

Oceanic cephalopods collected in the eastern tropical Atlantic Ocean by deep tows with the MOCNESS

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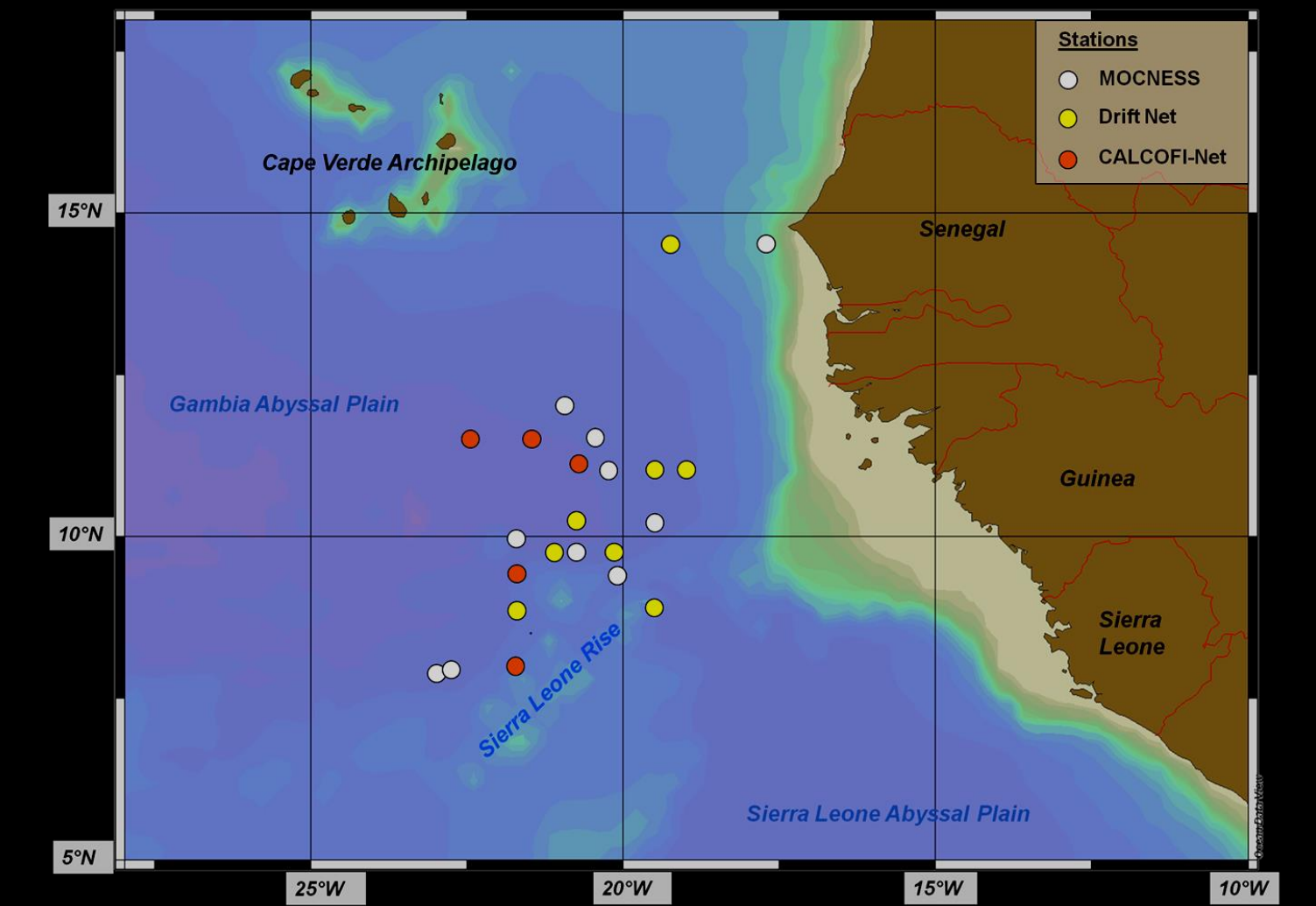
RV Meteor cruise 97 in 2013 was part of a long-term project to study the biogeochemistry interactions in the tropical ocean, in particular the oxygen minimum zone (OMZ) in the tropical eastern Atlantic.

During expedition M97 of RV Meteor in the central eastern Atlantic Ocean south of the Cape Verde Islands in June 2013 (see map) micronekton and macrozooplankton were sampled with a MOCNESS that had a net opening of 1m² and a mesh size in the codends of 2 mm. The MOCNESS was equipped with nine nets that were opened and closed sequentially in standard depths between 1,000 m and the surface. However, the first net was operated during the lowering of the net and sampled the water column obliquely on its way down from the surface to 1,000 m. The majority of hauls were made during night or twilight.

Here we report on the cephalopod collection of 94 specimens from at least 17 different species that were sampled with the MOCNESS (see Table). Some of the species occurred in about 300 to 600 m depth, which was in the range of a locally developed oxygen minimum zone. Most specimens were paralarvae or juvenile stages.

The dominating forms were the cranchiids *Liocranchia reinhardti* (n = 21), and *Helicocranchia pfefferi* (n = 15). The octopods were dominated by *Vitreledonella richardi*. This collection emphasises the impressive diversity of cephalopod species in the sampled area and highlights the importance of tropical oceans as biodiversity hotspots.

Taxon – Meteor cruise	n	Body size (ML mm)	Depth range of net (m)
<i>Abraliopsis morrisii</i>	4	5-17	0-500
<i>Chiroteuthis</i> sp.	3	7-12	0-1000
<i>Chiroteuthis veranyi</i>	1	47	100-200
<i>Chtenopteryx sicula</i>	1	10	0-1000
<i>Cranchia scabra</i>	2	8-12	50-100
<i>Helicocranchia pfefferi</i>	15	4-36	0-1000
<i>Histioteuthis bonnellii</i>	3	8-11	0-250
<i>Japetella diaphana</i>	5	7-25	0-1000
<i>Liguriella podophthalma</i>	1	7	50-100
<i>Liocranchia reinhardti</i>	21	6-32	0-100
<i>Octopus defilippi</i>	1	7	50-100
<i>Onychoteuthis banksii</i>	1	18	50-100
<i>Onychoteuthis</i> sp.	6	5-18	0-1000
<i>Pterygoteuthis giardi</i>	5	4-7	0-1000
<i>Sthenoteuthis pteropus</i>	2	3	0-50
<i>Taningia danae</i>	1	15	0-250
<i>Thysanoteuthis rhombus</i>	1	8	10-150
<i>Vitreledonella richardi</i>	8	4-30	0-150
Cephalopoda indet.	13	2-14	0-1000



The RV Polarstern expedition ANT XIVV-1 contributed to CMarZ (Census of Marine Zooplankton), a sub-project of the international Census of Marine Life (CoML).

In November 2007 an international team of zooplankton and nekton biologists collected macroplankton samples along a station transect from south of the Canary Islands to west of Namibia during RV Polarstern cruise ANT XXIV-4 from Bremerhaven to Cape Town.

The standard gear was the Multiple Opening/Closing Net and Environmental Sensing System (MOCNESS). We used a 1m² version with 335µm meshes in the cod end, as well as a large 10m² version (3 mm meshes). During the five MOCNESS stations (see map beside) the 1m² MOCNESS was fishing through eight layers down to a maximum depth of 1,000 m; the 10m² MOCNESS went down to a maximum depth of 5,083 m while fishing through four different layers.

Here we report on the impressive cephalopod collection that was sampled during this cruise. In total, we caught 67 specimens that belonged to at least 24 different species. The table beside summarises the cephalopod species composition at each of the five MOCNESS stations. The majority of specimens belonged to Enoplateuthidae, Pyroteuthidae, and Cranchiidae. At about 3°13'N, 15°00'W, the 10m² MOCNESS sampled a 62 mm (ML) sized specimen of *Magnapinna ?atlantica* in about 1,000-2,000 m depth. The specimen was in a superb condition and the highlight of the cephalopod catch, because there are only a few specimens of this taxon reported so far.

This small collection will contribute to the investigations on abundance and diversity of cephalopods in tropical and subtropical regions of the oceanic waters of the eastern Atlantic Ocean.

Taxon – Polarstern cruise	24°40'N	11°23'N	03°13'N	13°25'S	25°41'S
<i>Abraliopsis morrisii</i>				3	
<i>Bathyteuthis abyssicola</i>		1	1	1	
<i>?Bolitaena pygmaea</i>			1		
<i>Chiroteuthis veranyi</i>				1	
<i>Chtenopteryx sicula</i>		1		1	
<i>Egea inermis</i>		1			
<i>Enoplateuthis leptura</i>			1	1	
<i>Enoplateuthidae</i> indet.		2		2	
<i>Grimalditeuthis bonplandi</i>				1	
<i>Helicocranchia pfefferi</i>			2		1
<i>Hyaloteuthis pelagica</i>		3			
<i>Leachia atlantica</i>		4			
<i>Liguriella podophthalma</i>		1			
<i>Lycoteuthis diadema</i>		1			
<i>Magnapinna ?atlantica</i>			1		
<i>Mastigoteuthis ?agassizii</i>					1
<i>Mastigoteuthis</i> sp.		2			
<i>Octopus defilippi</i>		1			
<i>Octopus</i> sp.		1		1	
<i>Onychoteuthis banksii</i>		2	2	1	
<i>Pterygoteuthis giardi</i>			5	3	1
<i>Sthenoteuthis pteropus</i>		2			
<i>Tauroteuthidae</i> indet.		2	2	1	
<i>Tauroteuthis pelagica</i>		1			
<i>Vampyroteuthis infernalis</i>			1	1	
<i>Vitreledonella richardi</i>		1		5	

