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The meiobenthic communities of Senghor Seamount (Cabo Verde, tropical East Atlantic)

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Seamounts interest researchers because of their high biodiversity, high levels of endemism, and their importance for the dispersal and evolution of species. Especially interesting is the role of seamounts in the biogeography and phylogeography of interstitial meiofauna, microscopic animals that mostly lack dispersal stages in their life cycle. In this study, we analyse the composition of meiobenthic communities of the Senghor Seamount (Cabo Verde). The material was collected during the M79/3 cruise of R/V Meteor in 2009. Benthic sediments were collected with a multicorer and fixed with formaldehyde. Further extraction of meiofauna by density gradient centrifugation, sorting and counting of higher-level taxa was carried out in the laboratory. Our analyses involved estimating taxa densities, estimating different diversity indices and comparing similarity across sampling sites using non-metrical multidimensional scaling (nMDS). The results of the analyses showed that the summit has the highest higher taxa richness (HT: 11–16), the lowest level of dominance (D: 0.23–0.28), and the highest evenness of meiobenthic communities. The slopes had a lower level of higher taxa richness (HT: 12–13), a higher level of dominance (D: 0.5–0.61), and a lower level of evenness. The base had the lowest higher-taxon richness (HT: 10), the highest level of dominance (D: 0.82–0.87), and the lowest evenness. The nMDS revealed four distinct communities at the summit, the slope and the base of Senghor Seamount as well as at the deep-sea reference stations. There was a high dissimilarity of stations on the summit, which may indicate both, high biodiversity and heterogeneity of habitats. The slopes, the base and the reference sites show closer grouping of stations, which may indicate lower biodiversity of these areas, however, a lower number of stations were analysed. In comparison with other Atlantic seamounts and islands, Senghor Seamount shows up the second place regarding richness of meiobenthic higher-level taxa. The noticeably higher meiobenthic density values could be caused by the increased pelagic primary production in the sea area off tropical western Africa. Overall, the meiobenthic communities of Senghor Seamount seem to support the hypothesis of seamounts as oases for fauna, demonstrating more diverse assemblages compared to reference areas in the deep sea.

Keywords: *meiofauna, biodiversity, biogeography, ecology, Cape Verde*

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Introduction

Seamounts are seabed relief forms that exceed 1 km in height above the surrounding deep-sea floor (Yesson et al., 2011). The peculiarities of their topography and hydrodynamics provide special habitats for marine biota (Mohn et al., 2021, Tojeira et al., 2025). Seamounts may be characterized by a high level of primary productivity, which can affect both biodiversity and fauna density (Rogers, 1994), and is referred to as the "seamount effect" (Dower, Mackas, 1996, Misic et al., 2012, Zhao et al., 2023).

A specific ecological component of benthic communities is the meiobenthos (meiofauna), which consists of protist and metazoan organisms smaller than 0.5 mm but being retained on a 63 μm mesh (Schmidt-Rhaesa, 2020). The biogeography of especially marine meiofaunal organisms is affected by the so-called "meiofauna paradox", connecting the widespread and disjunct distributions of many species in the absence of dispersal stages in their life cycles, especially in interstitial taxa (Giere, 2009). However, widespread distributions could be wrong assumptions and in fact represent limited distributions of several genetically distinct but morphologically difficult (or impossible) to delimit "cryptic species" (Cerca et al., 2018). In marine meiofauna research, including meiofaunal biogeography, seamounts are of significant interest. They are considered as hotspots with a potential high level of endemism and richness of fauna compared to the abyssal plain (e.g., Shank, 2010, Zeppilli et al., 2013, Trokhymchuk, Kieneke, 2024). Seamounts can play the role of “stepping stones” (Gad, Schminke, 2004), which means they could promote the spread of meiofauna over long distances, but the entire role of seamounts in conjunction with the “meiofauna paradox” is probably more complex (George, 2013).

Senghor Seamount (SSM), located in Cabo Verde (Cape Verde) archipelago (Fig. 1A), is a fairly symmetrical and conical relief form. It is located in the northeast of the archipelago and is one of the edge points of volcanic activity that formed the Cape Verde archipelago (Kwasnitschka et al., 2024). Its base at the deep sea lays at around 3,200 m depth, and a considerably shallow summit plateau at about 100 m depth, which is predominantly covered with a layer of coarse organogenic sand (Christiansen et al., 2011). Fish (Hanel et al., 2010, Vieira et al., 2018) and planktonic fauna (Denda, Christiansen, 2014, Denda et al., 2017) of SSM have already been studied, and concerning the benthos, studies were conducted on polychaetes by Chivers et al. (2013) and Watson et al. (2014), and on kinorhynchs by Yamasaki et al. (2019). The results demonstrate a high number of endemic or possible endemic species for meiobenthic taxa.

In this study, we present results of the first analysis of the meiobenthic community based on higher-level taxa of Senghor seamount and compare them with those of other studied seamounts and islands of the Atlantic Ocean. Based on such pre-existing knowledge (e.g., Büntzow, 2011, Zeppilli et al., 2013, George, 2022), we expect differences of meiofaunal diversity and densities across the bathyal gradient of SSM. Possible drivers for such patterns, but also for differences between different seamounts will be discussed.

Materials and Methods

The cruise M79/3 of R/V Meteor (Fig. 1A–C) was conducted in the Cabo Verde (Cape Verde) region in September 2009 (Christiansen et al. 2011). Sediment samples were collected using a multiple corer (MUC) equipped with 12 cores of 9.4 cm inner diameter (= 69.40 cm^2 of sampled area per core tube) from aboard the research vessel. Samples were taken from summit plateau, slopes (flanks), seamount base and from abyssal plain at a distance of about 50 km and 100 km from SSM as southern and northern reference sites, respectively (Tab. 1; Fig.1B, C). The composition of summit sediments was mainly of carbonate material of organic origin such as coral, echinoderm and mollusc fragments, amongst others (Fig. 1D, E).

The upper 5 cm of sediments were cut from each core sample and immediately fixed with formaldehyde at the final concentration of about 8% (v/v). Meiofaunal specimens were extracted by density gradient centrifugation (Pfannkuche, Thiel, 1988, Somerfield et al., 2005) using the colloidal silica Levasil®. Sorting of the major taxa was carried out at the department DZMB of Senckenberg am Meer, Germany; for a better visibility under the stereo microscope, each centrifuged sample was bulk-stained with Rose Bengal.

Table 1. Sampling stations of the multiple corers during the M79/3 cruise (Senghor Seamount) and cores that were analysed in the current study. * – depth according to the station protocol sheet, no depth value in the cruise report (failure of echosounder).

Cruise	Station	Corer	Latitude	Longitude	Depth [m]	region
M79/3	825	7	18° 05.00' N	22° 00.20' W	3293.9	deep reference N
M79/3	848	5	17° 11.31' N	21° 57.20' W	101.3	summit central
M79/3	849	2	17° 11.31' N	21° 57.20' W	102.0	summit central
M79/3	850	2	17° 11.31' N	21° 57.20' W	102.4	summit central
M79/3	864	2	17° 12.29' N	21° 57.69' W	132.4	summit NW
M79/3	864	7	17° 12.29' N	21° 57.69' W	132.4	summit NW
M79/3	865	4	17° 12.30' N	21° 57.70' W	383.2	summit NW
M79/3	866	3	17° 12.30' N	21° 57.70' W	133.6	summit NW
M79/3	934	7	17° 12.94' N	21° 56.37' W	565.2	upper slope NE
M79/3	934	10	17° 12.94' N	21° 56.37' W	565.2	upper slope NE
M79/3	1016	3	17° 09.80' N	22° 09.64' W	3193*	base W
M79/3	1016	8	17° 09.80' N	22° 09.64' W	3193*	base W
M79/3	1044	1	17° 10.62' N	21° 56.82' W	102.7	summit SE
M79/3	1046	5	17° 07.51' N	21° 55.50' W	1545.0	mid slope SE
M79/3	1049	2	16° 45.00' N	22° 06.01' W	3376.1	deep reference S

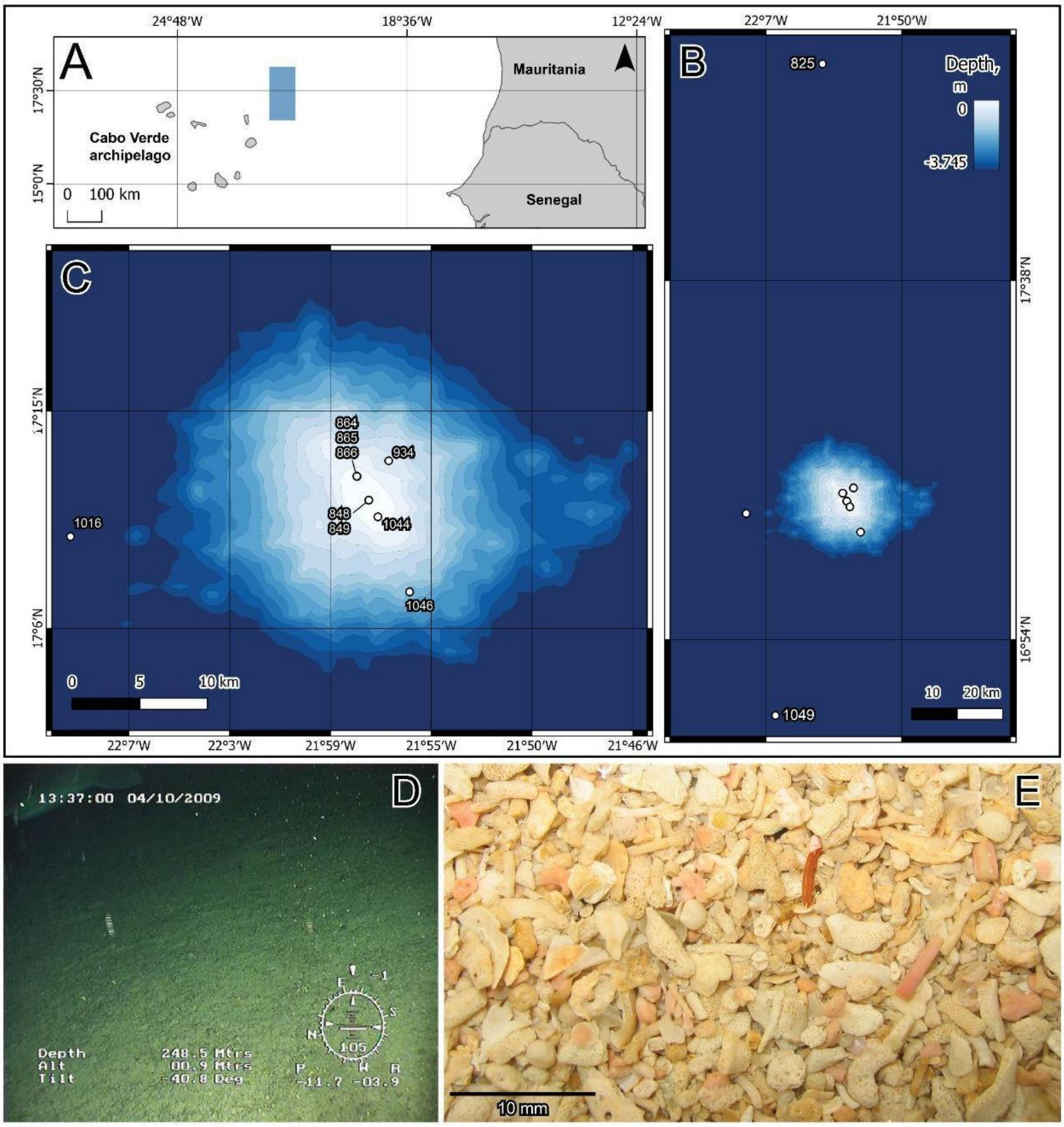

Fig. 1. Study area during the M79/3 expedition of R/V Meteor (September – October 2009). A Map covering the Cape Verde archipelago and western Africa and the study area in between (indicated by blue rectangle); **B** Study area with Senghor Seamount and northern and southern reference sampling sites (stations 825 and 1049); **C** Closeup of Senghor Seamount and analysed sampling sites on the summit plateau, the upper slope, the lower slope and the seamount base. Map source: GEBCO. **D** Still from ROV Mohawk (subAtlantic) video footage with upper slope of Senghor Seamount, station 862 at 248.5 m depth. Image by R. Koppelmann, Hamburg; **E** Biogenic coarse sand from Senghor Seamount summit, station 845 at 102.9 m depth.

To assess meiobenthic diversity, we calculated the following diversity indices: higher taxa richness *HT*; individuals number *N*; dominance *D* (Simpson, 1949); Shannon Index *H’* (Shannon, Weaver, 1963); and Pielou’s Evenness J (Pielou, 1966). The affiliation of taxa to dominance classes follows the classification of Engelmann (1978). For testing a possible bathymetric pattern of meiofaunal abundances, a linear regression between meiofaunal density of each core against its depths has been carried out. To analyse (dis)similarity between stations we performed non-metric multidimensional scaling (nMDS) based on absolute abundances and using the Bray-Curtis Index without transformation (Bray, Curtis 1957) as a measure of (dis)similarity. We refrained to perform an analysis of variance such as the PERMANOVA due to an unbalanced sampling size between the sampled areas (summit, slope, base, reference sites). Statistical analysis was performed using software Past 4.03 (Hammer et al., 1999–2022). The map was created using the Open Source QGIS 3.34 Prizren.

Results

In total, from 15 sampling sites (13 MUC cores from Senghor seamount and two additional cores, one from each reference area) we recovered 47,338 meiofauna individuals, belonging to 19 taxa (44,991 individuals and 19 taxa for Senghor Seamount; 2,397 individuals and 11 taxa for reference sites; Tab. S1). The most abundant taxa were Nematoda (Figs. 2, 3A, B) and Copepoda (Figs. 2, 3H), including their nauplii, followed by Annelida (Figs. 2, 3E, F). The relative abundance of Nematoda showed an increase from the summit to the base, while that of Copepoda and Annelida decreased with increasing depth (Fig. 2, Table 2). Gastrotricha (Fig. 3I, J) exhibited a relative abundance up to 8.8% in summit samples. Tardigrada (Fig. 3C, D) also reached its highest relative abundance of up to 3.2% in summit samples. Relative abundances of Ostracoda (Fig. 3G) appear rather uniform across all seamount samples, ranging from 0.2 to 2.0%.

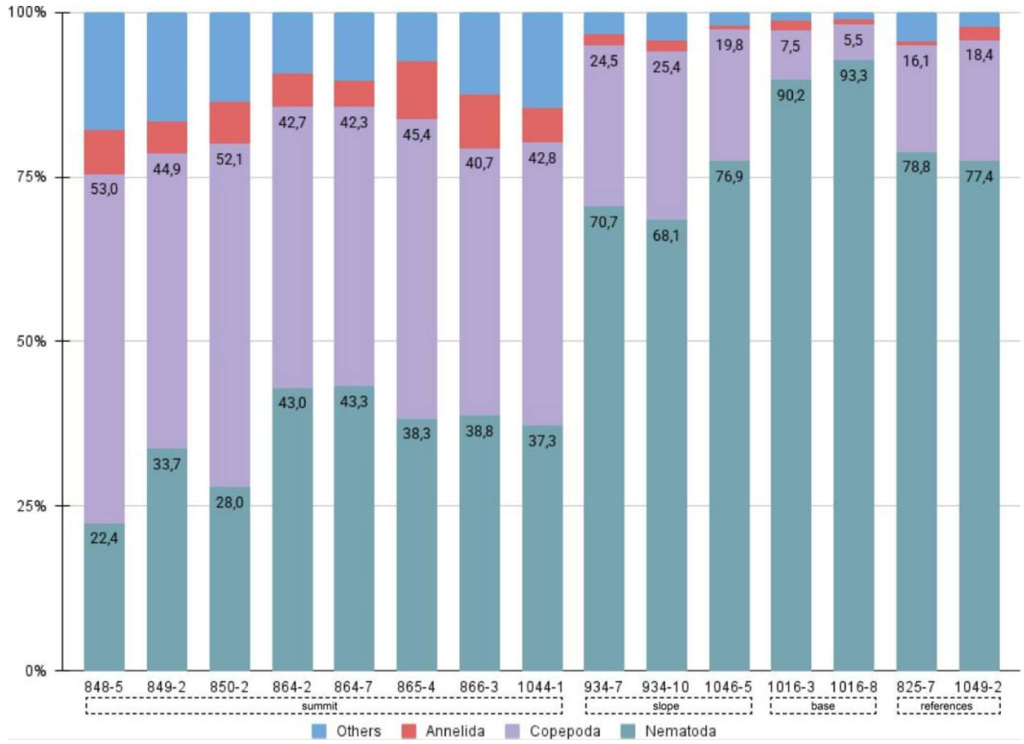

Fig. 2. Relative abundances of the most abundant meiofauna taxa from the analysed core samples of cruise M79/3 (Senghor Seamount). “Others” represent all the remaining taxa apart from Nematoda, Copepoda and Annelida (see Tab. S1).

Table 2. Ranges of relative abundance of the three most dominant meiofauna taxa and all remaining groups (see Tab. S1) pooled as “Others” at the three bathymetric areas sampled on Senghor Seamount and at two reference stations during cruise M79/3.

Area/taxon	Nematoda	Copepoda	Annelida	Others
Summit	22.4–43.3%	40.7–53.0%	4.0–8.9%	7.4–17.8%
Slope	68.1–76.9%	19.8–25.4%	0.6–1.8%	2.0–4.2%
Base	90.2–93.3%	5.5–7.5%	0.7–1.5%	1.1–1.3%
Reference samples	77.4–78.8%	16.1–18.4%	0.6–1.9%	2.3–4.4%

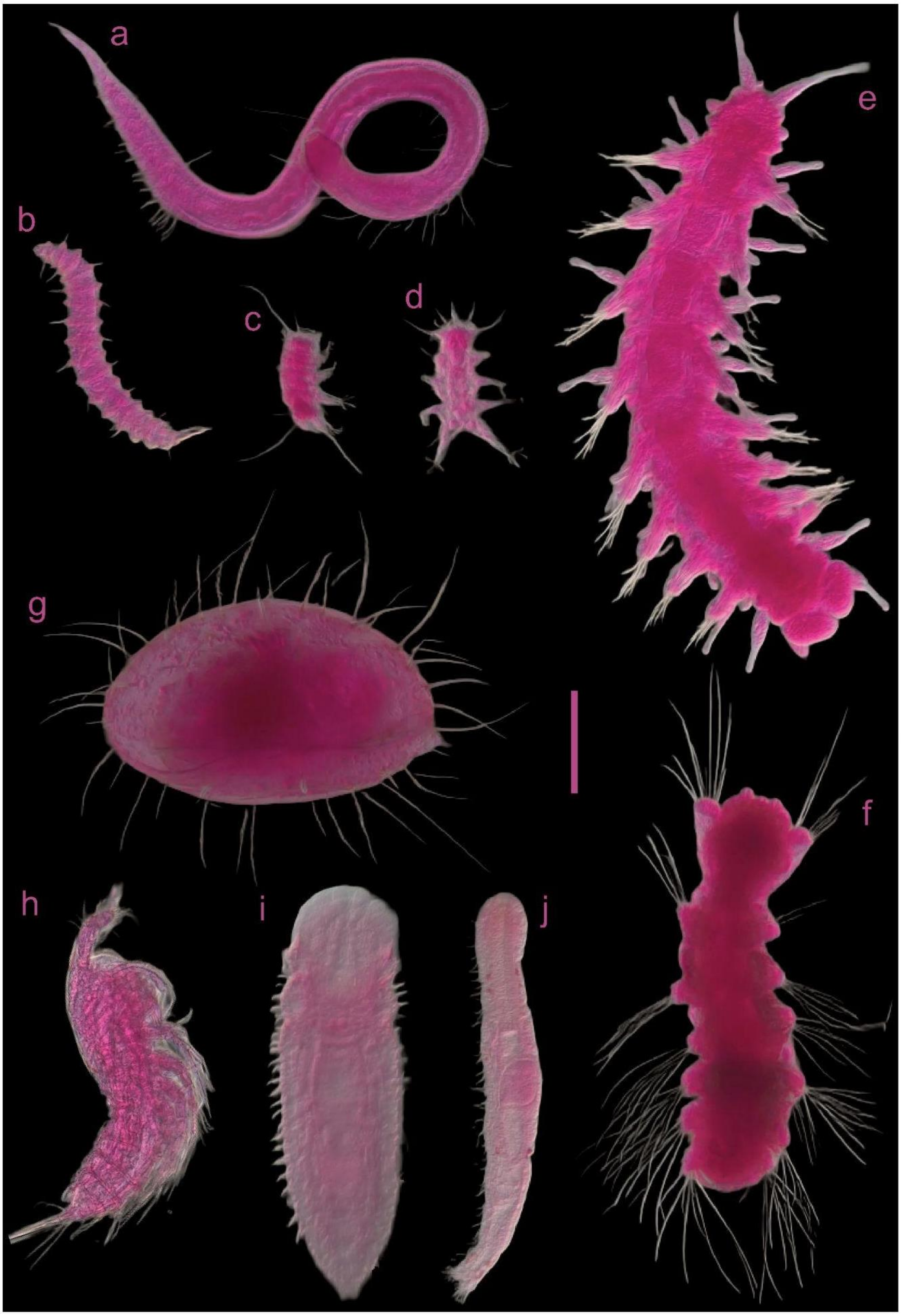

Fig. 3. Representatives of the most abundant meiofauna major taxa from Senghor Seamount: a, b Nematoda; **c**, **d** Tardigrada; **e**, **f** Annelida; **g** Ostracoda; **h** Copepoda; **i**, **j** Gastrotricha. Specimens a–g from station 864; h–j from station 866 of cruise M79/3. Scale bar: 100 μm.

All the other taxa (Acari, Amphipoda, Bivalvia, Chaetognatha, Coelenterata, Gastropoda, Isopoda, Kinorhyncha, Loricifera, Ophiuroidea, Rotifera, Sipuncula and Tantulocarida) were present in much lower abundances (Tab. S1). Meiofaunal densities (Tab. S2) exhibited a depth-related pattern across the seamount samples (Fig. 4). While two samples from the summit show rather low densities of less than 200 ind./10 cm^2, all other summit samples have values between 450 and 550 ind./10 cm^2. Following the bathymetric gradient from the summit and along the slope of SSM down to its base at about 3,200 m, the meiofaunal densities tended to increase from summit to slope, although this slight positive correlation was not statistically significant ($p = 0.6206$), with values around 550 ind./10cm^2 (summit), almost 700 ind./10cm^2 (slope), and up to 650 ind./10cm^2 (base). In contrast, the abyssal reference sites displayed densities comparable to the two lowest values observed on the summit plateau, with meiofaunal densities of less than 200 ind./10 cm^2 (Fig. 4).

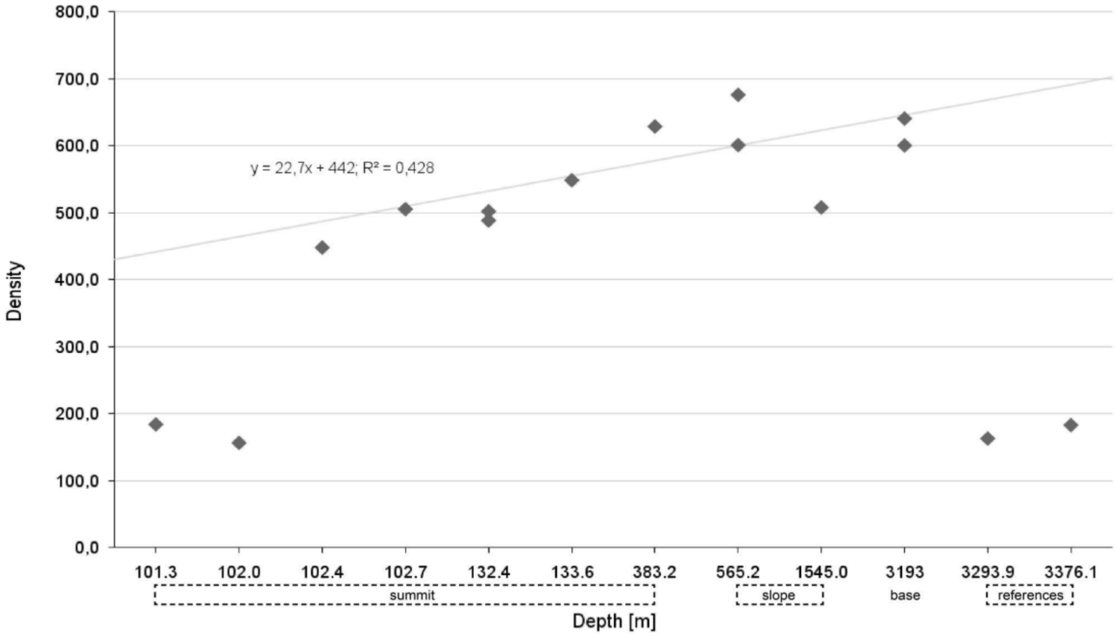

Fig. 4. Densities (individuals/10 cm^2) of the meiofauna from the analysed sampling sites (cores) of cruise M79/3, arranged by depth. Densities showed a positive correlation with depth, however, not statistically significant ($p = 0.6206$).

Samples from the summit have the highest taxa richness (*HT* = 11–16, Tab. 3), followed by the slope (*HT* = 12–13) and the base (*HT* = 10). For the reference sites *HT* was from 10 to 11 and, comparing to the seamount, they lack on eight taxa: Amphipoda, Bivalvia, Chaetognatha, Coelenterata, Gastropoda, Isopoda, Ophiuroidea and Sipuncula. There are no taxa present in the reference sites that are not found in the seamount samples (Tab. S1).

Table 3. Diversity indices for the analysed cores of cruise M79/3 (Senghor Seamount) based on meiofauna major taxa abundances. *HT* – higher taxa richness; *N* – individuals' number; *D* – dominance; *H'* – Shannon Index; *J* – Pielou's Evenness. Reference samples highlighted in grey.

	825-7	848-5	849-2	850-2	864-2	864-7	865-4	866-3	934-7	934-10	1016-3	1016-8	1044-1	1046-5	1049-2
HT	11	14	12	14	11	11	16	15	13	13	13	10	11	12	10
N	1129	1275	1084	3107	3387	3482	4361	3804	4168	4689	4443	4164	3505	3522	1268
D	0.64	0.24	0.24	0.23	0.28	0.28	0.26	0.25	0.53	0.50	0.82	0.87	0.25	0.61	0.62
H'	0.80	1.75	1.70	1.70	1.55	1.55	1.60	1.68	0.98	1.08	0.45	0.33	1.64	0.83	0.83
J	0.33	0.66	0.68	0.65	0.65	0.65	0.58	0.62	0.38	0.42	0.18	0.14	0.68	0.33	0.36

The highest dominance was observed for the base (*D* = 0.82–0.87, Tab. 3), followed by the slope (*D* = 0.5–0.61). For both areas, the eudominant taxon were nematodes. The lowest levels of dominance were observed for the summit (*D* = 0.23–0.28), indicating that taxa are occurring more equally. The dominance index for the reference sites is 0.62–0.64 (Tab. 3), again with nematodes as eudominant taxon.

The Shannon diversity index was highest at the summit, ranging from 1.55 to 1.75 (Tab. 3). These values are quite low, which is generally common for meiobenthic communities. However, all other areas of the seamount, as well as the reference sites, exhibited even lower Shannon index values (see Tab. 3). The values of the Equitability index (Pielou's Evenness, *J*) generally correspond to those of the Shannon index, with the highest values observed for the summit communities and lower values for the slope, base, and reference sites (Tab. 3).

The nMDS plot of the analysis of similarity revealed distinct patterns in meiofaunal community composition across sampling areas (Fig. 5). A stress value of 0.064 indicates relatively good sample ordination with low risk of misinterpretation. All analysed cores show a distinct grouping into samples from the summit, the slope, the base and the reference sites (Fig. 5). However, the two shallowest samples from the summit area (849-2 and 848-5) are separated from remaining summit stations (Fig. 5A). The reason for such a diverging may be caused by higher-taxon diversity, combined with low abundance values, and therefore dissimilarity between the shallower stations on the summit plateau and the deeper ones. In order to test the influence of these two outlier samples, we ran the analysis with the same settings, but excluding these two cores. In this case we were able to observe an even closer grouping of the four areas, while the stations of the slope and the base of SSM almost cluster as a common group (Fig. 5B).

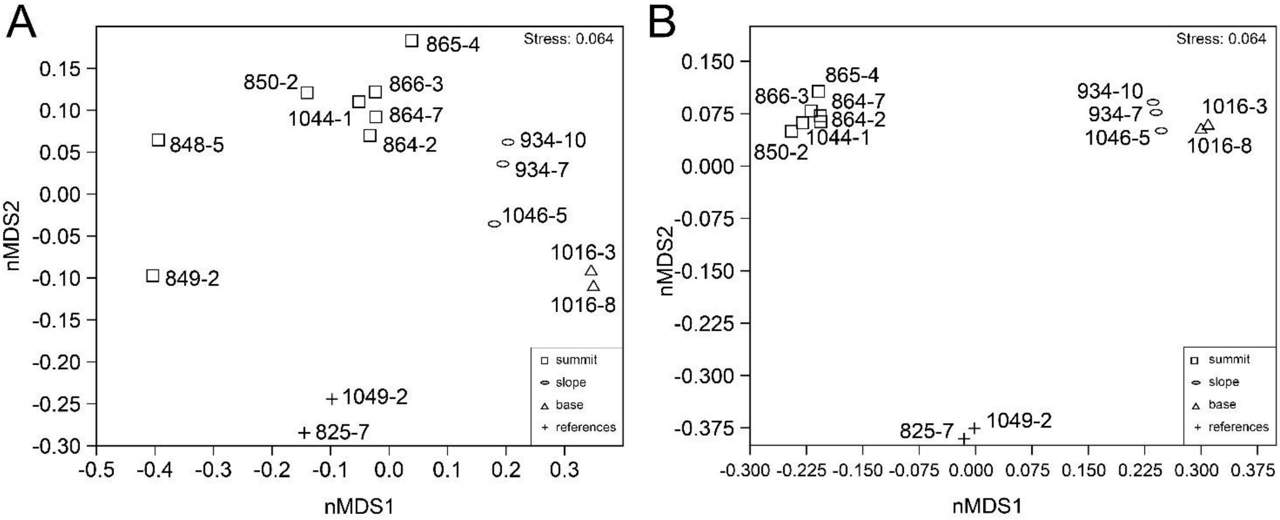

Fig. 5. nMDS plots, showing (dis)similarities (Bray-Curtis index) between meiofauna abundances from the different analysed sampling sites (cores) of expedition M79/3 to Senghor Seamount. A All core samples included; **B** Core samples 849-2 and 848-5 excluded.

Meiofaunal communities of the base stations and the deep-sea reference stations as well showed a high within-group similarity. Overall, we have to keep in mind that the number of analysed cores is quite unequally distributed among the four areas (i.e., summit = 8, slope = 3, base = 2, reference areas = 2).

Discussion

The analyses of meiofaunal communities of Senghor Seamount (SSM) revealed patterns that much likely depend on abiotic differences in sampling sites, such as depth or sediment composition. The relative shallow-water summit at about 100–130 m depth exhibited the highest taxa richness and evenness. This observation is similar to the results of other seamounts in the Atlantic Ocean, e.g., the Azorean Condor Seamount (Zeppilli et al., 2013), but higher values have been reached at SSM. The summits of seamounts that particularly reach shallow water depths may provide a more heterogeneous biotope, because of biogenic sediments as a main substratum, which offers a large number of niches for organisms of various size classes (Soltwedel, Thiel, 1995, Passarelli et al., 2012). The slope and base communities usually show a relatively lower diversity and evenness of higher-level taxa, mainly caused by the high dominance of Nematoda (Büntzow, 2011, Zeppilli et al., 2013, George, 2022), which is also the case for SSM. The highest meiobenthic density of SSM was observed at the upper slope at 565.2 m depth. Similar trends were reported from the slopes of Josephine Seamount (Levin, Gooday 2003) and Condor Seamount (Zeppilli et al., 2013), but with lower values compared to SSM. This general pattern of higher meiofaunal densities at SSM could be related to its position off tropical western Africa, a sea area which has a very high annual primary production (e.g., Nellemann et al., 2008). Circular current systems (i.e., eddies) are known to transfer nutrients and biomass from near-shore water bodies to the Cape Verde archipelago (Fischer et al., 2016). A similar effect of the fertility of the water masses surrounding a seamount on the composition and densities of its macrofaunal communities has already been described (Boehlert, Genin, 1987 and references therein). The higher meiofauna densities at the slopes and even at the base compared to the summit (Levin, Gooday, 2003, Zeppilli et al., 2013, this study) could correlate with an increased export of particulate organic carbon from the summit of tall seamounts to its slopes, as it was already described for SSM (Turnewitsch et al., 2016).

George (2022) provided an overview of the meiobenthic major taxa occurrences of nine seamounts and oceanic islands of the Atlantic Ocean, and we are now able to integrate our data to this comparison (Tab. 4).

Table 4. Occurrences of meiofauna major taxa on different northern Atlantic seamounts and oceanic islands according to George (2022) and supplemented with results from the current study

No.	Major taxon	GMS	SedS	SeiS	ConS	Terceira	St. Maria	Flores	SSM
1	Acari	X	X	X	X	X	X	X	X
2	Amphipoda	X	X	X	X				X
3	Annelida	X			X	X	X	X	X
4	Bivalvia	X	X	X	X	X			X
5	Bryozoa	X							
6	Chaetognatha	X							X
7	Cnidaria	X		X					X
8	Copepoda	X	X	X	X	X	X	X	X
9	Cumacea	X			X				
10	Echiura				X				
11	Entoprocta	X							
12	Gastropoda	X			X				X
13	Gastrotricha	X	X	X		X		X	X
14	Isopoda	X	X	X	X	X	X	X	X
15	Kinorhyncha	X	X	X	X	X	X	X	X
16	Leptostraca	X							
17	Loricifera	X	X	X	X	X	X	X	X
18	Nematoda	X	X	X	X	X	X	X	X
19	Ophiuroidea								X
20	Ostracoda	X	X	X	X	X	X	X	X
21	Pantopoda	X	X						
22	Priapulida					X		X	
23	Rotifera	X		X				X	X

No.	Major taxon	GMS	SedS	SeiS	ConS	Terceira	St. Maria	Flores	SSM
24	Sipuncula	X						X	X
25	Solenogastres		X						
26	Tanaidacea	X	X	X	X	X	X		
27	Tantulocarida	X		X		X			X
28	Tardigrada	X	X	X	X	X	X	X	X
29	Turbellaria	X							

GMS – Great Meteor Seamount (George, Schminke, 2002); **SedS** – Sedlo Seamount (Büntzow, 2011); **SeiS** – Seine Seamount (Büntzow, 2011); **ConS** – Condor Seamount (Zeppilli et al., 2013); **SSM** – Senghor Seamount (current study)

Flores, **Terceira**, and **St. Maria** Islands of Azores archipelago (George et al., 2021)

SSM shows high meiobenthic major taxa diversity relative to other Atlantic seamounts and islands. It is already the second place after the Great Meteor Seamount, with the absence of representatives of seven major taxa: Bryozoa, Cumacea, Entoprocta, Leptostraca, Pantopoda, Tanaidacea and Turbellaria. On the other hand, SSM hosts Ophiuroidea (Echinodermata) — a unique taxon of meiobenthic fauna for all the Atlantic seamounts studied so far. Of course, we need to keep in mind that only early juveniles of this taxon may fall into the meiofaunal size class. Juvenile echinoderms rather represent temporary meiofauna or so-called pseudomeiobenthos (Bougis, 1950), and were possibly not even counted as meiofauna in other studies.

The reference sites were located at a comparable depth like those from the base of SSM, but at a distance of 50 or 100 km to the seamount. However, our results showed lower meiofaunal abundance and diversity (eight taxa less) at the reference sites compared to the samples from the base of SSM. This contrasts with the results shown by George (2022) for Eratosthenes Seamount and Zeppilli et al. (2013) for Condor Seamount, where the structure and statistical values of the meiofauna of the seamounts and of the respective reference sites did not differ significantly. Differences in our study could be related to the sufficient distance of the reference sites in our study – far enough to be out of the hydrodynamic effects of the seamount, which can have a distinct effect on the benthic (reviewed in Boehlert, Genin, 1987) and pelagic communities (Zhao et al., 2023). In general, the lower meiofaunal abundance and diversity may indicate that deep-sea plains provide lower habitat diversity and food supply for meiobenthic assemblages as was already discussed by Thiel (1979). However, we also need to keep in mind that only one sediment core of each reference site has been analysed in this study, with significantly lower abundances compared to SSM. This could affect the detection of true taxon richness.

Overall, our analysis of the meiobenthic community of SSM seems to provide a certain support for the hypothesis regarding seamounts as “oases” for fauna. At least we were able to demonstrate a possibly more diverse and heterogeneous assemblage on SSM compared to the deep-sea reference areas. A closer look at the species level will certainly provide additional insights into the overall structure of the meiofaunal community and reveal underlying biogeographical patterns. Studies with a deep taxonomic resolution will also help clarify, at least for the meiofauna, if seamounts are indeed “hotspots” of biodiversity, a hypothesis still under debate (McClain, 2007, George, 2013, George et al., in rev.).

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Supplementary materials

Table S1. Meiofaunal absolute abundances from the analysed sediment cores of cruise M79/3 to the Senghor Seamount, ordered from north to south. Reference samples highlighted in grey.

Sample	Acari	Amphipoda	Annelida + Fragments	Bivalvia	Chaetognatha	Coelenterata	Copepoda	Copepoda Nauplii	Gastropoda	Gastrotricha	Isopoda	Kinorhyncha	Loricifera	Nematoda	Ophiuroidea	Ostracoda	Rotifera	Sipuncula	Tantulocarida	Tardigrada	Unidentified	Total
825-7	13		7				148	34		1		5	1	890					5	7	18	1129
848-5	40		86	1		2	174	502		105	1			286		13	8	3		26	28	1275
849-2	19		52		2		145	342		83	4			365		18			2	35	17	1084
850-2	62	1	196		3	3	631	989		193	16			869		51		4		74	15	3107
864-2	15		173				803	644		108		47		1455		54			3	54	34	3390
864-7	18		140	2			628	845		128		63		1507		71				48	32	3482
865-4	18	1	386	3		50	848	1134	1	43	43	40		1670		80		1		25	18	4361
866-3	14		309			14	639	909		231	40	41		1476	2	61	1	4		42	21	3804
934-7	4		73	3			406	616		23		13	2	2948		62	2			8	8	4168
934-10	11		80	4			471	721		74		13	4	3191		73	15			23	9	4689
1016-3	1		66				137	198		4	2	6	1	4008		12	1		4	3		4443
1016-8			29				117	113		1		7	2	3885		7	1		2			4164
1044-1	78		184				612	889		307		9		1306		65			5	34	16	3505
1046-5	6		22				309	390		3		6	21	2708		37	3		2	15		3522
1049-2			24				91	142		1		7	7	982		9	1			4		1268

Table S2. Densities (individuals/10 cm^2) of the meiofauna from the analysed sediment cores of cruise M79/3 to the Senghor Seamount, ordered from north to south. Reference samples highlighted in grey.

Sample	Acari	Amphipoda	Annelida + Fragments	Bivalvia	Chaetognatha	Coelenterata	Copepoda	Copepoda Nauplii	Gastropoda	Gastrotricha	Isopoda	Kinorhyncha	Loricifera	Nematoda	Ophiuroidea	Ostracoda	Rotifera	Sipuncula	Tantulocarida	Tardigrada	Unidentified	Total
825-7	1.9		1.0				21.3	4.9		0.1		0.7	0.1	128.3					0.7	1.0	2.6	162.8
848-5	5.8		12.4	0.1		0.3	25.1	72.4		15.1	0.1			41.2		1.9	1.2	0.4		3.7	4.0	183.8
849-2	2.7		7.5		0.3		20.9	49.3		12.0	0.6			52.6		2.6			0.3	5.0	2.5	156.3
850-2	8.9	0.1	28.3		0.4	0.4	91.0	142.6		27.8	2.3			125.3		7.4		0.6		10.7	2.2	448.0
864-2	2.2		24.9				115.8	92.8		15.6		6.8		209.8		7.8			0.4	7.8	4.9	488.8
864-7	2.6		20.2	0.3			90.,5	121.8		18.5		9.1		217.3		10.2				6.9	4.6	502.0
865-4	2.6	0.1	55.7	0.4		7.2	122.3	163.5	0.1	6.2	6.2	5.8		240.8		11.5		0.1		3.6	2.6	628.7
866-3	2.0		44.6			2.0	92.1	131.1		33.3	5.8	5.9		212.8	0.3	8.8	0.1	0.6		6.1	3.0	548.4
934-7	0.6		10.5	0.4			58.5	88.8		3.3		1.9	0.3	425.0		8.9	0.3			1.2	1.2	600.9
934-10	1.6		11.5	0.6			67.9	104.0		10.7		1.9	0.6	460.1		10.5	2.2			3.3	1.3	676.0
1016-3	0.1		9.5				19.8	28.5		0.6	0.3	0.9	0.1	577.9		1.7	0.1		0.6	0.4		640.6
1016-8			4.2				16.9	16.3		0.1		1.0	0.3	560.1		1.0	0.1		0.3			600.3
1044-1	11.2		26.5				88.2	128.2		44.3		1.3		188.3		9.4			0.7	4.9	2.3	505.3
1046-5	0.9		3.2				44.6	56.2		0.4		0.9	3.0	390.4		5.3	0.4		0.3	2.2		507.8
1049-2			3.5				13.1	20.5		0.1		1.0	1.0	141.6		1.3	0.1	0.0	0.0	0.6		182.8

Мейобентосні угруповання підводної гори Сенгор (Кабо-Верде, тропічна Східна Атлантика)

А. Кінеке, К.Ґ. Георге, Р.Р. Трохимчук

Підводні гори приваблюють дослідників через їх високе біорізноманіття, високий рівень ендемізму та їх вплив на поширення та еволюцію видів. Особливо цікава роль підводних гір у біогеографії та філогеографії мейофауни – мікроскопічних тварин, що не мають дисперсійних стадій в своєму життєвому циклі. В цьому дослідженні ми аналізуємо склад мейобентосних угруповань підводної гори Сенгор (Кабо Верде). Матеріал був зібраний під час круїзу M79/3 судна R/V Meteor в 2009 році. Донні відкладення збирали мультикорером та фіксували формальдегідом. Подальше виділення мейофауни методом центрифугування за градієнтом щільності та сортування вищих таксонів відбувалось в лабораторії. Аналіз включав розрахунок щільності таксонів оцінку індексів різноманіття та порівняння подібностей між ділянками відбору проб. Результати аналізу показали, що гірська вершина має найвище багатство таксонів вищого рівня (*HT:* 11–16), найнижчий рівень домінування (*D:* 0.23–0.28) та найбільшу однорідність угруповань мейобентосу. Схили мають нижчий рівень видового багатства (*HT:* 12–13), вищий рівень домінування (*D:* 0.5–0.61) та нижчий рівень однорідності. Підніжжя мало найнижче багатство таксонів вищого рівня (*HT:* 10), найвищий рівень домінування (*D:* 0.82–0.87) та найнижчу однорідність. Контрольні ділянки за показниками були більш подібні до схилів, ніж до основи. nMDS виявило чотири окремі спільноти вершини, схилів, підніжжя підводної гори Сенгор, а також глибоководних контрольних станцій. Вершина демонструє високу неоднорідність між станціями, що може свідчити як про високе біорізноманіття, так і про неоднорідність середовища. Схили, підніжжя та контрольні ділянки мають більш щільне групування, що може свідчити про нижче біорізноманіття цих локацій, проте нами було проаналізовано меншу кількість станцій. У порівнянні з іншими атлантичними підводними горами та островами, підводна гора Сенгор посідає друге місце за багатством мейобентосних таксонів вищого порядку. Значно вищі значення щільності мейобентосу можуть бути викликані підвищеною пелагічною первинною продукцією в акваторії тропічного західного узбережжя Африки. В цілому, мейобентосні угруповання підводної гори Сенгор, здається, підтверджують гіпотезу про підводні гори як оази для фауни, демонструючи більш різноманітні угруповання, порівняно з глибоководними контрольними ділянками.

***Ключові слова*:** *мейофауна, біорізноманіття, біогеографія, екологія, Кабо Верде*

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