConceptID: *Evoplosoma* gen. inc.; kingdom: Animalia; phylum: Echinodermata; class: Asteroidea; order: Valvatida; family: Goniasteridae; taxonRank: Genus; genus: *Evoplosoma*; scientificNameAuthorship: Fisher, 1906; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2465; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-11-20; eventTime: 12:21:14 pm; year: 2018; fieldNumber: INDEX2018-57ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Attached to coral stalk; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2092\_00603.jpg; associatedOccurrences: Alcyonacea fam. indet.; identifiedBy: Christopher Mah; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 153



Figure 153. [doi](#)

*Evoplosoma* gen. inc. in situ at the border of the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Lydiaster* Koehler, 1909

### *Lydiaster johannae* sp. inc. Koehler, 1909

#### Material

- a. scientificName: *Lydiaster johannae*; taxonConceptID: *Lydiaster johannae* sp. inc.; kingdom: Animalia; phylum: Echinodermata; class: Asteroidea; order: Valvatida; family: Goniasteridae; taxonRank: Species; genus: *Lydiaster*; scientificNameAuthorship: Koehler, 1909; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Edmond/vent site 2; verbatimLocality: Cluster 4; maximumDepthInMeters: 3240; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 31; eventDate: 2013-12-12; eventTime: 10:39:59 am; year: 2013; fieldNumber: INDEX2013-49ROV; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013\_INDEX2013\_049ROV06.jpg; associatedOccurrences: Polynoidae fam. inc.; identifiedBy: Christopher Mah; identificationRemarks: Identified only from imagery; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 154





Figure 154. [doi](#)

*Lydiaster johannae* sp. inc. in situ in the surrounding area of the Edmond hydrothermal vent field in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR and GEOMAR).

## Family Solasteridae Viguer, 1878

### Solasteridae fam. inc.

#### Material

- a. taxonConceptID: Solasteridae fam. inc.; kingdom: Animalia; phylum: Echinodermata; class: Asteroidea; order: Valvatida; family: Solasteridae; taxonRank: Family; scientificNameAuthorship: Viguer, 1878; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Pelagia; verbatimLocality: Cluster 8; maximumDepthInMeters: 3465; locationRemarks: RV Pelagia Cruise INDEX2014 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 35; eventDate: 2014-11-17; eventTime: 9:08:09 am; year: 2014; fieldNumber: INDEX2014-28VS; fieldNotes: 1.7°C; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on hard substrates; recordedBy: NIOZ; occurrenceStatus: present; associatedMedia: 20141117090809540.jpg; identifiedBy: Christopher Mah; identificationRemarks: Identified only from imagery; identificationQualifier: fam. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 155

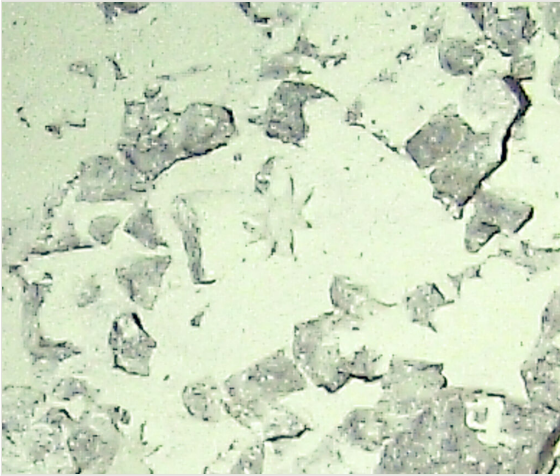


Figure 155. [doi](#)

Solasteridae fam. inc. in situ in the surrounding area of the Pelagia hydrothermal vent field in Cluster 8 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Velatida Perrier, 1884

### Family Myxasteridae Perrier, 1885

#### Genus *Asthenactis* Fisher, 1906

#### *Asthenactis* gen. inc.

##### Material

- a. taxonConceptID: *Asthenactis* gen. inc.; kingdom: Animalia; phylum: Echinodermata; class: Asteroidea; order: Velatida; family: Myxasteridae; taxonRank: Genus; genus: *Asthenactis*; scientificNameAuthorship: Fisher, 1906; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: SEIR; verbatimLocality: Cluster 9; maximumDepthInMeters: 3472; locationRemarks: RV Pelagia Cruise INDEX2014 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 36; eventDate: 2014-11-28; eventTime: 2:50:57 pm; year: 2014; fieldNumber: INDEX2014-44VS; fieldNotes: 1.7°C; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on seafloor; recordedBy: NIOZ; occurrenceStatus: present; associatedMedia: 20141128145057005.jpg; identifiedBy: Christopher Mah; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 156



Figure 156. [doi](#)

*Asthenactis* gen. inc. in situ at the South East Indian Ridge in Cluster 9 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Pterasteridae Perrier, 1875

### Genus *Hymenaster* Wyville Thomson, 1873

#### *Hymenaster* sp. indet.

##### Material

- a. taxonConceptID: *Hymenaster* sp. indet.; kingdom: Animalia; phylum: Echinodermata; class: Asteroidea; order: Velatida; family: Pterasteridae; taxonRank: Genus; genus: *Hymenaster*; scientificNameAuthorship: Wyville Thomson, 1873; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: SEIR; verbatimLocality: Cluster 6; maximumDepthInMeters: 3588; locationRemarks: RV Pelagia Cruise INDEX2014 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 38; eventDate: 2014-12-03; eventTime: 5:28:01 pm; year: 2014; fieldNumber: INDEX2014-54VS; fieldNotes: 1.7°C; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on hard substrates; recordedBy: NIOZ; occurrenceStatus: present; associatedMedia: 20141203172801863.jpg; identifiedBy: Christopher Mah; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 157



Figure 157. [doi](#)

*Hymenaster* sp. indet. in situ at the South East Indian Ridge in Cluster 6 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Pteraster* Müller & Troschel, 1842

### *Pteraster* gen. inc.

#### Material

- a. taxonConceptID: *Pteraster* gen. inc.; kingdom: Animalia; phylum: Echinodermata; class: Asteroidea; order: Velatida; family: Pterasteridae; taxonRank: Genus; genus: *Pteraster*; scientificNameAuthorship: Müller & Troschel, 1842; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: SEIR; verbatimLocality: Cluster 11; maximumDepthInMeters: 2892; locationRemarks: FS Sonne Cruise INDEX2017 Leg 1; decimalLatitude: -27.2563; decimalLongitude: 72.7241; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 29; eventDate: 2017-09-24; eventTime: 3:25:09 pm; year: 2017; fieldNumber: INDEX2017-83STR; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on basalt; recordedBy: BGR; occurrenceStatus: present; associatedMedia: IMG\_4517.jpg; identifiedBy: Christopher Mah; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 158



Figure 158. [doi](#)

*Pteraster* gen. inc. in situ at the South East Indian Ridge in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Class Crinoidea Miller, 1821

### Order Comatulida

### Family Antedonidae Norman, 1865

### Antedonidae gen. indet. (DZMB\_2021\_0068)

#### Material

- a. taxonConceptID: Antedonidae gen. indet. (DZMB\_2021\_0068); kingdom: Animalia; phylum: Echinodermata; class: Crinoidea; order: Comatulida; family: Antedonidae; taxonRank: Family; scientificNameAuthorship: Norman, 1865; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 5; verbatimLocality: Cluster 11; maximumDepthInMeters: 2909; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 29; eventDate: 2018-11-29; eventTime: 10:01:21 am; year: 2018; fieldNumber: INDEX2018-75ROPOS; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2101\_00131.jpg; identifiedBy: Charles G. Messing; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 159





Figure 159. [doi](#)

Antedonidae gen. indet. (DZMB\_2021\_0068) in situ in the surrounding area of the vent site 5 hydrothermal vent field in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Antedonidae fam. inc. (DZMB\_2021\_0069)

### Material

- a. taxonConceptID: Antedonidae fam. inc. (DZMB\_2021\_0069); kingdom: Animalia; phylum: Echinodermata; class: Crinoidea; order: Comatulida; family: Antedonidae; taxonRank: Family; scientificNameAuthorship: Norman, 1865; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Edmond/ Vent site 7; verbatimLocality: Cluster 4; maximumDepthInMeters: 3245; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 32; eventDate: 2013-12-14; eventTime: 11:52:16 am; year: 2013; fieldNumber: INDEX2013-55ROV; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on basalt; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-14\_11-52-16\_Sonne\_INDEX2013-2\_055ROV08\_Logo.jpg; identifiedBy: Charles G. Messing; identificationRemarks: Identified only from imagery; identificationQualifier: fam. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 160



Figure 160. [doi](#)

Antedonidae fam. inc. (DZMB\_2021\_0069) in situ in the surrounding area of the Edmond hydrothermal vent field in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR and GEOMAR).

## Genus *Bathymetra* AH Clark, 1908

### *Bathymetra* gen. inc.

#### Material

- a. taxonConceptID: *Bathymetra* gen. inc.; kingdom: Animalia; phylum: Echinodermata; class: Crinoidea; order: Comatulida; family: Antedonidae; taxonRank: Genus; genus: *Bathymetra*; scientificNameAuthorship: AH Clark, 1908; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Pelagia; verbatimLocality: Cluster 8; maximumDepthInMeters: 3677; locationRemarks: RV Pourquoi pas? Cruise INDEX2016 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 37; eventDate: 2016-01-21; eventTime: 9:50:33 pm; year: 2016; fieldNumber: INDEX2016-20ROV; fieldNotes: 1.7°C, 34.7 ppt; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: IFREMER; occurrenceStatus: present; associatedMedia: 160121215033072\_01\_1080i Kopie.jpg; identifiedBy: Charles G. Messing; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 161

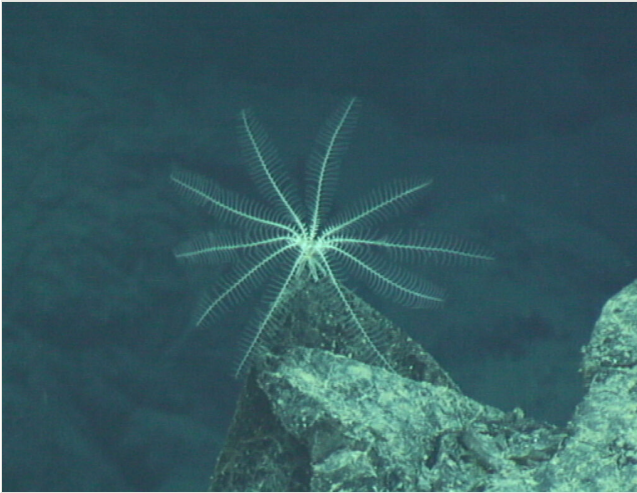


Figure 161. [doi](#)

*Bathymetra* gen. inc. in situ in the surrounding area of the Pelagia hydrothermal vent field in Cluster 8 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Pentametrocrinidae AH Clark, 1908

### Genus *Pentametrocrinus* AH Clark, 1908

#### *Pentametrocrinus* sp. indet.

##### Material

- a. taxonConceptID: *Pentametrocrinus* sp. indet.; kingdom: Animalia; phylum: Echinodermata; class: Crinoidea; order: Comatulida; family: Pentametrocrinidae; taxonRank: Genus; genus: *Pentametrocrinus*; scientificNameAuthorship: AH Clark, 1908; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2827; locationRemarks: FS Sonne Cruise INDEX2013 Leg 1; decimalLatitude: -23.3924; decimalLongitude: 69.2425; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 28; eventDate: 2013-11-25; eventTime: 3:17:19 am; year: 2013; fieldNumber: INDEX2013-17MFT; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: BGR; occurrenceStatus: present; associatedMedia: 17MFT Fotos 2013-314-3\_Probably CRINOID.jpg; identifiedBy: Charles G. Messing; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 162



Figure 162. [doi](#)

*Pentametrocrinus* sp. indet. in situ in the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Hyocrinida Rasmussen, 1978

### Family Hyocrinidae Carpenter, 1884

#### Hyocrinidae gen. indet.

##### Material

- a. taxonConceptID: Hyocrinidae gen. indet.; kingdom: Animalia; phylum: Echinodermata; class: Crinoidea; order: Hyocrinida; family: Hyocrinidae; taxonRank: Family; scientificNameAuthorship: Carpenter, 1884; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Pelagia; verbatimLocality: Cluster 8; maximumDepthInMeters: 3676; locationRemarks: RV Pourquoi pas? Cruise INDEX2016 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 37; eventDate: 2016-01-22; eventTime: 12:53:56 am; year: 2016; fieldNumber: INDEX2016-20ROV; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 1; lifeStage: likely juvenile; preparations: Imaged only; behavior: attached to basalt; recordedBy: IFREMER; occurrenceStatus: present; associatedMedia: 160122005356857\_16\_1080i Kopie.jpg; identifiedBy: Charles G. Messing; identificationRemarks: Identified only from imagery; identificationQualifier:



gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 163



Figure 163. [doi](#)

Hyocrinidae gen. indet. in situ in the surrounding area of the Pelagia hydrothermal vent field in Cluster 8 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Class Echinoidea Leske, 1778

### *Infraclass Irregularia* Latreille, 1825

#### *Irregularia* infracl. inc.

##### Material

- a. taxonConceptID: *Irregularia* infracl. inc.; kingdom: Animalia; phylum: Echinodermata; class: Echinoidea; taxonRank: *Infraclass*; scientificNameAuthorship: Latreille, 1825; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: SEIR; verbatimLocality: Cluster 9; maximumDepthInMeters: 3354; locationRemarks: RV Pelagia Cruise INDEX2014 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 36; eventDate: 2014-11-28; eventTime: 12:48:48 pm; year: 2014; fieldNumber: INDEX2014-44VS; fieldNotes: 1.7°C; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: NIOZ; occurrenceStatus: present; associatedMedia: 20141128124848010.jpg; identifiedBy: Andreas Kroh; identificationRemarks: Identified only from imagery; identificationQualifier: infracl. inc.;



language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

**Notes:** Remarks: The animal seen in Fig. 164 appears to be an irregular sea urchin, based on the overall shape and darker radial regions possibly representing ambulacra. It could belong to a number of different groups, including holasteroids, spatangoids and cassiduloids. The blurred nature of the image renders a more refined identification impossible.

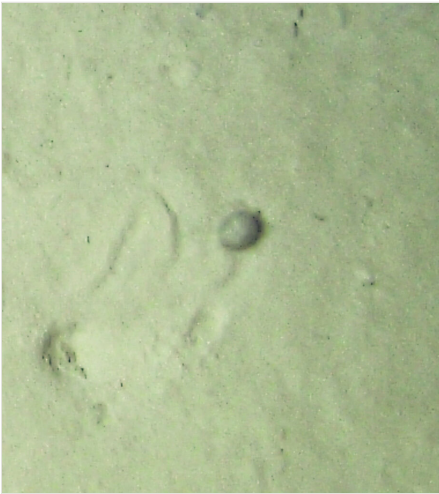


Figure 164. [doi](#)

*Irregularia* infracl. inc. in situ at the South East Indian Ridge in Cluster 9 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Cidaroida Claus, 1880

### Cidaroida fam. indet.

#### Material

- a. taxonConceptID: Cidaroida fam. indet.; kingdom: Animalia; phylum: Echinodermata; class: Echinoidea; order: Cidaroida; taxonRank: Order; scientificNameAuthorship: Claus, 1880; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2508; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-12-04; eventTime: 8:09:09 am; year: 2018; fieldNumber: INDEX2018-85ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2104\_00106.jpg; identifiedBy: Andreas Kroh; identificationRemarks: Identified only from imagery; identificationQualifier: fam. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 165



Figure 165. [doi](#)

Cidaroida fam. indet. in situ in the surrounding area of the Rodriguez Triple Junction in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Echinothurioida Claus, 1880

### Family Echinothuriidae Thomson, 1872

### Genus *Hapalosoma* Mortensen, 1903

#### *Hapalosoma* sp. indet.

##### Material

- a. taxonConceptID: *Hapalosoma* sp. indet.; taxonID: 113\_379; scientificNameID: Sperosoma biseriatum; kingdom: Animalia; phylum: Echinodermata; class: Echinoidea; order: Echinothurioida; family: Echinothuriidae; taxonRank: Genus; genus: *Hapalosoma*; scientificNameAuthorship: Mortensen, 1903; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Edmond/ Vent site 7; verbatimLocality: Cluster 4; maximumDepthInMeters: 3286; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; decimalLatitude: -23.8780; decimalLongitude: 69.6014; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 32; eventDate: 2013-12-14; eventTime: 10:56:53 am; year: 2013; fieldNumber: INDEX2013-55ROV; individualCount: 1; lifeStage: Adult; preparations: DNA voucher and animal stored in 96% ethanol; behavior: on sediment; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-14\_10-56-53\_Sonne\_INDEX2013-2\_055ROV08\_Logo.jpg;

associatedOccurrences: none; associatedSequences: COI; identifiedBy: Andreas Kroh; identificationRemarks: Identified by morphology and DNA of collected specimen; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; collectionCode: I13\_55RO\_BB\_1; datasetName: INDEX; basisOfRecord: Human Observation

**Notes:** Remarks: The echinoid seen in Fig. 166 clearly is a member of the subfamily Echinothuriinae, based on the presence of primary spines with their characteristic terminal hoofs. Identification to genus and species level is difficult in echinothurioids, specifically when based on images, since many forms are largely differentiated by details of their plate arrangement and pedicellarial morphology. In the present case, however, some information on the pedicellariae can be gained from the images. The specimen possesses very large tridentate pedicellariae with rounded blades which broaden towards the tip from a narrow base, a feature only known from species of the genus *Hapalosoma* (see Mortensen 1935, Anderson 2013). Four species of this genus are known (Anderson 2013), but none of them occurring in the Indian Ocean (having been reported from the New Zealand region, Malay Archipelago and Sagami Sea). That fact, combined with the divergent colouration of the observed specimen, suggests that it might belong to a new, yet undescribed species of *Hapalosoma*.

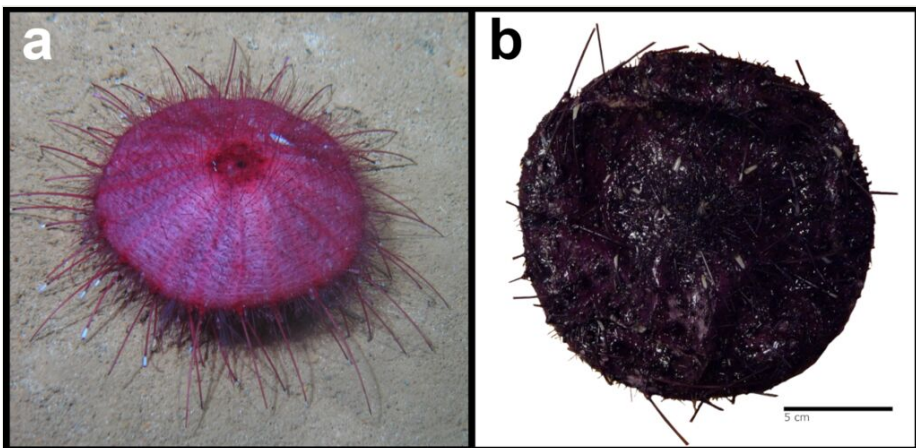


Figure 166. [doi](#)

*Hapalosoma* sp. indet. in situ (a) and sampled specimen (b) in the surrounding area of the Edmond hydrothermal vent field in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR and GEOMAR).

Less detail can be recognized in an individual seen in images R1915\_00209 and R1915\_00213, but the high similarity to the specimen in Fig. 166 suggests that this might be a second representative of this putative new species.

## Order Salenioida Delage & Herouard, 1903

### Family Saleniidae Agassiz, 1838

### Genus *Salenocidaris* Agassiz, 1869

#### *Salenocidaris* sp. indet.

##### Material

- a. taxonConceptID: *Salenocidaris* sp. indet.; kingdom: Animalia; phylum: Echinodermata; class: Echinoidea; order: Salenioida; family: Saleniidae; taxonRank: Genus; genus: *Salenocidaris*; scientificNameAuthorship: Agassiz, 1869; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2387; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-23; eventTime: 8:11:50 am; year: 2018; fieldNumber: INDEX2018-63ROPOS; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2095\_00122.jpg; identifiedBy: Andreas Kroh; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

**Notes:** Remarks: The presence of relatively few, long and slender spines with upturned distal ends characterise the observed echinoids as saleniids. This is further supported by the excentric position of the periproct and large apical disc seen in Fig. 167. Of extant saleniids, three genera are known, two of these (*Salenia* and *Bathysalenia*) are characterised by distinctly banded spines (with the exception of *Salenia unicolor* Mortensen 1934 from the Sagami Sea and the Celebes Sea) and can be excluded. *Salenia unicolor* is reported to have greenish-white primary spines and a greyish-purple test (Mortensen 1935), unlike the observed animals which have white spines and a white to light purple test. The observed specimens are thus assigned to the genus *Salenocidaris*. Amongst *Salenocidaris*, the most likely candidate seems to be *S. hastigera* (Agassiz 1879), which fits in terms of colouration and has been reported from the Malay Archipelago and the Indian Ocean (Mortensen 1935). The latter were assigned to a separate variety (now considered a subspecies) *S. hastigera acuminata*, based on the long and pointed ambulacral spines (Mortensen 1934) – a feature which cannot be evaluated in the *in-situ* images available. A second possible candidate species is *Salenocidaris incrassata* Mortensen, 1934 described from the Celebes Sea. It is characterised by non-contiguous areoles of the primary interambulacral tubercles and distally thickened secondary spines – again features not visible in the available imagery. All other *Salenocidaris* species are either occurring in different oceans or are characterised by violet to dark purple tests and can, therefore, easily be excluded.



Figure 167. [doi](#)

*Salenocidaris* sp. indet. in situ in the surrounding area of the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Class Holothuroidea

### Order Apodida Brandt, 1835

### Family Chiridotidae Östergren, 1898

### Genus *Chiridota* Eschscholtz, 1829

### *Chiridota hydrothermica* sp. inc. Smirnov & Gebruk, 2000

#### Material

- a. scientificName: *Chiridota hydrothermica*; taxonConceptID: *Chiridota hydrothermica* sp. inc.; taxonID: 113\_380; scientificNameID: *Chiridota* sp. 1; kingdom: Animalia; phylum: Echinodermata; class: Holothuroidea; order: Apodida; family: Chiridotidae; taxonRank: Species; genus: *Chiridota*; scientificNameAuthorship: Smirnov & Gebruk, 2000; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Edmond; verbatimLocality: Cluster 4; maximumDepthInMeters: 3281; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; decimalLatitude: -23.8767; decimalLongitude: 69.5964; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 31; eventDate: 2013-12-12; eventTime: 6:23:30 am; year: 2013; fieldNumber: INDEX2013-49ROV; individualCount: 1; lifeStage: Adult; preparations: DNA voucher and animal stored in 96% ethanol; behavior: on sulphides; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-12\_06-23-30\_Sonne\_INDEX2013-2\_049ROV06\_Logo.jpg; associatedOccurrences: none; associatedSequences: COI; identifiedBy: Andrey Gebruk, Antonina Kremenetskaia; identificationRemarks: Identified by morphology and DNA of collected specimen; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB;



collectionCode: I13\_49RO\_SG2\_2; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 168

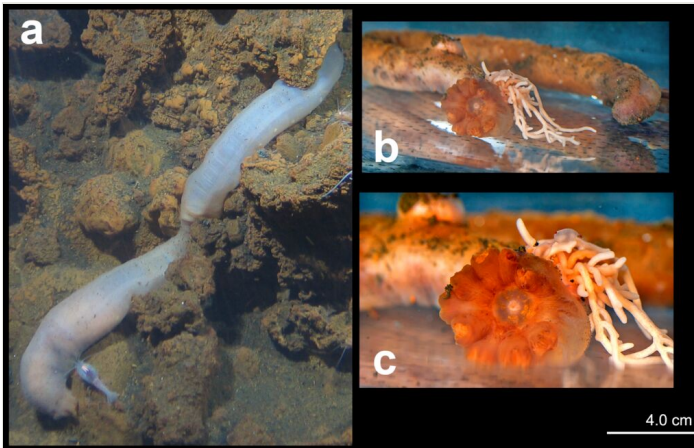


Figure 168. [doi](#)

*Chiridota hydrothermica* sp. inc. in situ (a) and sampled specimen (b+c) within the Edmond hydrothermal vent field in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR and GEOMAR).

## Order Elasipodida Théel, 1882

### Family Elpidiidae Théel, 1882

#### Elpidiidae gen. indet. (DZMB\_2021\_0070)

##### Material

- a. taxonConceptID: Elpidiidae gen. indet. (DZMB\_2021\_0070); kingdom: Animalia; phylum: Echinodermata; class: Holothuroidea; order: Elasipodida; family: Elpidiidae; taxonRank: Family; scientificNameAuthorship: Théel, 1882; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2820; locationRemarks: FS Sonne Cruise INDEX2013 Leg 1; decimalLatitude: -23.3919; decimalLongitude: 69.2420; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 28; eventDate: 2013-11-25; eventTime: 3:27:11 am; year: 2013; fieldNumber: INDEX2013-17MFT; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on basalt; recordedBy: BGR; occurrenceStatus: present; associatedMedia: 17MFT Fotos 2013-289-7.jpg; identifiedBy: Andrey Gebruk, Antonina Kremenetskaia; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 169



Figure 169. [doi](#)

Elpidiidae gen. indet. (DZMB\_2021\_0070) in situ in the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR).

### Elpidiidae gen. indet. (DZMB\_2021\_0071)

#### Material

- a. taxonConceptID: Elpidiidae gen. indet. (DZMB\_2021\_0071); kingdom: Animalia; phylum: Echinodermata; class: Holothuroidea; order: Elasipodida; family: Elpidiidae; taxonRank: Family; scientificNameAuthorship: Théel, 1882; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2604; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-12-09; eventTime: 6:06:13 am; year: 2018; fieldNumber: INDEX2018-95ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2105\_00055.jpg; identifiedBy: Andrey Gebruk, Antonina Kremenetskaia; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 170



Figure 170. [doi](#)

Elpidiidae gen. indet. (DZMB\_2021\_0071) in situ in the area of the Rodriguez Triple Junction in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Elpidiidae gen. indet. (DZMB\_2021\_0072)

### Material

- a. taxonConceptID: Elpidiidae gen. indet. (DZMB\_2021\_0072); kingdom: Animalia; phylum: Echinodermata; class: Holothuroidea; order: Elasipodida; family: Elpidiidae; taxonRank: Family; scientificNameAuthorship: Théel, 1882; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: SEIR; verbatimLocality: Cluster 9; maximumDepthInMeters: 3345; locationRemarks: RV Pelagia Cruise INDEX2014 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 36; eventDate: 2014-11-28; eventTime: 11:29:03 am; year: 2014; fieldNumber: INDEX2014-44VS; fieldNotes: 1.7°C; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on seafloor; recordedBy: NIOZ; occurrenceStatus: present; associatedMedia: 20141128112903004.jpg; identifiedBy: Andrey Gebruk, Antonina Kremenetskaia; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 171



Figure 171. [doi](#)

Elpidiidae gen. indet. (DZMB\_2021\_0072) in situ at the South East Indian Ridge in Cluster 9 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Peniagone* Théel, 1882

### *Peniagone purpurea* (Théel, 1882)

#### Material

- a. scientificName: *Peniagone purpurea*; taxonConceptID: *Peniagone purpurea*; kingdom: Animalia; phylum: Echinodermata; class: Holothuroidea; order: Elasipodida; family: Elpidiidae; taxonRank: Species; genus: *Peniagone*; scientificNameAuthorship: (Théel, 1882); waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: EGS; verbatimLocality: Cluster 4; maximumDepthInMeters: 3155; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 31; eventDate: 2015-12-07; eventTime: 5:22:16 am; year: 2015; fieldNumber: INDEX2015-60ROV; fieldNotes: 1.8°C, 34.7 ppt; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1914\_00060.jpg; identifiedBy: Andrey Gebruk, Antonina Kremenetskaia; identificationRemarks: Identified only from imagery; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 172





Figure 172. [doi](#)

*Peniagone purpurea* in situ at the border of the Edmond hydrothermal vent field in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Laetmogonidae Ekman, 1926

### Laetmogonidae gen. indet.

#### Material

- a. taxonConceptID: Laetmogonidae gen. indet.; kingdom: Animalia; phylum: Echinodermata; class: Holothuroidea; order: Elasipodida; family: Laetmogonidae; taxonRank: Family; scientificNameAuthorship: Ekman, 1926; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2509; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-11-20; eventTime: 7:46:20 am; year: 2018; fieldNumber: INDEX2018-57ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on seafloor; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2092\_00427.jpg; identifiedBy: Andrey Gebruk, Antonina Kremenetskaia; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 173





Figure 173. [doi](#)

Laetmogonidae gen. indet. in situ at the South East Indian Ridge in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Pelagothuriidae Ludwig, 1893

### Genus *Eynpniastes* Théel, 1882

#### *Eynpniastes eximia* Théel, 1882

##### Material

- a. scientificName: *Eynpniastes eximia*; taxonConceptID: *Eynpniastes eximia*; kingdom: Animalia; phylum: Echinodermata; class: Holothuroidea; order: Elapodida; family: Pelagothuriidae; taxonRank: Species; genus: *Eynpniastes*; scientificNameAuthorship: Théel, 1882; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: EGS; verbatimLocality: Cluster 4; maximumDepthInMeters: 3313; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 32; eventDate: 2015-12-08; eventTime: 6:41:13 am; year: 2015; fieldNumber: INDEX2015-62ROV; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1915\_00155.jpg; identifiedBy: Andrey Gebruk, Antonina Kremenetskaia; identificationRemarks: Identified only from imagery; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 174



Figure 174. [doi](#)

*Enypniastes eximia* in situ within the Edmond-vent site 2-vent site 7 area field in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Psychropotidae Théel, 1882

### Genus *Benthodytes* Théel, 1882

#### *Benthodytes* sp. indet.

##### Material

- a. taxonConceptID: *Benthodytes* sp. indet.; kingdom: Animalia; phylum: Echinodermata; class: Holothuroidea; order: Elasipodida; family: Psychropotidae; taxonRank: Genus; genus: *Benthodytes*; scientificNameAuthorship: Théel, 1882; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: RTJ; verbatimLocality: Cluster 5; maximumDepthInMeters: 2468; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-12-03; eventTime: 7:51:11 am; year: 2018; fieldNumber: INDEX2018-82ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2103\_00152.jpg; identifiedBy: Andrey Gebruk, Antonina Kremenetskaia; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 175



Figure 175. [doi](#)

*Benthodytes* sp. indet. in situ at the Rodriguez Triple Junction in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Persiculida Miller, Kerr, Paulay, Reich, Wilson, Carvajal & Rouse, 2017

### Genus *Benthothuria* Perrier R., 1898

#### *Benthothuria* gen. inc.

##### Material

- a. taxonConceptID: *Benthothuria* gen. inc.; kingdom: Animalia; phylum: Echinodermata; class: Holothuroidea; order: Persiculida; taxonRank: Genus; genus: *Benthothuria*; scientificNameAuthorship: Perrier R., 1898; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: SEIR; verbatimLocality: Cluster 6; maximumDepthInMeters: 3123; locationRemarks: RV Pelagia Cruise INDEX2014 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 32; eventDate: 2014-11-12; eventTime: 10:26:10 pm; year: 2014; fieldNumber: INDEX2014-24VS; fieldNotes: 1.7°C; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: NIOZ; occurrenceStatus: present; associatedMedia: 20141112222610407.jpg; identifiedBy: Andrey Gebruk, Antonina Kremenetskaia; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 176



Figure 176. [doi](#)

*Benthothuria* gen. inc. in situ at the South East Indian Ridge in Cluster 6 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Pseudostichopodidae Miller, Kerr, Paulay, Reich, Wilson, Carvajal & Rouse, 2017

### Genus *Pseudostichopus* Théel, 1886

#### *Pseudostichopus* gen. inc. (DZMB\_2021\_0073)

##### Material

- a. taxonConceptID: *Pseudostichopus* gen. inc. (DZMB\_2021\_0073); kingdom: Animalia; phylum: Echinodermata; class: Holothuroidea; order: Persiculida; family: Pseudostichopodidae; taxonRank: Genus; genus: *Pseudostichopus*; scientificNameAuthorship: Théel, 1886; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: SEIR; verbatimLocality: Cluster 9; maximumDepthInMeters: 2710; locationRemarks: RV Pelagia Cruise INDEX2014 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 27; eventDate: 2014-11-28; eventTime: 7:48:43 am; year: 2014; fieldNumber: INDEX2014-43VS; fieldNotes: 1.7°C; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: NIOZ; occurrenceStatus: present; associatedMedia: 20141128074843177.jpg; identifiedBy: Andrey Gebruk, Antonina Kremenetskaia; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 177



Figure 177. [doi](#)

*Pseudostichopus* gen. inc. (DZMB\_2021\_0073) in situ at the South East Indian Ridge in Cluster 9 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### *Pseudostichopus* sp. indet. (DZMB\_2021\_0074)

#### Material

- a. taxonConceptID: *Pseudostichopus* sp. indet. (DZMB\_2021\_0074); kingdom: Animalia; phylum: Echinodermata; class: Holothuroidea; order: Persiculida; family: Pseudostichopodidae; taxonRank: Genus; genus: *Pseudostichopus*; scientificNameAuthorship: Théel, 1886; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2496; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-11-20; eventTime: 11:44:51 am; year: 2018; fieldNumber: INDEX2018-57ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2092\_00588.jpg; identifiedBy: Andrey Gebruk, Antonina Kremenetskaia; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 178





Figure 178. [doi](#)

*Pseudostichopus* sp. indet. (DZMB\_2021\_0074) in situ in the surrounding area of the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Synallactida Miller, Kerr, Paulay, Reich, Wilson, Carvajal & Rouse, 2017

### Family Deimatidae Théel, 1882

### Genus *Oneirophanta* Théel, 1879

### *Oneirophanta* sp. indet.

#### Material

- a. taxonConceptID: *Oneirophanta* sp. indet.; kingdom: Animalia; phylum: Echinodermata; class: Holothuroidea; order: Synallactida; family: Deimatidae; taxonRank: Genus; genus: *Oneirophanta*; scientificNameAuthorship: Théel, 1879; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2850; locationRemarks: FS Sonne Cruise INDEX2013 Leg 1; decimalLatitude: -23.3839; decimalLongitude: 69.2378; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 28; eventDate: 2013-11-25; eventTime: 5:30:51 am; year: 2013; fieldNumber: INDEX2013-17MFT; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on seafloor; recordedBy: BGR; occurrenceStatus: present; associatedMedia: 17MFT Fotos 2013-308.jpg; identifiedBy: Andrey Gebruk, Antonina Kremenetskaia; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 179



Figure 179. [doi](#)

*Oneirophanta* sp. indet. in situ in the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Synallactidae Ludwig, 1894

### Synallactidae gen. indet. (DZMB\_2021\_0075)

#### Material

- a. taxonConceptID: Synallactidae gen. indet. (DZMB\_2021\_0075); kingdom: Animalia; phylum: Echinodermata; class: Holothuroidea; order: Synallactida; family: Synallactidae; taxonRank: Family; scientificNameAuthorship: Ludwig, 1894; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2826; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2013-12-15; eventTime: 10:35:24 am; year: 2013; fieldNumber: INDEX2013-57ROV; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on basalt; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-15\_10-35-24\_Sonne\_INDEX2013-2\_057ROV09\_Logo.jpg; identifiedBy: Andrey Gebruk, Antonina Kremenetskaia; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 180



Figure 180. [doi](#)

Synallactidae gen. indet. (DZMB\_2021\_0075) in situ in the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR and GEOMAR).

### Synallactidae gen. indet. (DZMB\_2021\_0076)

#### Material

- a. taxonConceptID: Synallactidae gen. indet. (DZMB\_2021\_0076); kingdom: Animalia; phylum: Echinodermata; class: Holothuroidea; order: Synallactida; family: Synallactidae; taxonRank: Family; scientificNameAuthorship: Ludwig, 1894; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: EGS; verbatimLocality: Cluster 4; maximumDepthInMeters: 3199; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 31; eventDate: 2015-12-07; eventTime: 6:11:49 am; year: 2015; fieldNumber: INDEX2015-60ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on seafloor; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1914\_00119.jpg; identifiedBy: Andrey Gebruk, Antonina Kremenetskaia; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 181



Figure 181. [doi](#)

Synallactidae gen. indet. (DZMB\_2021\_0076) in situ in the Edmond-vent site 2-vent site 7 area in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Synallactidae gen. indet. (DZMB\_2021\_0077)

### Material

- a. taxonConceptID: Synallactidae gen. indet. (DZMB\_2021\_0077); kingdom: Animalia; phylum: Echinodermata; class: Holothuroidea; order: Synallactida; family: Synallactidae; taxonRank: Family; scientificNameAuthorship: Ludwig, 1894; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2500; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 23; eventDate: 2018-12-10; eventTime: 9:26:25 am; year: 2018; fieldNumber: INDEX2018-97ROPOS; fieldNotes: 1.9°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2106\_00172.jpg; identifiedBy: Andrey Gebruk, Antonina Kremenetskaia; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 182



Figure 182. [doi](#)

Synallactidae gen. indet. (DZMB\_2021\_0077) in situ in the surrounding area of the vent site 4 hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### Synallactidae gen. indet. (DZMB\_2021\_0078)

#### Material

- a. taxonConceptID: Synallactidae gen. indet. (DZMB\_2021\_0078); kingdom: Animalia; phylum: Echinodermata; class: Holothuroidea; order: Synallactida; family: Synallactidae; taxonRank: Family; scientificNameAuthorship: Ludwig, 1894; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Pelagia; verbatimLocality: Cluster 8; maximumDepthInMeters: 3687; locationRemarks: RV Pourquoi pas? Cruise INDEX2016 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 37; eventDate: 2016-01-22; eventTime: 12:43:12 am; year: 2016; fieldNumber: INDEX2016-20ROV; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on basalt; recordedBy: IFREMER; occurrenceStatus: present; associatedMedia: 160122004312598\_16\_1080i Kopie.jpg; identifiedBy: Andrey Gebruk, Antonina Kremenetskaia; identificationRemarks: Identified only from imagery; identificationQualifier: gen. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 183



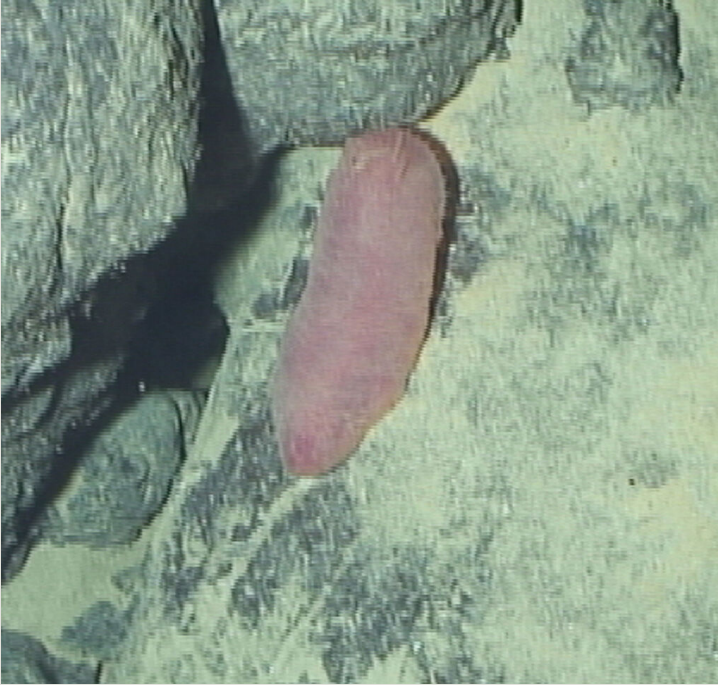


Figure 183. [doi](#)

Synallactidae gen. indet. (DZMB\_2021\_0078) in situ in the surrounding area of the Pelagia hydrothermal vent field in Cluster 8 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Synallactidae fam. inc. (DZMB\_2021\_0079)

### Material

- a. taxonConceptID: Synallactidae fam. inc. (DZMB\_2021\_0079); kingdom: Animalia; phylum: Echinodermata; class: Holothuroidea; order: Synallactida; family: Synallactidae; taxonRank: Family; scientificNameAuthorship: Ludwig, 1894; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2826; locationRemarks: FS Sonne Cruise INDEX2013 Leg 1; decimalLatitude: -23.3930; decimalLongitude: 69.2428; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 28; eventDate: 2013-11-25; eventTime: 3:04:50 am; year: 2013; fieldNumber: INDEX2013-17MFT; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on seafloor; recordedBy: BGR; occurrenceStatus: present; associatedMedia: 17MFT Fotos 2013-292.jpg; identifiedBy: Andrey Gebruk, Antonina Kremenetskaia; identificationRemarks: Identified only from imagery; identificationQualifier: fam. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 184



Figure 184. [doi](#)

Synallactidae fam. inc. (DZMB\_2021\_0079) in situ in the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Synallactes* Ludwig, 1894

### *Synallactes* sp. indet.

#### Material

- a. taxonConceptID: *Synallactes* sp. indet.; kingdom: Animalia; phylum: Echinodermata; class: Holothuroidea; order: Synallactida; family: Synallactidae; taxonRank: Genus; genus: *Synallactes*; scientificNameAuthorship: Ludwig, 1894; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 3; verbatimLocality: Cluster 12; maximumDepthInMeters: 2530; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-11-26; eventTime: 8:11:10 am; year: 2018; fieldNumber: INDEX2018-70ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sulphides; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2098\_00180.jpg; identifiedBy: Andrey Gebruk, Antonina Kremenetskaia; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 185



Figure 185. [doi](#)

*Synallactes* sp. indet. in situ at the border of the vent site 3 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Class Ophiuroidea Gray, 1840

### Order Amphilepidida O'Hara, Hugall, Thuy, Stöhr & Martynov, 2017

#### Amphilepidida ord. inc.

##### Material

- a. taxonConceptID: Amphilepidida ord. inc.; kingdom: Animalia; phylum: Echinodermata; class: Ophiuroidea; order: Amphilepidida; taxonRank: Order; scientificNameAuthorship: O'Hara, Hugall, Thuy, Stöhr & Martynov, 2017; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2476; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 23; eventDate: 2018-12-10; eventTime: 10:55:46 am; year: 2018; fieldNumber: INDEX2018-97ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on seafloor; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2106\_00236.jpg; identifiedBy: Sabine Stöhr; identificationRemarks: Identified only from imagery; identificationQualifier: ord. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 186



Figure 186. [doi](#)

Amphilepidida ord. inc. in situ in the surrounding area of the vent site 4 hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Euryalida Lamarck, 1816

### Family Asteronychidae Ljungman, 1867

### Genus *Asteronyx* Müller & Troschel, 1842

### *Asteronyx* gen. inc.

#### Material

- a. taxonConceptID: *Asteronyx* gen. inc.; kingdom: Animalia; phylum: Echinodermata; class: Ophiuroidea; order: Euryalida; family: Asteronychidae; taxonRank: Genus; genus: *Asteronyx*; scientificNameAuthorship: Müller & Troschel, 1842; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2374; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-25; eventTime: 8:14:41 am; year: 2018; fieldNumber: INDEX2018-67ROPOS; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: sitting on coral stalk; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2097\_00145.jpg; identifiedBy: Sabine Stöhr; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 187



Figure 187. [doi](#)

*Asteronyx* gen. inc. in situ at the border of the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Ophiacanthida O'Hara, Hugall, Thuy, Stöhr & Martynov, 2017

### Ophiacanthida ord. inc.

#### Material

- a. taxonConceptID: Ophiacanthida ord. inc.; kingdom: Animalia; phylum: Echinodermata; class: Ophiuroidea; order: Ophiacanthida; taxonRank: Order; scientificNameAuthorship: O'Hara, Hugall, Thuy, Stöhr & Martynov, 2017; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 5; verbatimLocality: Cluster 11; maximumDepthInMeters: 2909; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 29; eventDate: 2018-11-29; eventTime: 10:07:41 am; year: 2018; fieldNumber: INDEX2018-75ROPOS; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: sitting on porifera; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2101\_00144.jpg; identifiedBy: Sabine Stöhr; identificationRemarks: Identified only from imagery; identificationQualifier: ord. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 188



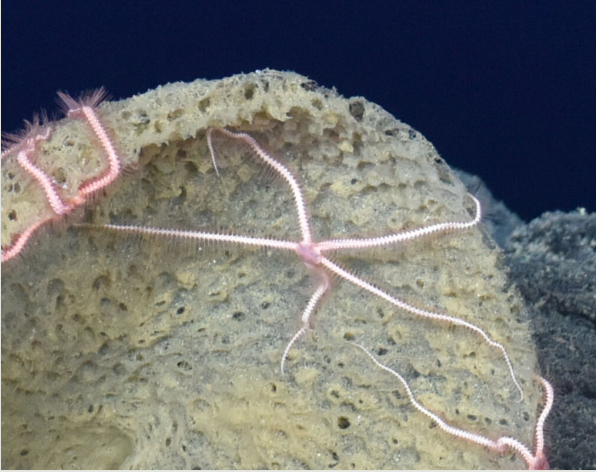


Figure 188. [doi](#)

Ophiacanthida ord. inc. in situ in the surrounding area of the vent site 5 hydrothermal vent field in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Ophiurida Müller & Troschel, 1840 sensu O'Hara et al., 2017

### Genus *Ophiophyllum* Lyman, 1878

#### *Ophiophyllum petilum* sp. inc. Lyman, 1878

##### Material

- a. scientificName: *Ophiophyllum petilum*; taxonConceptID: *Ophiophyllum petilum* sp. inc.; taxonID: I18\_1297; scientificNameID: -; kingdom: Animalia; phylum: Echinodermata; class: Ophiuroidea; order: Ophiurida; taxonRank: Species; genus: *Ophiophyllum*; scientificNameAuthorship: Lyman, 1878; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 5; verbatimLocality: Cluster 11; maximumDepthInMeters: 2943; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2018-12-01; eventTime: 9:41:50 am; year: 2018; fieldNumber: INDEX2018-80ROPOS; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: DNA voucher and animal stored in 96% ethanol; behavior: on seafloor; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2102\_00129.jpg; associatedOccurrences: none; associatedSequences: COI; identifiedBy: Sabine Stöhr; identificationRemarks: Identified by morphology and DNA of collected specimen; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; collectionCode: I18\_080RO\_A\_004; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 189

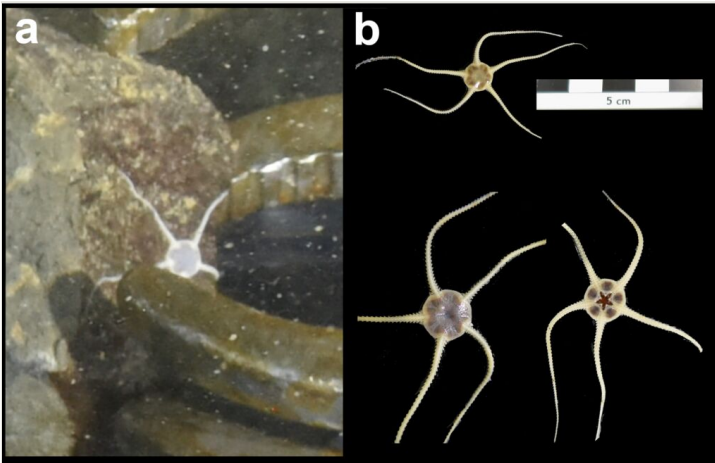


Figure 189. [doi](#)

*Ophiophyllum petilum* sp. inc. in situ (a) and sampled specimen (b) in the surrounding area of the vent site 5 hydrothermal vent field in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Ophiosphalmidae O'Hara, Stöhr, Hugall, Thuy & Martynov, 2018

### Genus *Ophiosphalma* H.L. Clark, 1941

#### *Ophiosphalma* gen. inc.

##### Material

- a. taxonConceptID: *Ophiosphalma* gen. inc.; kingdom: Animalia; phylum: Echinodermata; class: Ophiuroidea; order: Ophiurida; family: Ophiosphalmidae; taxonRank: Genus; genus: *Ophiosphalma*; scientificNameAuthorship: H.L. Clark, 1941; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2458; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-11-22; eventTime: 5:52:04 am; year: 2018; fieldNumber: INDEX2018-61ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on seafloor; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2094\_01004.jpg; identifiedBy: Sabine Stöhr; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 190



Figure 190. [doi](#)

*Ophiosphalma* gen. inc. in situ in the surrounding area of the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### *Ophiosphalma armigerum* sp. inc. (Lyman, 1878)

#### Material

- a. scientificName: *Ophiosphalma armigerum*; taxonConceptID: *Ophiosphalma armigerum* sp. inc.; taxonID: I18\_0990; kingdom: Animalia; phylum: Echinodermata; class: Ophiuroidea; order: Ophiurida; family: Ophiosphalmidae; taxonRank: Species; genus: *Ophiosphalma*; scientificNameAuthorship: (Lyman, 1878); waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2498; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-11-20; eventTime: 9:22:46 am; year: 2018; fieldNumber: INDEX2018-57ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: DNA voucher and animal stored freeze dried; behavior: on seafloor; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2092\_00505.jpg; identifiedBy: Sabine Stöhr; identificationRemarks: Identified by morphology and DNA of collected specimen; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; collectionCode: I18\_057RO\_PC6\_001; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 191

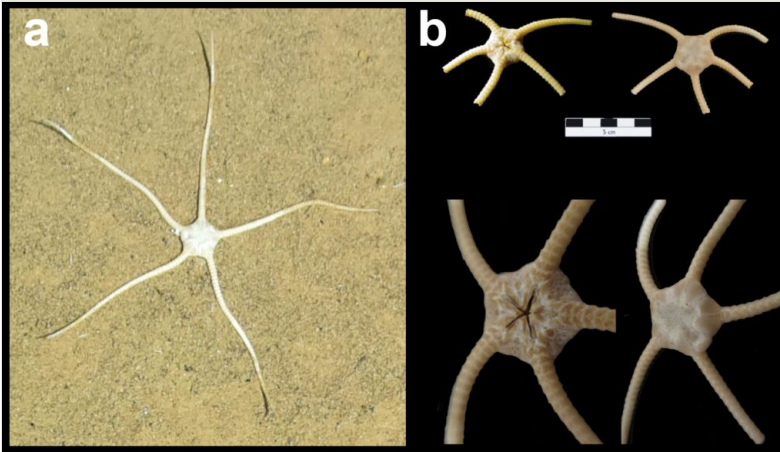


Figure 191. [doi](#)

*Ophiosphalma armigerum* sp. inc. in situ (a) and sampled specimen (b) at the Rodriguez Triple Junction in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Phylum Hemichordata Bateson, 1885

### Class Enteropneusta Gegenbaur, 1870

#### Order Enteropneusta

#### Family Torquaratoridae Holland, Clague, Gordon, Gebruk, Pawson & Vecchione, 2005

#### Torquaratoridae fam. inc.

##### Material

- a. taxonConceptID: Torquaratoridae fam. inc.; kingdom: Animalia; phylum: Hemichordata; class: Enteropneusta; order: Enteropneusta; family: Torquaratoridae; taxonRank: Family; scientificNameAuthorship: Holland, Clague, Gordon, Gebruk, Pawson & Vecchione, 2005; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: SEIR; verbatimLocality: Cluster 9; maximumDepthInMeters: 3356; locationRemarks: RV Pelagia Cruise INDEX2014 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 36; eventDate: 2014-11-28; eventTime: 12:45:42 pm; year: 2014; fieldNumber: INDEX2014-44VS; fieldNotes: 1.7°C; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: NIOZ; occurrenceStatus: present; associatedMedia: 20141128124542012.jpg; identifiedBy: Terue C. Kihara, Klaas Gerdes; identificationRemarks: Identified only from imagery; identificationQualifier: fam. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 192



Figure 192. [doi](#)

Torquaratoridae fam. inc. in situ at the South East Indian Ridge in Cluster 9 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Phylum Mollusca

### Class Bivalvia Linnaeus, 1758

### Order Mytilida Ferussac, 1822

### Family Mytilidae Rafinesque, 1815

### Genus *Bathymodiolus* Kenk & B. R. Wilson, 1985

### *Bathymodiolus septemdierum* sp. inc. Hashimoto & Okutani, 1994

#### Material

- a. scientificName: *Bathymodiolus septemdierum*; taxonConceptID: *Bathymodiolus septemdierum* sp. inc.; kingdom: Animalia; phylum: Mollusca; class: Bivalvia; order: Mytilida; family: Mytilidae; taxonRank: Species; genus: *Bathymodiolus*; scientificNameAuthorship: Hashimoto & Okutani, 1994; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 3; verbatimLocality: Cluster 12; maximumDepthInMeters: 2537; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-11-26; eventTime: 10:47:02 am; year: 2018; fieldNumber: INDEX2018-70ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: on sulphides; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2098\_00281.jpg; identifiedBy: Leon Hoffman; identificationRemarks:



Identified only from imagery; identificationQualifier: sp. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 193



Figure 193. [doi](#)

*Bathymodiolus septemdierum* sp. inc. in situ within the vent site 3 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR and GEOMAR).

## Class Cephalopoda Cuvier, 1795

### Order Octopoda Leach, 1818

### Family Bathypolypodidae Robson, 1929

### Genus *Bathypolypus* Grimpe, 1921

### *Bathypolypus* sp. indet.

#### Material

- a. taxonConceptID: *Bathypolypus* sp. indet.; kingdom: Animalia; phylum: Mollusca; class: Cephalopoda; order: Octopoda; family: Bathypolypodidae; taxonRank: Genus; genus: *Bathypolypus*; scientificNameAuthorship: Grimpe, 1921; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 5; verbatimLocality: Cluster 11; maximumDepthInMeters: 2908; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 29; eventDate: 2018-11-28; eventTime: 6:31:00 am; year: 2018; fieldNumber: INDEX2018-73ROPOS; fieldNotes: 1.7°C, 34.7 ppt; lifeStage: Adult; preparations: Imaged only; behavior: Crawling on seafloor; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2100\_00033.jpg; identifiedBy: Kathrin Bolstad; identificationRemarks: Identified only

from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB;  
datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 194



Figure 194. [doi](#)

*Bathypolypus* sp. indet. in situ in the surrounding of the vent site 5 hydrothermal vent field in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Cirroteuthidae Keferstein, 1866

### Genus *Cirroteuthis* Eschricht, 1838

#### *Cirroteuthis* sp. indet.

##### Material

- a. taxonConceptID: *Cirroteuthis* sp. indet.; kingdom: Animalia; phylum: Mollusca; class: Cephalopoda; order: Octopoda; family: Cirroteuthidae; taxonRank: Genus; genus: *Cirroteuthis*; scientificNameAuthorship: Eschricht, 1838; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2412; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 23; eventDate: 2018-12-10; eventTime: 9:47:41 am; year: 2018; fieldNumber: INDEX2018-97ROPOS; fieldNotes: 1.9°C, 34.7 ppt; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2106\_00183.jpg; identifiedBy: Kathrin Bolstad; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 195



Figure 195. [doi](#)

*Cirroteuthis* sp. indet. in situ in the surrounding area of the vent site 4 hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Opisthoteuthidae Verrill, 1896

### Genus *Grimpoteuthis* Robson, 1932

#### *Grimpoteuthis* gen. inc.

##### Material

- a. taxonConceptID: *Grimpoteuthis* gen. inc.; kingdom: Animalia; phylum: Mollusca; class: Cephalopoda; order: Octopoda; family: Opisthoteuthidae; taxonRank: Genus; genus: *Grimpoteuthis*; scientificNameAuthorship: Robson, 1932; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: RTJ; verbatimLocality: Cluster 5; maximumDepthInMeters: 2501; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-12-03; eventTime: 12:50:35 pm; year: 2018; fieldNumber: INDEX2018-82ROPOS; fieldNotes: 1.8°C, 34.7 ppt; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2103\_00310.jpg; identifiedBy: Kathrin Bolstad; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 196

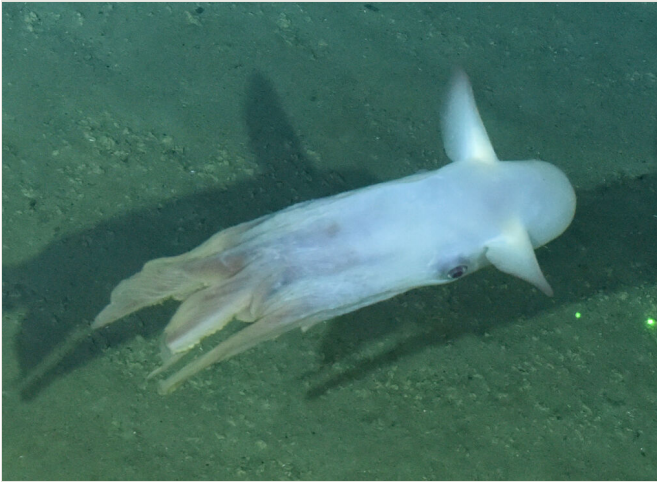


Figure 196. [doi](#)

*Grimpoteuthis* gen. inc. in situ at the Rodriguez Triple Junction in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Oegopsida d'Orbigny, 1845

### Family Magnapinnidae Vecchione & Young, 1998

#### Genus *Magnapinna* Vecchione & Young, 1998

#### *Magnapinna* sp. indet.

##### Material

- a. taxonConceptID: *Magnapinna* sp. indet.; kingdom: Animalia; phylum: Mollusca; class: Cephalopoda; order: Oegopsida; family: Magnapinnidae; taxonRank: Genus; genus: *Magnapinna*; scientificNameAuthorship: Vecchione & Young, 1998; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Pelagia; verbatimLocality: Cluster 8; maximumDepthInMeters: 3664; locationRemarks: RV Pourquoi pas? Cruise INDEX2016 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 37; eventDate: 2016-01-19; eventTime: 9:07:31 am; year: 2016; fieldNumber: INDEX2016-16ROV; fieldNotes: 1.7°C, 34.7 ppt; lifeStage: Adult; preparations: Imaged only; behavior: Swimming; recordedBy: IFREMER; occurrenceStatus: present; associatedMedia: 160119090731111\_15\_1080i copy.jpg; identifiedBy: Kathrin Bolstad; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 197

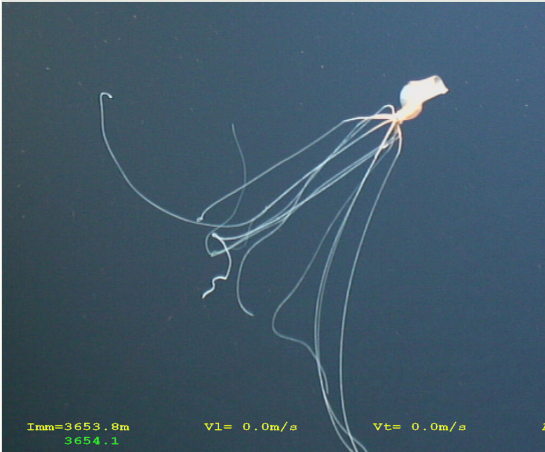


Figure 197. [doi](#)

*Magnapinna* sp. indet. in situ at the border of the Pelagia hydrothermal vent field in Cluster 8 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Class Gastropoda Cuvier, 1795

### Order Caenogastropoda Cox, 1960

#### Superfamily Abysochrysoidea Tomlin, 1927

#### Abysochrysoidea superfam. inc.

##### Material

- a. taxonConceptID: Abysochrysoidea superfam. inc.; kingdom: Animalia; phylum: Mollusca; class: Gastropoda; order: Caenogastropoda; taxonRank: Superfamily; scientificNameAuthorship: Tomlin, 1927; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Pelagia; verbatimLocality: Cluster 8; maximumDepthInMeters: 3685; locationRemarks: RV Pourquoi pas? Cruise INDEX2016 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 37; eventDate: 2016-01-21; eventTime: 4:39:21 pm; year: 2016; fieldNumber: INDEX2016-20ROV; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: attached to hard substrates; recordedBy: IFREMER; occurrenceStatus: present; associatedMedia: 160121163921145\_01\_1080i Kopie.jpg; identifiedBy: Leon Hoffman; identificationRemarks: Identified only from imagery; identificationQualifier: superfam. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 198



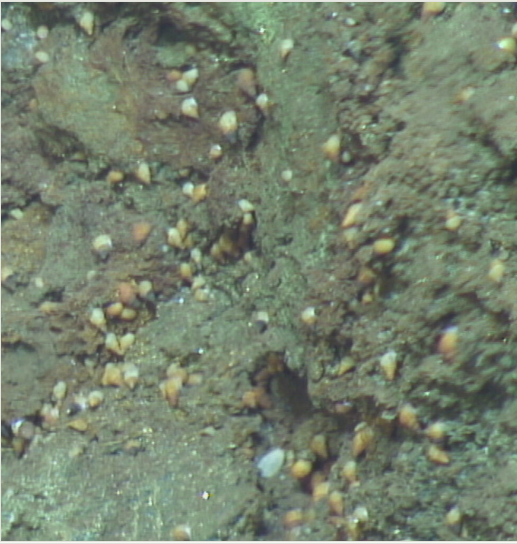


Figure 198. [doi](#)

Aabysochrysoidea superfam. inc. in situ within the Pelagia hydrothermal vent field in Cluster 8 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Cerithiopsidae H. Adams & A. Adams, 1853

### Genus *Speculator* Waren & Bouchet, 2001

#### *Speculator* gen. inc.

##### Material

- a. taxonConceptID: *Speculator* gen. inc.; kingdom: Animalia; phylum: Mollusca; class: Gastropoda; order: Caenogastropoda; family: Cerithiopsidae; taxonRank: Genus; genus: *Speculator*; scientificNameAuthorship: Waren & Bouchet, 2001; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Vent site 1; verbatimLocality: Cluster 4; maximumDepthInMeters: 3083; locationRemarks: RV Pelagia Cruise INDEX2015 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 30; eventDate: 2015-11-27; eventTime: 9:11:52 am; year: 2015; fieldNumber: INDEX2015-37ROV; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 2; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R1905\_00010.jpg; identifiedBy: Leon Hoffman; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 199



Figure 199. [doi](#)

*Speculator* gen. inc. in situ at the border of the vent site 1 hydrothermal vent field in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Provannidae Waren & Ponder, 1991

### Genus *Alviniconcha* Okutani & Ohta, 1988

#### *Alviniconcha marisindica* Okutani, 2014

##### Material

- a. scientificName: *Alviniconcha marisindica*; taxonConceptID: *Alviniconcha marisindica*; kingdom: Animalia; phylum: Mollusca; class: Gastropoda; order: Caenogastropoda; family: Provannidae; taxonRank: Species; genus: *Alviniconcha*; scientificNameAuthorship: Okutani, 2014; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2466; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-25; eventTime: 9:48:47 am; year: 2018; fieldNumber: INDEX2018-67ROPOS; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: on sulphides; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2097\_00186.jpg; identifiedBy: Leon Hoffman; identificationRemarks: Identified only from imagery; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 200



Figure 200. [doi](#)

*Alviniconcha marisindica* in situ within the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Lepetellida Mosakalev, 1971

### Family Lepetodrilidae McLean, 1988

#### Lepetodrilidae fam. inc.

##### Material

- a. taxonConceptID: Lepetodrilidae fam. inc.; kingdom: Animalia; phylum: Mollusca; class: Gastropoda; order: Lepetellida; family: Lepetodrilidae; taxonRank: Family; scientificNameAuthorship: McLean, 1988; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2320; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2018-11-25; eventTime: 6:52:10 am; year: 2018; fieldNumber: INDEX2018-67ROPOS; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: moving on active chimney; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2097\_00079.jpg; identifiedBy: Leon Hoffman; identificationRemarks: Identified only from imagery; identificationQualifier: fam. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 201



Figure 201. [doi](#)

Lepetodrilidae fam. inc. in situ within the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Genus *Lepetodrilus* McLean, 1988

### *Lepetodrilus* gen. inc.

#### Material

- a. taxonConceptID: *Lepetodrilus* gen. inc.; kingdom: Animalia; phylum: Mollusca; class: Gastropoda; order: Lepetellida; family: Lepetodrilidae; taxonRank: Genus; genus: *Lepetodrilus*; scientificNameAuthorship: McLean, 1988; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Pelagia; verbatimLocality: Cluster 8; maximumDepthInMeters: 3676; locationRemarks: RV Pourquoi pas? Cruise INDEX2016 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 37; eventDate: 2016-01-19; eventTime: 10:42:17 am; year: 2016; fieldNumber: INDEX2016-16ROV; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: moving on active chimney; recordedBy: IFREMER; occurrenceStatus: present; associatedMedia: 160119104217205\_01\_1080i copy.jpg; identifiedBy: Leon Hoffman; identificationRemarks: Identified only from imagery; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 202



Figure 202. [doi](#)

*Lepetodrilus* gen. inc. in situ within the Pelagia hydrothermal vent field in Cluster 8 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Lepetodrilidae *Lepetodrilus* sp. indet.

### Material

- a. taxonConceptID: Lepetodrilidae *Lepetodrilus* sp. indet.; taxonID: I16\_28; scientificNameID: *Lepetodrilus* sp. 2 SBJ-2008; kingdom: Animalia; phylum: Mollusca; class: Gastropoda; order: Lepetellida; family: Lepetodrilidae; taxonRank: Genus; genus: *Lepetodrilus*; scientificNameAuthorship: McLean, 1988; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Kairei; verbatimLocality: Cluster 5; maximumDepthInMeters: 2420; locationRemarks: RV Pourquoi pas? Cruise INDEX2016 Leg 1; decimalLatitude: -25.3204; decimalLongitude: 70.0404; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2016-01-11; eventTime: 8:09:32 am; year: 2016; fieldNumber: INDEX2016-06ROV; individualCount: 100; lifeStage: Adult; preparations: DNA voucher and animal stored in 96% ethanol; behavior: moving on active chimney; recordedBy: IFREMER; occurrenceStatus: present; associatedMedia: 160111080932A Kopie.jpg; associatedOccurrences: none; associatedSequences: COI; identifiedBy: Leon Hoffman; identificationRemarks: Identified by morphology and DNA of collected specimen; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; collectionCode: I16\_6RO\_BB\_124; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 203





Figure 203. [doi](#)

Lepetodrilidae *Lepetodrilus* sp. indet. in situ within the Kairei hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Neogastropoda Wenz, 1938

### Family Raphitomidae Bellardi, 1875

### Genus *Phymorhynchus* Dall, 1908

### *Phymorhynchus* sp. indet.

#### Material

- a. taxonConceptID: *Phymorhynchus* sp. indet.; kingdom: Animalia; phylum: Mollusca; class: Gastropoda; order: Neogastropoda; family: Raphitomidae; taxonRank: Genus; genus: *Phymorhynchus*; scientificNameAuthorship: Dall, 1908; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 3; verbatimLocality: Cluster 12; maximumDepthInMeters: 2530; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-11-26; eventTime: 11:46:54 am; year: 2018; fieldNumber: INDEX2018-70ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: on sulphides/ basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2098\_00304.jpg; identifiedBy: Leon Hoffman; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 204

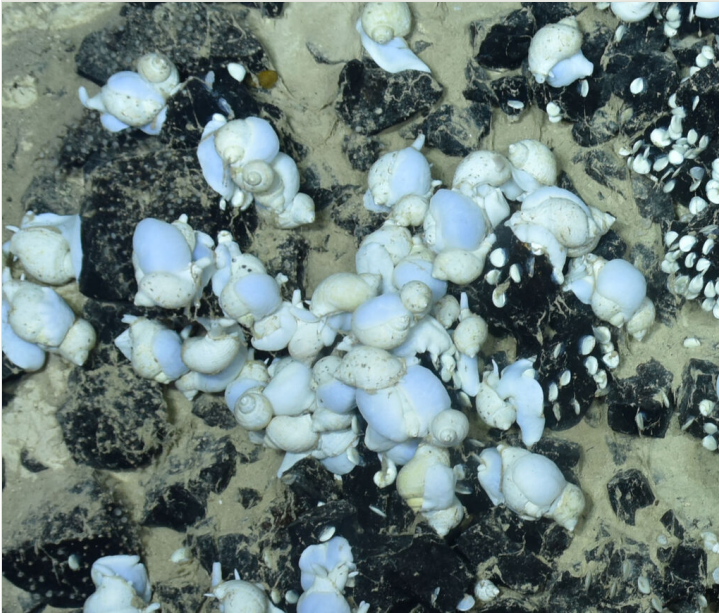


Figure 204. [doi](#)

*Phymorhynchus* sp. indet. in situ within the vent site 3 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

### *Phymorhynchus* sp. indet. (Egg capsules)

#### Material

- a. taxonConceptID: *Phymorhynchus* sp. indet. (Egg capsules); kingdom: Animalia; phylum: Mollusca; class: Gastropoda; order: Neogastropoda; family: Raphitomidae; taxonRank: Genus; genus: *Phymorhynchus*; scientificNameAuthorship: Dall, 1908; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 3; verbatimLocality: Cluster 12; maximumDepthInMeters: 2530; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-11-26; eventTime: 11:46:54 am; year: 2018; fieldNumber: INDEX2018-70ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 100; lifeStage: Eggs; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2098\_00304.jpg; identifiedBy: Terue C. Kihara, Klaas Gerdes; identificationRemarks: Identified only from imagery; identificationQualifier: sp. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 205

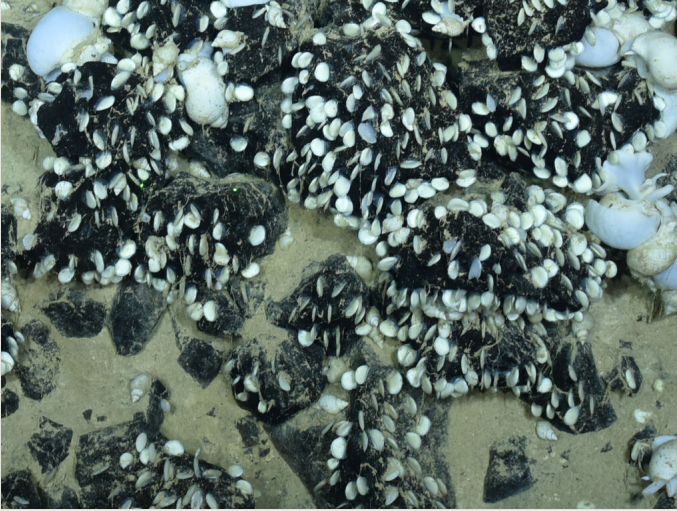


Figure 205. [doi](#)

*Phymorhynchus* sp. indet. (Egg capsules) in situ at the border of the vent site 3 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Neomphalida

### Family Melanodrymiidae Salvini-Plawen & Steiner, 1995

#### Melanodrymiidae fam. inc.

##### Material

- a. taxonConceptID: Melanodrymiidae fam. inc.; kingdom: Animalia; phylum: Mollusca; class: Gastropoda; order: Neomphalida; family: Melanodrymiidae; taxonRank: Family; scientificNameAuthorship: Salvini-Plawen & Steiner, 1995; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2652; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 26; eventDate: 2018-12-09; eventTime: 9:36:47 am; year: 2018; fieldNumber: INDEX2018-95ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: on sulphides; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2105\_00319.jpg; identifiedBy: Leon Hoffman; identificationRemarks: Identified only from imagery; identificationQualifier: fam. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 206

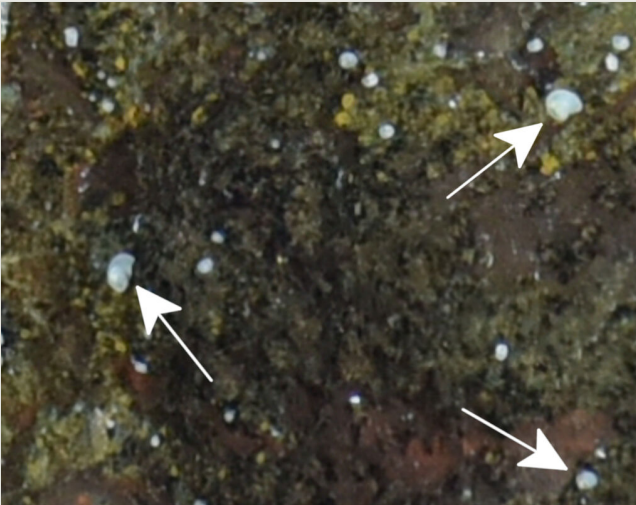


Figure 206. [doi](#)

Melanodrymiidae fam. inc. in situ within the vent site 4 hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Peltospiridae McLean, 1989

### Genus *Chrysomallon* C. Chen, Linse, Copley & Rogers, 2015

#### *Chrysomallon squamiferum* C. Chen, Linse, Copley & Rogers, 2015

##### Material

- a. scientificName: *Chrysomallon squamiferum*; taxonConceptID: *Chrysomallon squamiferum*; kingdom: Animalia; phylum: Mollusca; class: Gastropoda; order: Neomphalida; family: Peltospiridae; taxonRank: Species; genus: *Chrysomallon*; scientificNameAuthorship: C. Chen, Linse, Copley & Rogers, 2015; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2474; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-11-22; eventTime: 9:14:14 am; year: 2018; fieldNumber: INDEX2018-61ROPOS; fieldNotes: 1.9°C, 34.7 ppt; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: moving on active chimney; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2094\_01112.jpg; identifiedBy: Leon Hoffman; identificationRemarks: Identified only from imagery; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 207





Figure 207. [doi](#)

*Chrysomallon squamiferum* in situ within the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Class Scaphopoda Bronn, 1862

### Scaphopoda ord. indet.

#### Material

- a. taxonConceptID: Scaphopoda ord. indet.; kingdom: Animalia; phylum: Mollusca; class: Scaphopoda; taxonRank: Class; scientificNameAuthorship: Bronn, 1862; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 6; verbatimLocality: Cluster 12; maximumDepthInMeters: 2510; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-11-20; eventTime: 7:48:13 am; year: 2018; fieldNumber: INDEX2018-57ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2092\_00433.jpg; identifiedBy: Andrew J. Gooday; identificationRemarks: Identified only from imagery; identificationQualifier: ord. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 208





Figure 208. [doi](#)

Scaphopoda ord. indet. in situ in the surrounding area of the vent site 6 hydrothermal vent field in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Class Solenogastres Gegenbaur, 1878

### Solenogastres ord. indet.

#### Material

- a. taxonConceptID: Solenogastres ord. indet.; kingdom: Animalia; phylum: Mollusca; class: Solenogastres; taxonRank: Class; scientificNameAuthorship: Gegenbaur, 1878; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Pelagia; verbatimLocality: Cluster 8; maximumDepthInMeters: 3671; locationRemarks: RV Pourquoi pas? Cruise INDEX2016 Leg 1; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 37; eventDate: 2016-01-19; eventTime: 5:13:57 pm; year: 2016; fieldNumber: INDEX2016-16ROV; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to active chimney; recordedBy: IFREMER; occurrenceStatus: present; associatedMedia: 160119171357176\_15\_1080i copy.jpg; identifiedBy: Terue C. Kihara, Klaas Gerdes; identificationRemarks: Identified only from imagery; identificationQualifier: ord. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 209



Figure 209. [doi](#)

Solenogastres ord. indet. in situ within the Pelagia hydrothermal vent field in Cluster 8 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Phylum Nemertea

### Class Hoplonemertea Hubrecht, 1879

### Order Monostilifera Brinkmann, 1917

### Family Emplectonematidae Bürger, 1904

### Genus *Thermanemertes* Rogers, Gibson & Tunnicliffe, 1996

### *Thermanemertes* gen. inc.

#### Material

- a. taxonConceptID: *Thermanemertes* gen. inc.; taxonID: I16\_30, I16\_31; scientificNameID: Eumonostilifera sp. 1; kingdom: Animalia; phylum: Nemertea; class: Hoplonemertea; order: Monostilifera; family: Emplectonematidae; taxonRank: Genus; genus: *Thermanemertes*; scientificNameAuthorship: Rogers, Gibson & Tunnicliffe, 1996; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Kairei; verbatimLocality: Cluster 5; maximumDepthInMeters: 2420; locationRemarks: RV Pourquoi pas? Cruise INDEX2016 Leg 1; decimalLatitude: -25.3204; decimalLongitude: 70.0404; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2016-01-11; eventTime: 8:56:40 am; year: 2016; fieldNumber: INDEX2016-06ROV; individualCount: 100; lifeStage: Adult; preparations: DNA voucher and animal stored in 96% ethanol; behavior: moving on active chimney; recordedBy: IFREMER; occurrenceStatus: present; associatedMedia: 160111085640277\_15\_1080i Kopie.jpg; associatedOccurrences: none; associatedSequences: COI; identifiedBy: Jon L.

Norenburg; identificationRemarks: Identified by morphology and DNA of collected specimen; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; collectionCode: I16\_6RO\_BB\_118; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 210

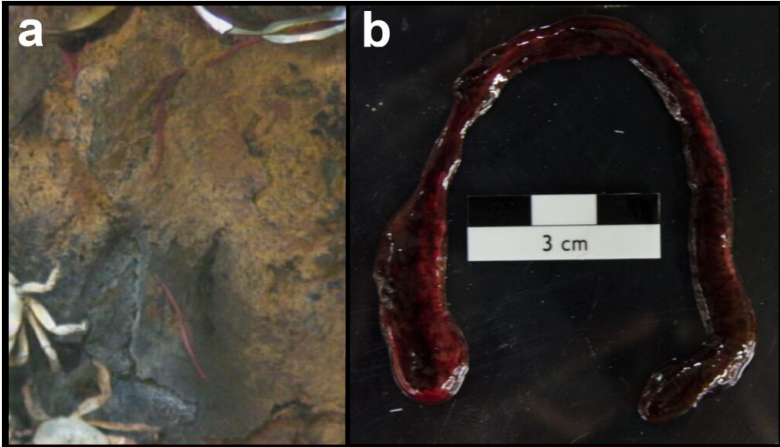


Figure 210. [doi](#)

*Thermanemertes* gen. inc. in situ (a) and sampled specimen (b) within the Kairei hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Phylum Platyhelminthes Minot, 1876

### Subphylum Rhabditophora Ehlers, 1985

### Order Polycladida Lang, 1884

### Polycladida fam. indet.

#### Material

- a. taxonConceptID: Polycladida fam. indet.; taxonID: I16\_162; scientificNameID: Polycladida sp. 1; kingdom: Animalia; phylum: Platyhelminthes; order: Polycladida; taxonRank: Order; scientificNameAuthorship: Lang, 1884; waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Kairei; verbatimLocality: Cluster 5; maximumDepthInMeters: 2420; locationRemarks: RV Pourqoui pas? Cruise INDEX2016 Leg 1; decimalLatitude: -25.3204; decimalLongitude: 70.0403; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 24; eventDate: 2016-01-15; eventTime: 9:16:09 pm; year: 2016; fieldNumber: INDEX2016-12ROV; individualCount: 100; lifeStage: Adult; preparations: DNA voucher and animal stored in 96% ethanol; behavior: on base of active chimney; recordedBy: IFREMER; occurrenceStatus: present; associatedMedia:

160115211609738\_01\_1080i copy.jpg; associatedOccurrences: none; associatedSequences: COI; identifiedBy: Terue C. Kihara, Klaas Gerdes; identificationRemarks: Identified by morphology and DNA of collected specimen; identificationQualifier: fam. indet.; language: en; institutionCode: DZMB; collectionCode: I16\_12RO\_SG4\_2; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 211

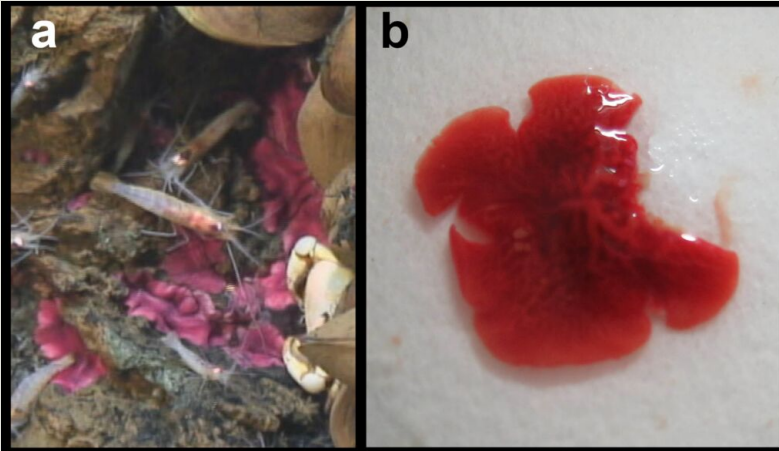


Figure 211. [doi](#)

Polycladida fam. indet. in situ (a) and sampled specimen (b) within the Kairei hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Phylum Porifera Grant, 1836

### Genus *Paleodictyon* Giuseppe Meneghini, 1850

#### *Paleodictyon nodosum* sp. inc. Seilacher, 1977

##### Material

- a. scientificName: *Paleodictyon nodosum*; taxonConceptID: *Paleodictyon nodosum* sp. inc.; kingdom: Animalia; phylum: Porifera; taxonRank: Species; genus: *Paleodictyon*; scientificNameAuthorship: Seilacher, 1977; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: Vent site 5; verbatimLocality: Cluster 11; maximumDepthInMeters: 2907; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 29; eventDate: 2018-11-29; eventTime: 9:30:02 am; year: 2018; fieldNumber: INDEX2018-75ROPOS; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 21; lifeStage: Adult; preparations: Imaged only; behavior: in sediment; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2101\_00115.jpg; identifiedBy: Terue C. Kihara, Klaas Gerdes; identificationRemarks: Identified only from imagery; identificationQualifier: sp. inc.;

language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 212



Figure 212. [doi](#)

*Paleodictyon nodosum* sp. inc. in situ in the surrounding area of the vent site 5 hydrothermal vent field in Cluster 11 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Kingdom Chromista Cavalier Smith, 1981

## Phylum Foraminifera D'Orbigny, 1826

## Class Monothalamea Haeckel, 1862 (as emended by Pawlowski et al. 2013)

## Monothalamea ord. indet. (DZMB\_2021\_0080)

### Material

- a. taxonConceptID: Monothalamea ord. indet. (DZMB\_2021\_0080); kingdom: Chromista; phylum: Foraminifera; class: Monothalamea; taxonRank: Class; scientificNameAuthorship: Haeckel, 1862 (as emended by Pawlowski et al., 2013); waterBody: Indian Ocean; stateProvince: Rodriguez Triple Junction; locality: Vent site 4; verbatimLocality: Cluster 5; maximumDepthInMeters: 2628; locationRemarks: RV Pelagia Cruise INDEX2018 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 25; eventDate: 2018-12-04; eventTime: 5:50:29 am; year: 2018; fieldNumber: INDEX2018-85ROPOS; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: ROPOS.COM; occurrenceStatus: present; associatedMedia: R2104\_00027.jpg; identifiedBy: Andrew J. Gooday; identificationRemarks: Identified only from imagery - Organism most closely resembles *Pelosina*, but identification cannot be confirmed from photographs



(Indeterminate arborescent foraminiferan); identificationQualifier: ord. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 213



Figure 213. [doi](#)

Monothalamea ord. indet. (DZMB\_2021\_0080) in situ in the surrounding area of the vent site 4 hydrothermal vent field in Cluster 5 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Monothalamea ord. indet. (DZMB\_2021\_0081)

### Material

- a. taxonConceptID: Monothalamea ord. indet. (DZMB\_2021\_0081); kingdom: Chromista; phylum: Foraminifera; class: Monothalamea; taxonRank: Class; scientificNameAuthorship: Haeckel, 1862 (as emended by Pawlowski et al. 2013); waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Edmond; verbatimLocality: Cluster 4; maximumDepthInMeters: 3238; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; decimalLatitude: -23.8781; decimalLongitude: 69.6035; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 33; eventDate: 2013-12-10; eventTime: 7:28:37 pm; year: 2013; fieldNumber: INDEX2013-44MFT; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: on sediment; recordedBy: BGR; occurrenceStatus: present; associatedMedia: 44MFT Fotos 2013-15-3.jpg; identifiedBy: Andrew J. Gooday; identificationRemarks: Identified only from imagery - Similar to Plate-like morphotypes 10: Groups of curved plates from the ISA megafauna catalogue, but it is impossible to determine if they represent the same morphotype based on photographs (Curved plate-like morphotype); identificationQualifier: ord. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 214



Figure 214. [doi](#)

Monothalamea ord. indet. (DZMB\_2021\_0081) in situ in the area surrounding the Edmond hydrothermal vent field in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Monothalamea ord. indet. (DZMB\_2021\_0082)

### Material

- a. taxonConceptID: Monothalamea ord. indet. (DZMB\_2021\_0082); kingdom: Chromista; phylum: Foraminifera; class: Monothalamea; taxonRank: Class; scientificNameAuthorship: Haeckel, 1862 (as emended by Pawlowski et al., 2013); waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2847; locationRemarks: FS Sonne Cruise INDEX2013 Leg 1; decimalLatitude: -23.3842; decimalLongitude: 69.2377; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 28; eventDate: 2013-11-25; eventTime: 5:27:56 am; year: 2013; fieldNumber: INDEX2013-17MFT; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: BGR; occurrenceStatus: present; associatedMedia: Axinellida sp\_17MFT Fotos 2013-358-4.jpg; identifiedBy: Andrew J. Gooday; identificationRemarks: Identified only from imagery - Similar to Plate-like morphotypes 7: radiating plates from the ISA megafauna catalogue (Plate-like morphotype); identificationQualifier: ord. indet.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 215



Figure 215. [doi](#)

Monothalamea ord. indet. (DZMB\_2021\_0082) in situ in the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Order Astrorhizida Lankester, 1885

### Family Arboramminidae Shires, Gooday & Jones, 1994

### Genus *Luffamina* Kamenskaya, Bagirov & Simdianov, 2002

#### *Luffamina* gen. inc.

##### Material

- a. taxonConceptID: *Luffamina* gen. inc.; kingdom: Chromista; phylum: Foraminifera; class: Monothalamea; order: Astrorhizoida; family: Arboramminidae; taxonRank: Genus; genus: *Luffamina*; scientificNameAuthorship: Kamenskaya, Bagirov & Simdianov, 2002; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Edmond/ Vent site 7; verbatimLocality: Cluster 4; maximumDepthInMeters: 3245; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 32; eventDate: 2013-12-14; eventTime: 11:52:16 am; year: 2013; fieldNumber: INDEX2013-55ROV; individualCount: 100; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: BGR/ GEOMAR; occurrenceStatus: present; associatedMedia: 2013-12-14\_11-52-16\_Sonne\_INDEX2013-2\_055ROV08\_Logo-2.jpg; identifiedBy: Andrew J. Gooday; identificationRemarks: Identified only from imagery - The structures resemble *Luffamina atlantica* from the Rainbow area of Mid-Atlantic Ridge, but their identification as a foraminifera cannot be confirmed from the photograph; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 216



Figure 216. [doi](#)

*Luffamina* gen. inc. in situ in the Edmond-vent site 2-vent site 7 area in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR and GEOMAR).

## Family Psamminidae

### Genus *Psammina* Haeckel, 1889

#### *Psammina* gen. inc. (DZMB\_2021\_0083)

##### Material

- a. taxonConceptID: *Psammina* gen. inc. (DZMB\_2021\_0083); kingdom: Chromista; phylum: Foraminifera; class: Monothalamea; family: Psamminidae; taxonRank: Genus; genus: *Psammina*; scientificNameAuthorship: Haeckel, 1889; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: MESO; verbatimLocality: outside INDEX claim; maximumDepthInMeters: 2865; locationRemarks: FS Sonne Cruise INDEX2013 Leg 1; decimalLatitude: -23.3820; decimalLongitude: 69.2365; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 28; eventDate: 2013-11-25; eventTime: 6:01:42 am; year: 2013; fieldNumber: INDEX2013-17MFT; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: BGR; occurrenceStatus: present; associatedMedia: 17MFT Fotos 2013-361-4.jpg; identifiedBy: Andrew J. Gooday; identificationRemarks: Identified only from imagery - it is impossible to confirm the generic identification from photographs; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 217



Figure 217. [doi](#)

*Psammmina* gen. inc. (DZMB\_2021\_0083) in situ in the MESO area outside the INDEX area. Image corresponds with the data (Image attribution: BGR).

### ***Psammmina* gen. inc. (DZMB\_2021\_0084)**

#### **Material**

- a. taxonConceptID: *Psammmina* gen. inc. (DZMB\_2021\_0084); kingdom: Chromista; phylum: Foraminifera; class: Monothalamea; family: Psamminidae; taxonRank: Genus; genus: *Psammmina*; scientificNameAuthorship: Haeckel, 1889; waterBody: Indian Ocean; stateProvince: South East Indian Ridge; locality: SEIR; verbatimLocality: Cluster 12; locationRemarks: FS Sonne Cruise INDEX2017 Leg 1; decimalLatitude: -27.7060; decimalLongitude: 73.7330; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 34; eventDate: 2017-09-19; eventTime: 3:03:43 pm; year: 2017; fieldNumber: INDEX2017-74STR; fieldNotes: 1.7°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: BGR; occurrenceStatus: present; associatedMedia: IMG\_2268.jpg; identifiedBy: Andrew J. Gooday; identificationRemarks: Identified only from imagery - it is impossible to confirm the generic identification from photographs; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

**Notes:** Fig. 218





Figure 218. [doi](#)

*Psammina* gen. inc. (DZMB\_2021\_0084) in situ at the South East Indian Ridge in Cluster 12 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Family Stannomidae Haeckel, 1889

### Genus *Stannoma* Haeckel, 1889

#### *Stannoma* gen. inc.

##### Material

- a. taxonConceptID: *Stannoma* gen. inc.; kingdom: Chromista; phylum: Foraminifera; class: Monothalamea; family: Stannomidae; taxonRank: Genus; genus: *Stannoma*; scientificNameAuthorship: Haeckel, 1889; waterBody: Indian Ocean; stateProvince: Central Indian Ridge; locality: Edmond; verbatimLocality: Cluster 4; maximumDepthInMeters: 3332; locationRemarks: FS Sonne Cruise INDEX2013 Leg 2; decimalLatitude: -23.8788; decimalLongitude: 69.6000; geodeticDatum: WGS84; coordinateUncertaintyInMeters: 33; eventDate: 2013-12-10; eventTime: 12:20:20 am; year: 2013; fieldNumber: INDEX2013-44MFT; fieldNotes: 1.8°C, 34.7 ppt; individualCount: 1; lifeStage: Adult; preparations: Imaged only; behavior: attached to basalt; recordedBy: BGR; occurrenceStatus: present; associatedMedia: 44MFT Fotos 2013-452-2.jpg; identifiedBy: Andrew J. Gooday; identificationRemarks: Identified only from imagery - it is impossible to confirm the generic identification from photographs; identificationQualifier: gen. inc.; language: en; institutionCode: DZMB; datasetName: INDEX; basisOfRecord: Human Observation

Notes: Fig. 219



Figure 219. [doi](#)

*Stannoma* gen. inc. in situ in the Edmond-vent site 2-vent site 7 area in Cluster 4 of the INDEX area. Image corresponds with the data (Image attribution: BGR).

## Discussion

Despite the majority of the 218 taxa identified solely on imagery and physical samples existing for a considerably lower number, this is the first image atlas of the deep-sea benthic megafauna for the GLA, covering the southern CIR and northern SEIR in the Indian Ocean. Specifically, the atlas consists of the first collection of imaged taxon occurrences within active hydrothermal vents and their periphery, inactive vent sites and the non-vent areas in a region potentially exposed to mining and, thus, presents valuable biological baseline information.

Amongst the 218 taxa, the phylum Cnidaria are represented by the most taxa (77), followed by the phyla Echinodermata (48), Chordata (30), Arthropoda (22), Mollusca (17), Annelida (9) and Bryozoa (4). The phyla Hemichordata, Nemertea, Platyhelminthes and Porifera are each represented by one taxon. However, the latter phylum was excluded from this catalogue as noted in the Methods section, but has a considerably higher number of taxa (Table 5).

Table 5.

Number of taxa/species in each phylum at the Central Indian Ridge (CIR), the South East Indian Ridge (SEIR) and the Rodriguez Triple Junction (RTJ). Numbers include active vent taxa, inactive vent taxa and non-vent taxa. Note, that the phylum Porifera was excluded from this catalogue, with the exception of a single species.

Phylum	Taxa CIR	Taxa SEIR	Taxa RTJ	Taxa total
Annelida	5	8	3	9
Arthropoda	15	17	12	22
Bryozoa	3	4	1	4
Chordata	16	19	16	30
Cnidaria	42	47	28	77
Echinodermata	26	37	12	48
Hemichordata	-	1	-	1
Mollusca	8	14	10	17
Nemertea	-	-	1	1
Platyhelminthes	1	-	1	1
Porifera	1	1	-	1
Foraminifera	5	4	2	7
<b>Total</b>	<b>122</b>	<b>152</b>	<b>86</b>	<b>218</b>

In the Kingdom Chromista, protists, belonging to phylum Foraminifera, contributed seven taxa that could be distinguished, based on imagery. Some are tentatively identified to genus level, but these identifications cannot be confirmed from photographs alone. The identification of xenophyophores from photographs is particularly problematic. Nevertheless, these protistan taxa were consistently identified in all years and by all sampling gear.

### Active hydrothermal vent fields

A total of 93 megafaunal taxa were recognised from the active hydrothermal vents, based on imagery (Table 6). This number includes non-vent species occurring in close proximity to active hydrothermal active vent fields without directly depending on-, or being influenced by, fluid discharge. Of all visually observed taxa, 18 could be confirmed taxonomically or based on molecular methods via sampling in Edmond (CIR, 7 taxa), Kairei (RTJ, 15 taxa), vent site 1 (CIR, 8 taxa), vent site 4 (RTJ, 2 taxa), vent site 5 (SEIR, 2 taxa), vent site 6 (SEIR, 2 taxa) and Pelagia (SEIR, 9 taxa) (vent field data and names not published). A single *Freyella* gen. inc. was observed within vent site 4, but this taxon is generally considered a non-vent species.

Table 6.

List of active vent species for the Central Indian Ridge (CIR), the South East Indian Ridge (SEIR) and the Rodriguez Triple Junction (RTJ) within active hydrothermal vent fields in each region. Presence of each taxon indicated as low ('+'), medium ('++') or high ('+++') density. Low density = 1 specimen, medium = 2-9 specimens and high  $\geq 10$  specimens. Endemic active vent taxa are highlighted in bold.

Phylum	Active vent taxa	CIR	SEIR	RTJ
<b>Annelida</b>	<b><i>Archinome jasoni</i> * [<i>Archinome jasoni</i> sp. inc.]</b>	++ +	+++	+++
	<b><i>Branchipolynoe</i> gen. inc.</b>	+		
	<b><i>Lepidonotopodium</i> gen. inc. (DZMB_2021_0001)</b>	++	++	++
	<b><i>Oasisia</i> gen. inc.</b>	++ +	+++	
	<b><i>Alvinella</i> gen. inc.</b>		+++	
<b>Arthropoda</b>	<b><i>Neolepas marisindica</i> sp. inc.</b>	++ +	+++	+++
	<b><i>Regioscalpellum regium</i> sp. inc.</b>		+++	
	<b>Verrucidae fam. inc.</b>		+++	+++
	<i>Munidopsis pallida</i> sp. inc.		++	
	<b><i>Austinograea rodriguezensis</i></b>	++ +	+++	+++
	<b><i>Alvinocaris solitaire</i> sp. inc.</b>	++ +	+++	+++
	<b><i>Mirocaris indica</i> sp. inc.</b>	++ +	++	++
	<b><i>Rimicaris kairei</i></b>	++ +	+++	+++
	Pantopoda ord. inc.		++	
	<b>Chordata</b>	Synaphobranchidae gen. indet.	+	++
	Synaphobranchidae <i>Ilyophis brunneus</i> fam. inc.			+
	<i>Coryphaenoides</i> gen. inc. (DZMB_2021_0012)	+	+	
	<i>Coryphaenoides armatus</i> sp. inc.		+	+
	<i>Halosauropsis macrochir</i> gen. inc.		+	
	<i>Spectrunculus crassus</i> sp. inc.		++	
	<i>Spectrunculus grandis</i> sp. inc.		++	+
	<b><i>Pachycara angeloii</i></b>	++	++	++
<b>Cnidaria</b>	Ceriantharia ord. indet.			+
	Actiniaria fam. indet. (DZMB_2021_0017)	++ +		
	Actiniaria fam. indet. (DZMB_2021_0018)		++	

Phylum	Active vent taxa	CIR	SEIR	RTJ
	Actiniaria fam. indet. (DZMB_2021_0019)	++ +	++	+++
	<b>Actiniaria fam. indet. (DZMB_2021_0020)</b>	++ +		+
	Actiniaria fam. indet. (DZMB_2021_0021)	++ +	++	
	Actiniaria fam. indet. (DZMB_2021_0022)	+		
	Actiniaria fam. indet. (DZMB_2021_0023)	+		
	<b>Actiniaria fam. indet. (DZMB_2021_0024)</b>	++		
	Actiniaria fam. indet. (DZMB_2021_0025)	++		
	Actinoscyphiidae gen. indet. (DZMB_2021_0026)	+	+	
	<i>Actinoscyphia</i> sp. indet.		+	++
	Actinostolidae gen. indet.	++	++	+++
	<i>Actinostola</i> sp. indet. (DZMB_2021_0028)		+++	+
	<i>Actinostola</i> sp. indet. (DZMB_2021_0029)		+	
	<i>Actinostola</i> sp. indet. (DZMB_2021_0030)	+	+++	
	<i>Actinostola</i> sp. indet. (DZMB_2021_0031)		+	
	<i>BathypHELLIA</i> sp. indet. (DZMB_2021_0032)	++	++	
	<i>BathypHELLIA</i> sp. indet. (DZMB_2021_0033)		+++	
	<b><i>Maractis</i> sp. indet.</b>	++ +	+++	+++
	<i>Relicanthus daphneae</i> sp. inc.	+	+	
	Alcyonacea <i>Anthomastus</i> gen. inc.		+	
	<i>Iridogorgia magnispiralis</i> sp. inc.		++	
	Clavulariidae gen. indet. (DZMB_2021_0036)	++ +	+++	+++
	Clavulariidae gen. indet. (DZMB_2021_0037)	+		
	Clavulariidae fam. inc. (DZMB_2021_0038)	++		
	<b>Clavulariidae fam. inc. (DZMB_2021_0039)</b>	++		
	Isididae gen. indet. (DZMB_2021_0040)		+	
	Isididae gen. indet. (DZMB_2021_0041)		+	
	Isididae gen. indet. (DZMB_2021_0043)		+	+
	Isididae fam. inc. (DZMB_2021_0044)		+	
	Isididae <i>Bathygorgia</i> gen. inc.		++	+
	Isididae <i>Jasonisis</i> gen. inc.		++	
	Isididae <i>Keratoisis</i> gen. inc. (DZMB_2021_0047)			++
	Isididae <i>Lepidisis</i> gen. inc.		++	
	<i>Lepidisis</i> spp. indet.		+++	++



Phylum	Active vent taxa	CIR	SEIR	RTJ
	Paragorgiidae fam. inc.		+	
	Primnoidae gen. indet. (DZMB_2021_0048)			+
	Primnoidae gen. indet. (DZMB_2021_0049)		++	
	Stalk of Alcyonacea or Antipatharia ord. inc.	+		
	<i>Heteropathes americana</i> sp. inc.		+	
	<i>Bathypathes</i> sp. indet. (DZMB_2021_0050)			+
	<i>Bathypathes patula</i> sp. inc.	++	++	++
	<i>Schizopathes</i> spp. indet.		+	+
	<i>Umbellula</i> sp. indet. (DZMB_2021_0054)	++		
	<i>Umbellula</i> sp. indet. (DZMB_2021_0055)		++	
	<i>Zoantharia</i> fam. indet. (DZMB_2021_0056)	++ +		+++
	<i>Zoantharia</i> fam. indet. (DZMB_2021_0057)	++ +	+++	+++
	Hydrozoa ord. indet. (DZMB_2021_0060)			+++
	Hydrozoa ord. indet. (DZMB_2021_0061)			+++
	Hydrozoa ord. indet. (DZMB_2021_0062)	+		
	Hydrozoa ord. indet. (DZMB_2021_0063)			++
	Hydrozoa ord. indet. (DZMB_2021_0064)			+++
	<b><i>Candelabrum</i> sp. indet.</b>	++ +	+	++
	Corymorphidae gen. indet.		+	
	Siphonophorae Rhodaliidae <i>Thermopalìa</i> gen. inc.	++		
<b>Echinodermata</b>	<i>Freyella</i> gen. inc.			+
	<b><i>Chiridota hydrothermica</i> sp. inc.</b>	++	+++	
<b>Mollusca</b>	<b><i>Bathymodiolus septemdierum</i> *[<i>Bathymodiolus septemdierum</i> sp. inc.]</b>	++ +	+++	+++
	<b>Abyssochrysoidea superfam. inc.</b>		+++	
	<b><i>Alviniconcha marisindica</i></b>	++ +	+++	+++
	<b>Lepetodrilidae fam. inc.</b>		+++	+++
	<b><i>Lepetodrilus</i> gen. inc.</b>		+++	
	<b>Lepetodrilidae <i>Lepetodrilus</i> sp. indet. *[Lepetodrilidae <i>Lepetodrilus</i> gen. inc.]</b>		+++	+++
	<b><i>Phymorhynchus</i> sp. indet.</b>	++ +	+++	+++
	<b><i>Phymorhynchus</i> sp. indet. (Egg capsules)</b>	++ +	+++	+++
	Melanodrymiidae fam. inc.			+++

Phylum	Active vent taxa	CIR	SEIR	RTJ
	<b><i>Chrysomallon squamiferum</i></b>		+++	+++
	Solenogastres ord. indet.	+	+	
<b>Nemertea</b>	<i>Thermanemertes</i> gen. inc.			+++
<b>Platyhelminthes</b>	<b>Polycladida ord. inc.</b>	++		+++
		+		

Of the total of 93 taxa found within and in close proximity to hydrothermal vents, 29 identified megafaunal taxa were considered endemic at active vent fields. This number is comparable to the total of 46 megafaunal taxa identified from imagery or physical sampling at Dodo, Solitaire, Edmond and Kairei vent fields, stretching along the CIR and at Longqi and Tiancheng along the South West Indian Ridge (SWIR) (Watanabe and Beedessee 2015, Sun et al. 2020). In particular, four species were identified at the Dodo vent field; 18 taxa were initially identified within Solitaire (Nakamura et al. 2012) and subsequent physical sampling and taxonomic work revealed 22 taxa (Watanabe and Beedessee 2015). At Longqi, 21 were initially identified through observation and sampling (Copley et al. 2016) and 32 taxa have since been recognised (Zhou et al. 2018). A total of 23 species and morphotypes were recognised at Tiancheng vent field, including the active venting area and the periphery of the vent field (Sun et al. 2020). At Kairei vent field, 26 taxa were reported when the vent field was discovered (Hashimoto et al. 2001), with a subsequent increase to 34 known taxa (Watanabe and Beedessee 2015). For the Edmond vent field, Watanabe and Beedessee (2015) described six taxa.

### Inactive hydrothermal vent field

We recognised a total of 69 taxa at inactive vent fields and inactive parts of active vent fields (Table 7), of which 37 are shared species with non-vent areas and 30 with active vent fields. Twenty two taxa were found exclusively within or close to inactive vent fields, 15 of these within inactive sites.

Table 7.

List of inactive vent species for the Central Indian Ridge (CIR), the South East Indian Ridge (SEIR) and the Rodriguez Triple Junction (RTJ) within inactive hydrothermal vent fields in each region. Presence of each taxon indicated as low ('+'), medium ('++') or high ('+++') density. Low density = 1 specimen, medium = 2-9 specimens and high ≥ 10 specimens. Taxa found exclusively within or in close proximity to inactive hydrothermal vent fields are highlighted in bold, taxa observed only within inactive vent fields are additionally indicated by a plus.

Phylum	Inactive vent taxa	CIR	SEIR	RTJ
<b>Annelida</b>	Polynoidae gen. indet.		++	++
	<b><i>Lepidonotopodium</i> gen. inc. (DZMB_2021_0002) +</b>		+	
	<b><i>Lepidonotopodium</i> gen. inc. (DZMB_2021_0003) +</b>		+	
<b>Arthropoda</b>	<b><i>Glyptelasma</i> gen. inc.</b>		+++	+
	<b>Amphipoda ord. inc. +</b>			+

Phylum	Inactive vent taxa	CIR	SEIR	RTJ
	<i>Munidopsis aries</i> sp. inc.			+
	<i>Munidopsis pallida</i> sp. inc.	++	++	
	<i>Thymopides laurentae</i> sp. inc.		+	
	<i>Nematocarcinus</i> gen. inc. (DZMB_2021_0004)	+		
	<i>Nematocarcinus</i> gen. inc. (DZMB_2021_0005)	+	+	
	<i>Cerataspis monstrosus</i> sp. inc.		++	
	<b>Munnopsidae fam. inc. (DZMB_2021_0007) +</b>			+++
<b>Bryozoa</b>	<b>Cheilostomatida fam. indet. (DZMB_2021_0009) +</b>		+++	
<b>Chordata</b>	Synphobranchidae gen. indet.	++	++	+
	<b><i>Histiobranchus</i> gen. inc.</b>	+		
	<b><i>Coryphaenoides longifilis</i> sp. inc.</b>		+	++
	<i>Halosauropsis macrochir</i> gen. inc.		++	
	<b>Ophidiidae gen. indet. (DZMB_2021_0014)</b>		+	
	<i>Bassozetus</i> gen. inc.		+	
	<i>Spectrunculus grandis</i> sp. inc.		++	
<b>Cnidaria</b>	Spirularia fam. indet.	++		
	Actiniaria fam. indet. (DZMB_2021_0017)	++		
	Actiniaria fam. indet. (DZMB_2021_0018)	+		
	Actiniaria fam. indet. (DZMB_2021_0020)		+	
	Actiniaria fam. indet. (DZMB_2021_0021)	+		
	Actiniaria fam. indet. (DZMB_2021_0022)	++		
	<i>Actinoscyphia</i> sp. indet	++	+	
	Actinostolidae gen. indet.	+	++	
	<i>Actinostola</i> sp. indet. (DZMB_2021_0028)	+	+	
	<i>Bathypheilia</i> sp. indet. (DZMB_2021_0032)	++		
	<b><i>Chondrophellia</i> sp. indet. +</b>	++		
	<b>Alcyonacea fam. indet. +</b>	++		
	<b><i>Anthomastus</i> sp. indet. +</b>	++		
	<b><i>Chrysoorgia</i> sp. indet. (DZMB_2021_0034) +</b>	+		
	<b><i>Chrysoorgia</i> sp. indet. (DZMB_2021_0035) +</b>	++		
	<i>Iridogorgia magnispiralis</i> sp. inc.		+++	
	Clavulariidae gen. indet. (DZMB_2021_0036)	+	++	
	Clavulariidae gen. indet. (DZMB_2021_0037)	+		
	Isididae gen. indet. (DZMB_2021_0040)		+	
	Isididae gen. indet. (DZMB_2021_0042)		++	
	<b>Isididae gen. indet. (DZMB_2021_0045) +</b>	+		

Phylum	Inactive vent taxa	CIR	SEIR	RTJ
	Isididae <i>Acanella</i> gen. inc.		++	
	Isididae <i>Bathygorgia</i> gen. inc.	++	++	
	Isididae <i>Jasonisis</i> gen. inc.		++	
	Isididae <i>Lepidisis</i> gen. inc.		++	
	<i>Lepidisis</i> spp. indet.	++	++	
	Primnoidae gen. indet. (DZMB_2021_0049)		++	
	Stalk of Alcyonacea or Antipatharia ord. inc.	++		
	<i>Heteropathes</i> sp. indet.		++	
	<b><i>Bathypathes</i> gen. inc. (DZMB_2021_0051)</b>		+	
	<i>Bathypathes patula</i> sp. inc.	++		
	<b>Pennatulacea ord. inc. (DZMB_2021_0052)</b>	+		
	<b>Pennatulacea <i>Kophobelemnion</i> ord. inc.</b>	+		
	<i>Zoantheria</i> fam. indet. (DZMB_2021_0056)	+++	+++	
	<i>Zoantheria</i> fam. indet. (DZMB_2021_0057)	+++	+++	
	<b><i>Zoantheria</i> fam. indet. (DZMB_2021_0058) *</b>		+++	
	<b>Hydrozoa ord. indet. (DZMB_2021_0059) *</b>		+++	
	Hydrozoa ord. indet. (DZMB_2021_0062)		++	
<b>Echinodermata</b>	Freyellidae fam. inc.	+		
	<i>Freyella</i> gen. inc.	++		
	Goniasteridae gen. indet. (DZMB_2021_0066)		+	
	<b><i>Circeaster</i> gen. inc. *</b>	+	++	
	<i>Hapalosoma</i> sp. indet.	+		
	Synallactidae gen. indet. (DZMB_2021_0077)			+
	<i>Synallactes</i> sp. indet.		++	
	<b><i>Ophiosphalma</i> gen. inc. *</b>		+	
	<i>Ophiosphalma armigerum</i> sp. inc.		++	+
<b>Mollusca</b>	Abyssochrysoidea superfam. inc.		+++	
	<i>Phymorhynchus</i> sp. indet. (Egg capsules)		+++	

The few studies focusing on megafauna at inactive vent fields found that most taxa are known from other hard substrates and were not endemic or strictly dependent on inactive hydrothermal areas (Boschen et al. 2013, Boschen et al. 2016). Nevertheless, the faunal composition and abundance of these non-vent taxa were different within inactive areas compared to those observed in non-vent areas on hard substrates.

Some species were found exclusively at inactive vents, including two limpet species from the East Pacific Rise (McLean 1990) and one polynoid polychaeta from the Galapagos Spreading Center (Petibone 1989). At the SWIR, within the Longqi hydrothermal vent field,

an unknown ampharetid polychaete was sampled that Zhou et al. (2018) suggested to be adapted to inactive sites.

In the Pacific Ocean aggregations of non-vent fauna, such as solitary tunicates, brisingid sea stars, crinoids, sponges, anemones and brachiopods are found on inactive hydrothermal sulphides at Gorda Ridge (Van Dover et al. 1990). Observations from inactive sites close to Rumble II West Seamount off New Zealand revealed aggregations of comatulid crinoids, actiniarian anemones, sponges, ascidians, brachiopods and several coral species (Boschen et al. 2016). Similar suspension-feeding communities in comparably high abundance are reported from inactive sulphides at the Manus Basin (Galkin 1997, Sen et al. 2014) and Brothers Seamount (Boschen et al. 2015).

On inactive chimney complexes at Longqi, Zhou et al. (2018) reported occasional occurrences of *Munidopsis*-type galatheids; these inactive chimneys are relatively close to active vent sites, which might influence their faunal composition. *Munidopsis* species are also present within inactive sites in the INDEX area that lacks any recent hydrothermal activity.

## Non-vent area

A total of 134 megafauna taxa were identified in the non-vent areas (Table 8), of which many were observed within inactive vents and in the periphery of active vents. Many of these shared taxa represent mobile individuals, especially of the phylum Chordata.

Table 8.

List of non-vent species for the Central Indian Ridge (CIR), the South East Indian Ridge (SEIR) and the Rodriguez Triple Junction (RTJ). Presence of each taxon indicated as low ('+'), medium ('++') or high ('+++') density. Low density = 1 specimen, medium = 2-9 specimens and high  $\geq 10$  specimens.

Phylum	Non-vent taxa	CIR	SEIR	RTJ
Annelida	Polynoidae gen. indet.			++
	Sabellidae gen. indet.	++	+++	
Arthropoda	Anomura fam. indet.	++		
	Galatheidae fam. inc.	++	+	
	<i>Munidopsis aries</i> sp. inc.	++	+	+
	<i>Munidopsis pallida</i> sp. inc.	++	++	
	Paguroidea superfam. inc.	++		
	<i>Thymopides laurentae</i> sp. inc.	+		
	<i>Nematocarcinus</i> gen. inc. (DZMB_2021_0004)	+++	++	++
	<i>Nematocarcinus</i> gen. inc. (DZMB_2021_0005)	+++		
	Dendrobranchiata subord. inc.		+	
	<i>Cerataspis monstrosus</i> sp. inc.	++	+++	++
Munnopsidae fam. inc. (DZMB_2021_0006)	+++			



Phylum	Non-vent taxa	CIR	SEIR	RTJ	
<b>Bryozoa</b>	Cheilostomatida fam. indet. (DZMB_2021_0008)	++	++		
	<i>Bifaxaria</i> gen. inc.	++	++	+	
	<i>Tessaradoma</i> gen. inc.	+++	+		
<b>Chordata</b>	Synphobranchidae gen. indet.		++	++	
	<i>Bathysaurus mollis</i> sp. inc.	++	++	++	
	<i>Bathypterois</i> sp. indet.	++	+		
	<i>Ipynops agassizii</i> sp. inc.	++	+		
	Gadiformes Macrouridae ord. inc. (DZMB_2021_0010)		+		
	Gadiformes Macrouridae ord. inc. (DZMB_2021_0011)		+		
	<i>Coryphaenoides</i> gen. inc. (DZMB_2021_0013)		++		
	<i>Coryphaenoides armatus</i> sp. inc.	++		+	
	<i>Antimora rostrata</i>			++	
	<i>Chaunacops</i> gen. inc.		+		
	Notacanthiformes ord. inc.	++			
	<i>Aldrovandia affinis</i> gen. inc.	++	+++		
	<i>Halosauropsis macrochir</i> gen. inc.		+++	++	
	Ophidiidae gen. indet. (DZMB_2021_0015)			+	
	Ophidiidae fam. inc. (DZMB_2021_0016)	+		++	
	<i>Acanthonus armatus</i> gen. inc.	+	++	+	
	<i>Barathrites iris</i> gen. inc.	++			
	<i>Bassozetus</i> gen. inc.	+	++		
	<i>Spectrunculus crassus</i> sp. inc.			++	+
	<i>Spectrunculus grandis</i> sp. inc.	+	++		
	<i>Xyelacyba myersi</i> gen. inc.				++
	Octacnemidae gen. indet.	+			
	<i>Culeolus</i> spp. indet				++
<i>Bathyraja tunae</i> sp. inc.				++	
<b>Cnidaria</b>	Cnidaria cl. indet.		+		
	Spirularia fam. indet.	+			
	Actiniaria fam. indet. (DZMB_2021_0017)	+	+		
	Actiniaria fam. indet. (DZMB_2021_0018)		++		
	Actiniaria fam. indet. (DZMB_2021_0020)		+		
	Actiniaria fam. indet. (DZMB_2021_0022)		+		
	Actinostolidae gen. indet.			++	
	<i>Actinostola</i> sp. indet. (DZMB_2021_0028)		++	+	
<i>BathypHELLIA</i> sp. indet. (DZMB_2021_0032)		++			

Phylum	Non-vent taxa	CIR	SEIR	RTJ
	<i>Bathypellia</i> sp. indet. (DZMB_2021_0033)		++	
	Alcyonacea <i>Anthomastus</i> gen. inc.		+	
	<i>Iridogorgia magnispiralis</i> sp. inc.		+	
	Clavulariidae gen. indet. (DZMB_2021_0037)	+		
	Clavulariidae fam. inc. (DZMB_2021_0038)	+		
	Isididae gen. indet. (DZMB_2021_0042)		+	
	Isididae fam. inc. (DZMB_2021_0044)		+	
	Isididae <i>Acanella</i> gen. inc.		+	
	Isididae <i>Bathygorgia</i> gen. inc.		+	+
	Isididae <i>Jasonisis</i> gen. inc.		+	
	Isididae <i>Keratoisis</i> gen. inc. (DZMB_2021_0046)			+
	Isididae <i>Lepidisis</i> gen. inc.		+	
	<i>Lepidisis</i> spp. indet.		++	
	Paragorgiidae fam. inc.		+	
	Primnoidae gen. indet. (DZMB_2021_0049)		++	++
	<i>Heteropathes</i> sp. indet.		+	
	<i>Heteropathes americana</i> sp. inc.		+	
	<i>Bathypathes patula</i> sp. inc.		+	+
	<i>Schizopathes</i> spp. indet.		+	
	Pennatulacea fam. indet. (DZMB_2021_0053)	+		
	<i>Umbellula</i> sp. indet. (DZMB_2021_0054)	+		
	<i>Umbellula</i> sp. indet. (DZMB_2021_0055)			+
	<i>Epizoanthus</i> sp. indet.	++		
	Hydrozoa ord. indet. (DZMB_2021_0065)			++
	Siphonophorae Rhodaliidae <i>Thermopalia</i> gen. inc.			+
<b>Echinodermata</b>	<i>Hymenodiscus</i> gen. inc.		++	+
	Freyellidae fam. inc.	++	++	
	<i>Freyastera</i> gen. inc.	++	++	++
	<i>Freyella</i> gen. inc.	++	++	+
	<i>Styracaster</i> gen. inc.	++		
	<i>Henricia</i> gen. inc.	+		+
	Goniasteridae gen. indet. (DZMB_2021_0066)	+	++	
	Goniasteridae gen. indet. (DZMB_2021_0067)	++		
	<i>Evoplosoma</i> gen. inc.		++	
	<i>Lydiaster johanna</i> sp. inc.	+		
	Solasteridae fam. inc.		+	

Phylum	Non-vent taxa	CIR	SEIR	RTJ
	<i>Asthenactis</i> gen. inc.		+	
	<i>Hymenaster</i> sp. indet.		+	
	<i>Pteraster</i> gen. inc.		+	
	Antedonidae gen. indet. (DZMB_2021_0068)	++	++	
	Antedonidae fam. inc. (DZMB_2021_0069)	++	++	
	cf. <i>Bathymetra</i> sp.	+	+	
	<i>Pentametrocrinus</i> sp. indet.	++	++	
	Hyocrinidae gen. indet.		++	
	<i>Irregularia</i> infract. inc.		+	
	Cidaroida fam. indet.			+
	<i>Hapalosoma</i> sp. indet.	++	+	
	<i>Salenocidaris</i> sp. indet.		++	
	Elpidiidae gen. indet. (DZMB_2021_0070)	+	++	
	Elpidiidae gen. indet. (DZMB_2021_0071)			+
	Elpidiidae gen. indet. (DZMB_2021_0072)		++	
	<i>Peniagone purpurea</i>	+		
	Laetmogonidae sp. indet.	++	++	
	<i>Enypniastes eximia</i>	++		
	<i>Benthodytes</i> sp. indet.	++	+	+
	<i>Benthothuria</i> gen. inc.		+	
	<i>Pseudostichopus</i> gen. inc. (DZMB_2021_0073)		+	
	<i>Pseudostichopus</i> sp. indet. (DZMB_2021_0074)		++	
	<i>Oneirophanta</i> sp. indet.	++		
	Synallactidae gen. indet. (DZMB_2021_0075)	++	+++	
	Synallactidae gen. indet. (DZMB_2021_0076)	+++	++	++
	Synallactidae gen. indet. (DZMB_2021_0077)		++	++
	Synallactidae gen. indet. (DZMB_2021_0078)		++	
	Synallactidae fam. inc. (DZMB_2021_0079)	+		
	<i>Synallactes</i> sp. indet.	++	++	
	Amphilepidida ord. inc.			+
	<i>Asteronyx</i> gen. inc.		++	
	Ophiacanthida ord. inc.		++	+
	<i>Ophiophyllum petilum</i> sp. inc.		+	
	<i>Ophiosphalma armigerum</i> sp. inc.	++	++	++
<b>Hemichordata</b>	Torquaratoridae fam. inc.		+	
<b>Mollusca</b>	<i>Bathypolypus</i> sp. indet.		++	

Phylum	Non-vent taxa	CIR	SEIR	RTJ
	<i>Cirroteuthis</i> sp. indet.	+	+	++
	<i>Grimpoteuthis</i> gen. inc.			+
	<i>Magnapinna</i> sp. indet.		+	
	<i>Speculator</i> gen. inc.	++		
	Scaphopoda ord. indet.	++	+	
<b>Porifera</b>	<i>Paleodictyon nodosum</i>	+++	+++	
<b>Foraminifera</b>	Monothalamea ord. indet. (DZMB_2021_0080)			++
	Monothalamea ord. indet. (DZMB_2021_0081)	++	++	
	Monothalamea ord. indet. (DZMB_2021_0082)	+++		
	<i>Luffamina</i> gen. inc.	+++	+++	
	<i>Psammina</i> gen. inc. (DZMB_2021_0083)	+++	+	+
	<i>Psammina</i> gen. inc. (DZMB_2021_0084)		+++	
	<i>Stannoma</i> gen. inc.	+		

Information on the benthic deep-sea megafauna of the Indian Ocean from both samples and imagery are rather scarce (Ingole and Koslow 2005, Sautya et al. 2011) and often focuses on the shelf (Hunter et al. 2011). Sautya et al. (2011) identified 58 megafaunal taxa using video transects and TV-grab samples from the Andaman Sea, a back-arc basin in the northern part of the Indian Ocean, although the highest diversity and density was observed on the flanks or summit of seamounts and only seven were found in the Andaman Basin on fine sediments (2,876 –2,917 m).

These seven taxa were observed at similar depths to those recorded here from the CIR and SEIR area, all on soft substrates (Sautya et al. 2011). The imagery samples from the seamounts, representing hard substrates, were taken at a maximum depth of 1,424 m (Sautya et al. 2011), much shallower and more influenced by surface primary production compared to the deeper and oligotrophic study area (Harms et al. 2019).

Ingole and Koslow (2005) recognised 38 megafaunal taxa from video transects and sampling in the Central Ocean Basin. Other studies in the Indian Ocean focused on macrofauna (Ingole 2003) and responses of macrofauna to disturbance (Ingole et al. 2001, Jones et al. 2017).

### Megafauna in the German licence area

The GLA covers three regions; the southern CIR, the RTJ and the northern SEIR, a distance spanning 1000 km from the northern to the southern border. Several taxa are widespread throughout the INDEX area and others have restricted distribution patterns (Tables 6, 7, 8). For the active vent fields, 19 species occur on the CIR, SEIR and RTJ, including the shrimp *Rimicaris kairei*, the bristle worm *Archinome jasoni*, the fish *Pachycara angelo* and the mussel *Bathymodiolus septemdiemum* (Table 6). Fifty taxa were found only in one region, including the bristle worm *Branchipolynoe* gen. inc. on the CIR, the sea

spider Pantopoda ord. inc. on the SEIR and the ribbon worm *Thermanemertes* gen. inc. at the RTJ (Table 6). The remaining 26 taxa were observed in two of the three regions, ten of them on the CIR and SEIR, but not within the RTJ in between these two regions, thereby probably reflecting the sampling effort.

The widespread distribution throughout the INDEX area of many typical active vent field taxa found in this study confirms the Indian Ocean as a standalone biogeographic province (Van Dover et al. 2001, Zhou et al. 2018, Sun et al. 2020). The majority of spatially-restricted taxa were either smaller taxa, as reported for polychaetes from Longqi (Copley et al. 2016, Zhou et al. 2018) or were occasional vent field residents also found in more distant non-vent areas (compare Table 6 and Table 8 for shared taxa). These taxa probably contribute to the small-scale differences described for Indian Ocean vent fields (Copley et al. 2016, Zhou et al. 2018, Sun et al. 2020) and can also be confirmed for the active vent fields within the INDEX area.

At inactive hydrothermal vent fields, the majority of taxa were shared with active vent fields and non-vent areas and only 22 of the 69 taxa were observed only within - or close to - inactive areas. Fifteen taxa were observed exclusively within inactive areas on sulphides. Of the 22 taxa observed at inactive sites, 19 showed a restricted occurrence in one region, including the isopod Munnopsidae fam. inc. (DZMB\_2021\_0007) at the RTJ, the Bryozoan Cheilostomatida fam. indet. (DZMB\_2021\_0009) on the SEIR and the fish *Histiobranchus* gen. inc. on the CIR; the remaining three taxa were restricted to two regions each (Table 7). Fifteen taxa showed a spatial distribution across two regions and only Synaphobranchidae gen. indet. showed a widespread distribution in all three regions, but this taxon is not restricted to inactive vent fields and was also observed in active vent fields. The taxa at inactive areas show highly localised distribution patterns in low to medium abundance (Table 7). In addition and in contrast to the high number of shared taxa at active vent fields in this study and beyond the INDEX area (Breusing et al. 2015, Sun et al. 2020), the inactive vent fields had a considerably lower number of shared taxa between inactive sites and no widespread distribution of taxa across the INDEX area.

The non-vent area showed the highest species diversity in medium to low abundance with a high number of locally-restricted taxa (Table 8). Eighty-two taxa occurred in one region, 39 in two regions and only 13 taxa were observed throughout the INDEX area, the majority in medium to low abundance (Table 8).

In the Indian Ocean, three additional licence areas for polymetallic sulphides have been issued to China on the SWIR, India on the southern CIR and SWIR and Korea on the CIR, with a number of shared species between the licence areas and hydrothermal vent fields outside exploration claims (Nakamura et al. 2012, Zhou et al. 2018, Sun et al. 2020). For example, the gastropod *Chrysomallon squamiferum* has been found in both the Chinese and the German exploration claim areas in addition to the Solitaire vent field outside exploration areas (Chen et al. 2015). The low connectivity of the known populations at these three vent sites in the Indian Ocean, of which two are within national licence claim areas, has led to classification of this taxon as endangered on the IUCN Red List (Sigwart et al. 2019). The IUCN Red List might, therefore, be used to draw attention to vulnerable



deep-sea habitats and serve as a basis for protecting them (Sigwart et al. 2019). To clarify the population connectivity of *C. squamiferum* and other locally-restricted species, it is necessary to conduct biodiversity assessments in additional hydrothermal vent areas.

Other taxa, such as *Rimicaris kairei*, show a greater connectivity and a more widespread distribution across spatially-separated vent fields in this yet undisturbed environment (Hashimoto et al. 2001, Zhou et al. 2018, Gerdes et al. 2019).

Although potential mining activities are focusing on inactive hydrothermal vents, they could affect nearby active hydrothermal vents and the surrounding non-vent area (Levin et al. 2016, Miller et al. 2018, Van Dover 2019).

Mitigation strategies to avoid 'serious harm' to the environment include Environmental Impact Assessment studies (EIA), which require baseline studies for time series and monitoring to understand and explain succession, resilience and the recovery potential of the fauna against anthropogenic disturbances (Gollner et al. 2017, Van Dover 2019).

The impact of mining activities for inactive hydrothermal vent sites is far from understood due to a lack of qualitative and quantitative studies as pointed out in several reviews addressing the potential consequences of mining-related disturbances (Van Dover 2014, Miller et al. 2018, Van Dover 2019). For the non-vent areas in the vicinity of hydrothermal vent fields, mining effects are even less studied and require proactive research (Van Dover 2014).

This megafauna catalogue is a valuable baseline study that offers an impression of the diversity present within the GLA, which can serve as a basis for monitoring the deep-sea benthic megafauna in the context of potential SMS mining activities. A drawback of this fauna catalogue is that the occurrences of taxa are based chiefly on imagery alone; additional physical samples are needed for taxonomic and molecular confirmation.

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## Author contributions

KHG sampled specimens, participated at several expeditions, extracted faunal occurrences from video- and photograph transects, prepared the database, did the initial identification and wrote the manuscript. PMA contributed to the database work, the imagery collection and processing. TK and USS funded the project, made data collection possible and are the principle investigators of the INDEX project. CM identified the sea stars, JN identified the nemertean taxa, TDL identified all fish, KS identified cirripedians, EM identified lobster and squat lobster, DG identified the bryozoans, TM identified cnidarians, SS identified brittle stars, CGM identified crinoids, SB identified Munnopsidae, TMG identified all Annelida MC identified crabs, anomuran crabs, shrimps and sea spiders, AG and AK1 identified sea cucumbers, AK2 identified sea urchins, KS identified ascideans, KB identified cephalopods, LH identified shell-bearing molluscs, AJG identified Foraminifera, TCK sampled specimens, participated at all expeditions and did the initial identification. All authors reviewed the manuscript.

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## Supplementary material

**Suppl. material 1: Megafauna table with all occurrences of the German exploration licence area for seafloor massive sulphides along the Central and South East Indian Ridge (Indian Ocean) [doi](#)**

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