Research Networking Programmes

Short Visit Grant ☒ or Exchange Visit Grant ☐

(please tick the relevant box)

Scientific Report

The scientific report (WORD or PDF file – maximum of eight A4 pages) should be submitted online within one month of the event. It will be published on the ESF website.

Proposal Title: Diversity of the cold-water coral ecosystems from the Moira Mounds (Porcupine Seabight, NE Atlantic).

Application Reference N°: 7245

1) Purpose of the visit

This visit allowed to subsample the macrofauna (>1mm) collected through box-coring during the EuroFleets oceanographic crise carried out in the cold-water coral province of the Moira Mounds (Porcupine Seabight, SW Ireland). Moreover, preliminary taxonomic analysis has been performed under the supervision of Dr. Vertino with whom I have also discussed about results, next analyses and publications.

2) Description of the work carried out during the visit

During these 13 days, we have completed the following steps:
1. Description of the collected macrofauna and associated substrate per each box-core (photos included).
2. Preliminary identification and list of organisms per each box-core.
3. Preliminary qualitative analysis of biodiversity per each sampling box-core.
4. Packing samples of Hydrozoa, Bryozoa, and large benthic Foraminifera and sending them to taxonomic experts and research collaborators Dr. Lea-Anne Henry (Heriot-Watt University, UK), Prof.

Antonietta Rosso (University of Catania, Italy) and Dr. Silvia Spezzaferri (University of Fribourg, Swizterland), respectively.
5. Packing and shipping the remaining samples to the Museo Nacional de Ciencias Naturales de Madrid, in order to photograph and analyse in detail - in collaboration with other taxonomists - all soft-tissue organisms and identify them at the lowest possible taxonomic level.
6. Picking skeletonized organisms, partly already analysed by Dr. A. Vertino, and storing them per sample and taxonomic group.

3) Description of the main results obtained

The macrofauna of twenty-three box-cores has been grouped into three-classes according to the colonised substrate (Corals, Sponges, Dropstones; Figure 1). The subsampled macrofauna was identified at different taxonimic level up to order, as indicated in Table 1.

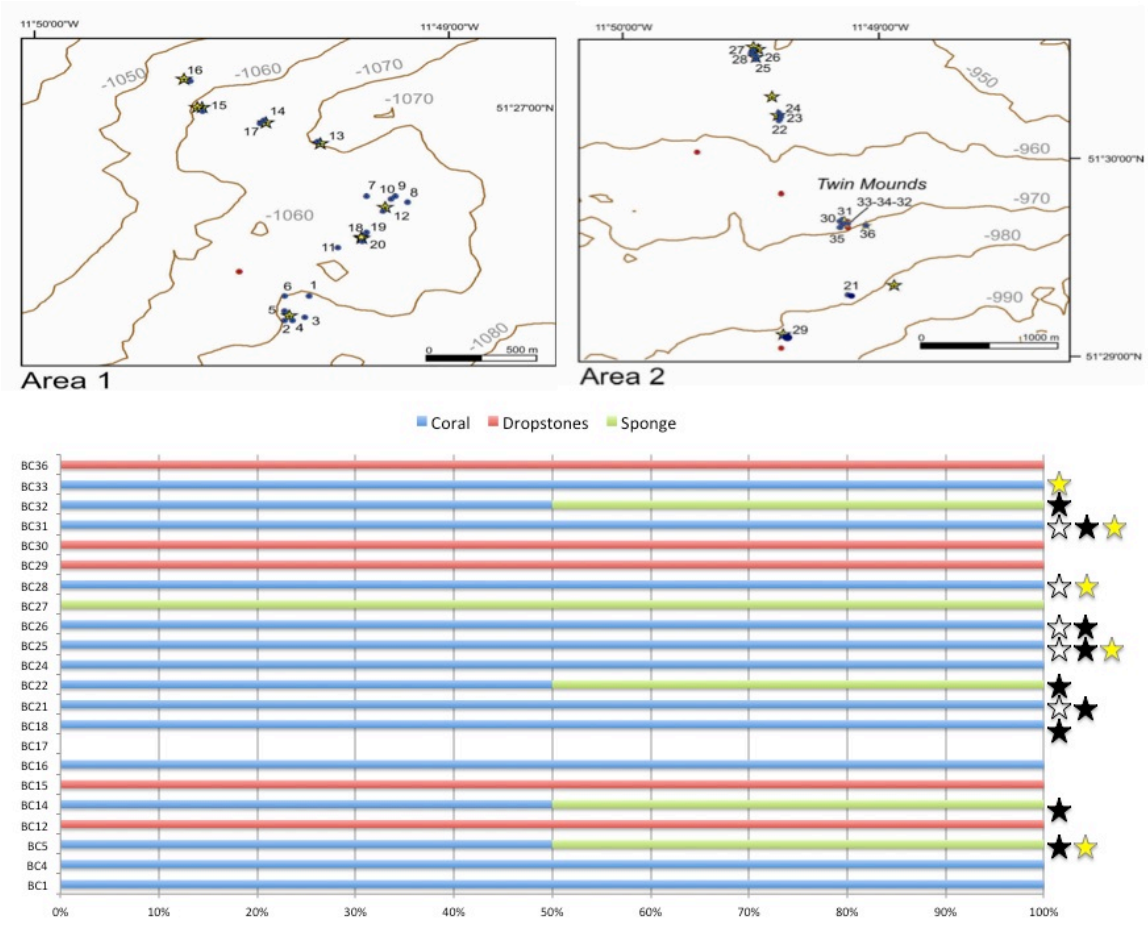

Figure 1. Substrate of subsampled macrofauna collected through box-coring at each sampling station in Area 1 and Area 2 (map after Spezzaferri et al. 2012). BC=Box-Core. Stars indicate living coral frame dominated by Madrepora oculata (white), Lophelia pertusa (black) and Desmophyllum dianthus (yellow). BC17 is characterized by sand facies (see Figure 3) and there is no other substrate associated to the subsampled macrofauna.

Table 1. List of taxa present (x) in each station. Taxa has been identified at different taxonomic level (Taxa ID): Phylum (bold black text), Class (bold blue text), SubClass (bold green text), Order (bold red text), and Family (italic text).

			BCs Area1									BCs Area2												
Phylum	Class	Taxa ID	1	4	5*	12	14	15	16	17	18*	21*	22*	24	25	26	27	28	29	30	31	32	33	34	36
Porifera		**Porifera**	x	x	x	x					x	x	x	x	x		x	x			x	x			
Cnidaria	Hydrozoa	**Hydrozoa**	x		x	x	x	x			x	x	x		x	x		x			x	x	x		
		Stylasteridae			x						x														
	Scyphozoa	**Scyphozoa**		x	x		x				x	x	x	x	x							x			
	Anthozoa	**Octocorallia**			x									x	x	x	x					x			
		Hexacorallia		x	x									x			x				x	x			
		Scleractinia	x		x		x				x	x	x		x	x	x				x	x	x		
Platyhelminthes		**Platyhelminthes**			x																				
Nemertea		**Nemertea**																			x				
Anellida	Polychaeta	**Polychaeta**	x	x	x	x	x		x	x	x	x	x	x	x		x	x		x	x	x	x	x	x
Sipuncula		**Sipuncula**			x																x				
Arthropoda	Maxillopoda	**Maxillopoda**	x																		x	x	x		
	Malacostraca	**Decapoda**			x																x				
		Amphipoda			x	x	x					x		x	x	x		x				x			
	Pycnogonida	**Pycnogonida**	x									x				x		x							
Mollusca	Polyplacophora	**Polyplacophora**				x	x																		
	Bivalvia	**Bivalvia**			x		x				x		x	x		x	x								
	Gastropoda	**Opisthobranchia**			x																				
		Prosobranchia	x		x				x		x			x	x	x					x	x	x		
Bryozoa		**Bryozoa**			x			x			x	x	x	x	x		x	x				x			
Echinodermata	Holothurioidea	**Holothuroidea**				x						x			x							x			
	Ophiuroidea	**Ophiuroidea**		x	x		x				x		x									x			
	Echinoidea	**Echinoidea**										x					x								
	Crinoidea	**Crinoidea**											x								x				
Chordata	Ascidiacea	**Ascidiacea**									x		x			x						x			
Brachiopoda		**Brachiopoda**			x		x				x		x	x								x			
Foraminifera		**Foraminifera**	x	x	x		x	x			x	x	x	x	x	x	x	x	x	x		x	x	x	x
		Indeterminate			x		x				x	x	x	x	x	x					x	x			

The preliminary analysis of collected macrofauna shows an interesting distribution pattern of organisms along the study area (including sites on and off mounds) (Figure 2ab). With exception of few samples, the southern Area 1 seems to be characterized by a lower bidiversity level than the northern counterpart (Figure 3).

Due to the limited time for a comprehensive identification of organisms at lowest taxonomic level, the following graphs represent just the number of classes presented per each Phylum (Porifera (POR), Cnidaria (CNI), Platyhelminthes (PLA), Nemertea (NEM), Anellida (ANE), Sipuncula (SIP), Arthropoda (ART), Mollusca (MOS), Bryozoa (BRY), Echinodermata (ECH), Chordata (CHO), Brachiopoda (BRA)) per each station. Foraminifera Phylum has been excluded.

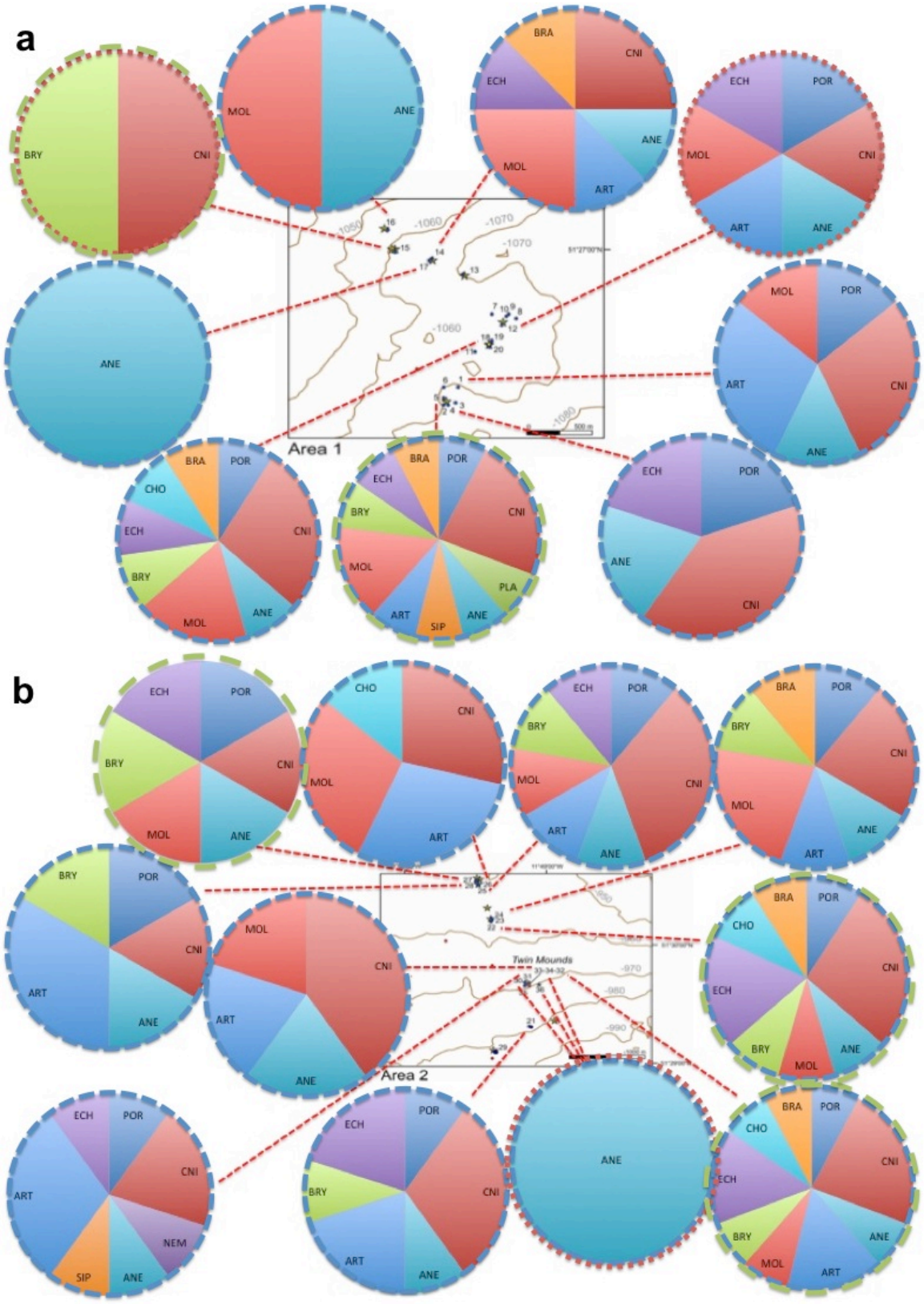

Figure 2. Distribution of different taxa along the study Area 1 (a) and 2 (b). Dashed circle indicates the substrate of subsampled macrofauna: oral (blue), dropstones (red) and sponge (green) (see Figure 1).

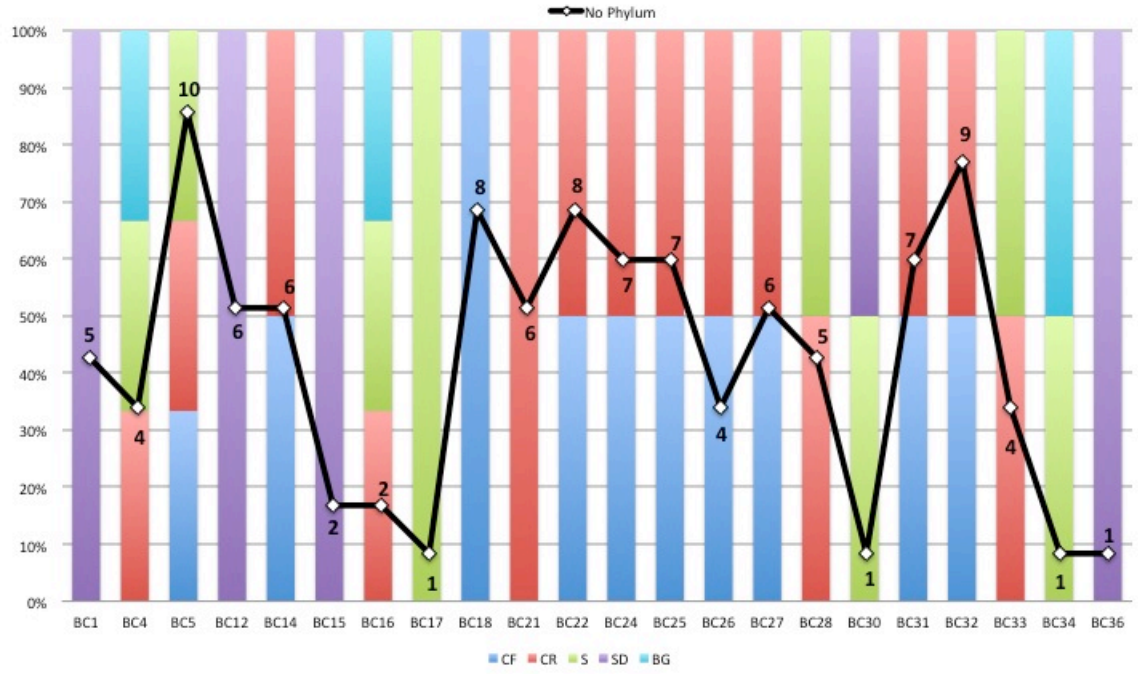

Figure 3. Black line graph indicates the number of phylum present in the collected box-cores, which are charcterized by several biosedimentary facies (histograms): CF (Coral Frame), CR (Coral Rubble), S (Sand), SD (Sand and Dropstones), BG (Biogenic Gravel).

4) Future collaboration with host institution (if applicable)

As this study is ongoing, collaboration with the host institute and Dr. Agostina Vertino will continue in the short term and may result in long term collaborations.

5) **Projected publications / articles resulting or to result from the grant *(ESF must be acknowledged in publications resulting from the grantee's work in relation with the grant)***

Proposed title:

1. Biodiversity of the cold-water coral ecosystems from the Moira Mounds (Porcupine Seabight, NE Atlantic).

6) Other comments (if any)