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Patterns of Life on the Southern Mid-Atlantic Ridge: Compiling What is Known and Addressing Future Research

By José Angel A. Perez, Eliana dos Santos Alves, Malcolm R. Clark, Odd Aksel Bergstad, Andrey Gebruk,
Irene Azevedo Cardoso, and Antonina Rogacheva

Author email: angel.perez@univali.br

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Table S1. Summary of samplers currently used for diversity and habitat studies in deep-sea environments. Ws = water sample. Ac = acoustic. Op = optical. Ca = capture. S = stationary sampling. C = continuous sampling. Os = ocean sensor.

	Sampler	Information Description		
Environmental Setting	Niskin Bottles – Rosette setting	Water samples of selected depth strata (data on nutrients, chlorophyll, microorganisms)	Ws	S
	Acoustic Doppler current profilers (ADCPs)	Current flow (epi- and mesopelagic)	Ac	C
	Lowered ADCPs	Current flow vertical profiles	Ac	S
	Multibeam sonars	Bathymetry, bottom profile, hardness of substrate	Ac	C
	CTD + fluorometer + oxygen sensors	Temperature, salinity, oxygen vertical profiles	Os	S
	Thermosalinographs	Surface temperature, salinity, and fluorescence	Os	C
	Satellite data	Sea surface chlorophyll concentration and temperature	Os	-
Pelagic Organisms	Underwater video profilers (UVP)	Images, enumeration, and measurements of fragile aggregates and zooplankton	Op	S
	Remotely operated vehicles (ROV)	Images, enumeration, and measurements of organisms; capture of some types of organisms	Op/Ca	S
	Multinet plankton samplers	Zooplankton samples in selected depth strata	Ca	S
	Macroplankton, micronekton trawls (with multisampling capabilities)	Macrozooplankton and micronekton samples in selected depth strata	Ca	S
	Midwater fish trawls	Large and medium-sized fish and cephalopod catches	Ca	S
	Multifrequency echosounders (e.g., 18, 38, 70, 120, 200 kHz) + echo integrator	Vertical distribution and abundance of deep sound scattering layer (DSL) and other concentrations of pelagic organisms	Ac	C
	Acoustic landers	Vertical distribution and abundance of DSL and other concentrations of pelagic organisms	Ac	S
	Visual census	Records and enumeration of marine mammals and birds	Op	C
Benthopelagic + Benthic Organisms	Landers	Images, enumeration, and measurements of benthopelagic fish, crustaceans, and cephalopods	Op	S
	ROVs	Images, enumeration, and measurements of organisms, habitat description, capture of organisms	Op/Ca	S
	Autonomous underwater vehicle	Images, enumeration, and measurements of organisms, habitat description	Op/Ac	S
	Manned submersibles	Images, enumeration, and measurements of organisms (benthic and pelagic), habitat description, capture of some types of organisms	Op/Ca	S
	Towed and drop cameras	Images, enumeration, and measurements of organisms, habitat description.	Op	S/C
	Bottom otter trawls	Catches of large and medium-sized fish and cephalopods + macrobenthos in soft/flat terrains	Ca	S
	Benthic trawls	Catches of macro- megabenthos in flat and both soft and hard terrain	Ca	S
	Benthic longline/traps	Catches of large fish in rough terrain	Ca	S
	Benthic traps	Catches of large scavengers (fish, crustaceans, and cephalopods)	Ca	S
	Dredges	Small benthic fauna (including meiofauna and microorganisms) + sediment samples in soft terrain	Ca	S

Table S2. Summary of sampling tows conducted during SA MAR-ECO Cruise #1_2009 (October 25–November 29, 2009). SEMS = South Equatorial MAR Sector. TMS = Tropical MAR Sector. WRS = Walvis Ridge Sector. CTD = conductivity-temperature-depth sensor

	Latitude	Longitude	Depth (m)	Sector	CTD	Benthos	Plankton-Micronekton	Micro-biology
SUPERSTATIONS								
1	00°34.86'N	17°16.52'W	3,116	SEMS	1	0	3	0
2	00°26.18'N	17°03.57'W	902	SEMS	0	2	3	0
3	04°05.04'S	12°25.18'W	3,342	SEMS	1	1	3	3
4	04°40.22'S	12°16.20'W	2,014	SEMS	0	1	3	0
5	17°55.08'S	13°26.17'W	2,663	TMS	1	1	3	3
6	18°06.95'S	13°07.25'W	2,502	TMS	0	0	2	0
7	29°29.87'S	01°10.06'E	3,721	WRS	1	1	3	3
8	30°00.62'S	02°49.92'E	1,074	WRS	0	1	3	0
9	32°44.69'S	01°50.08'E	1,107	WRS	0	1	4	0
10	33°40.17'S	02°35.12'E	4,715	WRS	0	1	3	0
Totals					3	9	30	9
EXTRA STATIONS								
	00°23.11'N	16°26.57'W	5,560	SEMS	1	1	0	0
	03°03.97'S	13°18.00'W	3,555	SEMS	0	0	1	0
	11°02.44'S	12°45.80'W	2,487		0	0	1	0
	15°46.22'S	13°13.07'W	3,334		0	0	1	0
	23°30.52'S	04°17.19'W	4,985		0	0	0	1
	25°43.50'S	02°21.10'W	1,602		0	0	1	0
	25°41.70'S	02°20.72'W	4,640		0	1	0	0
	30°17.98'S	03°07.01'E	981	WRS	0	0	1	0
	30°19.18'S	03°08.28'E	997	WRS	0	1	0	0
	35°55.42'S	07°18.51'E	2,518		0	0	1	0
	35°50.18'S	03°26.38'E	5,200		0	0	0	3
	36°25.00'S	08°00.00'E	4,750		0	0	0	1
	36°25.00'S	08°00.00'E	4,750		0	0	0	1
Totals					1	3	6	15
TOTALS					4	12	36	9

Table S3. Preliminary list of taxa present in the catches of Sigsbee Trawl and Isaacs-Kid Midwater Trawl (IKMT) sampling tows conducted during SA MAR-ECO Cruise #1_2009 (October 25–November 29, 2009).
Fish species are not included here but they are presented in Kobiliansky et al. (2010).

Phylum	Class	Order	Family	Number of Species	Sigsbee Trawl	IKMT
Porifera	Hexactinellida	Hexactinosida	Farreidae	2–3 spp.	X	
			Euretidae	1 spp.	X	
		Amphidiscosida	Hyalonematidae	1 spp.	X	
		Lyssacinosa	Euplectellidae	1 sp.	X	
			Rossellidae	2-4 spp.	X	
	Demospongiae	Poecilosclerida	Desmacellidae	1 sp	X	
			Raspailiidae	1 sp	X	
			Microcionidae	1-2 spp.	X	
			Esperiopsidae	1 sp	X	
			Cladorhizidae	2 spp.	X	
		Hadromerida	Polymastiidae	1 sp	X	
Cnidaria	Anthozoa	Alcyonacea	Chrysogorgiidae	3–6 spp.	X	
			Coralliidae	1 sp	X	
			Primnoidae	3 spp.	X	
		Pennatulacea	Anthoptilidae	1 sp.	X	
			Umbellulidae	1 sp.	X	
		Scleractinia	Caryophylliidae	2 spp.	X	
			Dendrophylliidae	1 sp.	X	
		Zoanthidea		1 sp.	X	
	Scyphozoa	Coronatae	Atorellidae	1 sp.	X	
			Nausithoidae	1–4 spp.	X	
	Hydrozoa	Leptothecata	Lafoeidae	2 spp.	X	
			Tiarannidae	1 sp.	X	
			Campanulidae	1 sp.	X	
Bryozoa	Gymnolaemata	Cheilostomatida	Bugulidae	1–4 spp.	X	
			Farciminariidae	1–2 spp.	X	
			Cellariidae	1 sp.	X	
			Scrupocellariidae	1 sp.	X	
Annelida	Polychaeta	Terebellida	Ampharetidae	1–2 spp.	X	
			Terebellidae	1 sp.	X	
		Eunicida	Eunicidae	1–2 spp.	X	
			Onuphidae	1–3 spp.	X	
		Phyllodocida	Nephtyidae	1 sp.	X	
			Nereididae	1–2 spp.	X	
		Sabellida	Sabellidae	1 sp.	X	
			Serpulidae	1–2 spp.	X	
		Not assigned	Maldanidae	1 sp.	X	

Table S3. Continued...

Phylum	Class	Order	Family	Number of Species	Sigsbee Trawl	IKMT
Arthropoda	Crustacea	Amphipoda	Amathillopsidae	1 sp.	X	
			Ampeliscidae	1 sp.	X	
			Stegocephalidae	1 sp.	X	
			Stilipedidae	1 sp.	X	
			Dulichidae	1 sp.	X	
			Eurytheneidae	1 sp.	X	
			Eusiridae	1–7 spp.	X	
			Atylidae	2–3 spp	X	
			Podoceridae	2 spp.	X	
			Odicerotidae	1 sp.	X	
			Lysianassidae	1 sp.	X	
			Phronimidae	1 sp.	X	
			Oxycephalidae	1 sp.	X	
			Scinidae	1 sp.	X	
		Euphausiacea	Euphausiidae	5 spp.		X
		Lophogastrida	Gnathophausiidae	1–3 spp.		X
		Decapoda	Aristeidae	2–3 spp.	X	
			Benthescymidae	11–15 spp.	X	X
			Chirostylidae	1 sp.	X	
			Crangonidae	2 spp.	X	
			Ethusidae	2 spp.	X	
			Galatheididae	3 spp.	X	
			Geryonidae	1 sp.	X	
			Hippolytidae	1–2 spp.	X	
			Nematocarcinidae	2 spp.	X	
			Oplophoridae	20 spp.	X	X
			Pandalidae	1 sp.		X
			Parapaguridae	3 spp.	X	
			Pasiphaeidae	1–2 spp.		X
			Penaeidae	2 spp.		X
			Polychelidae	2 spp.	X	
			Sergestidae	14 spp.	X	X
			Solenoceridae	1 sp.	X	
Mollusca	Bivalvia	Arcoida	Arcidae	1 sp.	X	
			Limopsidae	1 sp.	X	
			Parallelodontidae	1 sp.	X	
		Anomalodesmata	Cuspidariidae	2–5 spp.	X	
			Verticordiidae	1 sp.	X	
		Nuculanoida	Nuculanidae	3 spp.	X	
			Tindariidae	1 sp.	X	
		Pectinoida	Pectinidae	3–5 spp.	X	

Table S3. Continued...

Phylum	Class	Order	Family	Number of Species	Sigsbee Trawl	IKMT
Mollusca, cont.	Gastropoda	Neogastropoda	Buccinidae	1 sp.	X	
			Columbellidae	2 spp.	X	
			Muricidae	2 spp.	X	
			Mangeliidae	1 sp.	X	
			Raphitomidae	1 sp.	X	
		Littorinimorpha	Rissoiidae	1 sp.	X	
			Naticidae	1 sp.	X	
		Thecosomata	Cavoliniidae	1 sp.	X	
		Caenogastropoda	Epitoniidae	1 sp.	X	
		not assigned	Solariellidae	1 sp.	X	
			Calliostomatidae	1 sp.	X	
			Turbinidae	1 sp.	X	
			Solariellidae	1 sp.	X	
			Pyramidellidae	2–3 spp.	X	
			Acteonidae	1 sp.	X	
			Trochidae	1–3 spp.	X	
	Scaphopoda	Dentaliida	Dentaliidae	1 sp.	X	
		Gadilida	Entalinidae	1 sp.	X	
	Aplacophora			1 sp.	X	
	Cephalopoda	Sepiolida	Sepiolidae	1 sp.	X	
		Teuthida	Bathyteuthidae	1 sp.		X
			Brachyteuthidae	1 sp.		X
			Chiroteuthidae	1–2 spp.		X
			Chtenopterygidae	1 sp.		X
			Cranchiidae	10 spp.		X
			Cycloteuthidae	1 sp.		X
			Enoploteuthidae	2–3 spp.		X
			Gonatidae	1 sp.		X
			Histioteuthidae	5–6 spp.		X
			Lepidoteuthidae	1 sp.		X
			Lycoteuthidae	1 sp.		X
			Mastigoteuthidae	1–2 spp.		X
			Neoteuthidae	2 spp.		X
			Octopoteuthidae	1 sp.		X
			Ommastrephidae	> 2 spp.		X
			Onychoteuthidae	> 4 spp.	X	X
			Pyroteuthidae	3 – > 5 spp.		X

Table S3. Continued...

Phylum	Class	Order	Family	Number of Species	Sigsbee Trawl	IKMT
Mollusca, cont.	Cephalopoda, cont.	Octopoda	Argonautidae	1 sp.		X
			Bolitaenidae	2 spp.		X
			Ocythoidae	1 sp.		X
			Tremoctopodidae	1 sp.		X
			Vitreledonellidae	1 sp.		X
		Vampiromorphida	Vampyroteuthidae	1 sp.		X
Echinodermata	Asteroidea	Brisingida	Freyellidae	1 sp.	X	
		Paxillosida	Porcellanasteridae	3 spp.	X	
		Velatida	Pterasteridae	1 sp.	X	
	Crinoidea	Comatulida		1 sp.	X	
	Holothuroidea	Aspidochirotida	Synallactidae	2 spp.	X	
		Elasipodida	Deimatidae	3 spp.	X	
			Laetmogonidae	1 sp.	X	
			Elpidiidae	3 spp.	X	
			Psychropotidae	1 sp.	X	
		Molpadida	Molpadiidae	1 sp.	X	
		Apodida	Synaptidae	1 sp.	X	
	Echinoidea	Cidaroida	Aspidodiadematidae	1–2 spp.	X	
		Echinoida	Echinidae	2 spp.	X	
		Echinothurioida	Echinothuriidae	2 spp.	X	