

FIRST SURVEY ON MEGABENTHOS OF THE BOTTOM TRAWLING IN THE GULF OF TRIESTE (NORTHERN ADRIATIC SEA)

Lisa FARESI¹, Nicola BETTOSO¹, Ida Floriana ALEFFI¹ and Francesco CUMANI¹

¹ARPA FVG – Regional Agency for Environmental Protection, via Cairoli 14, 33057 Palmanova (UD), Italy
e-mail: lisa.faresi@arpa.fvg.it

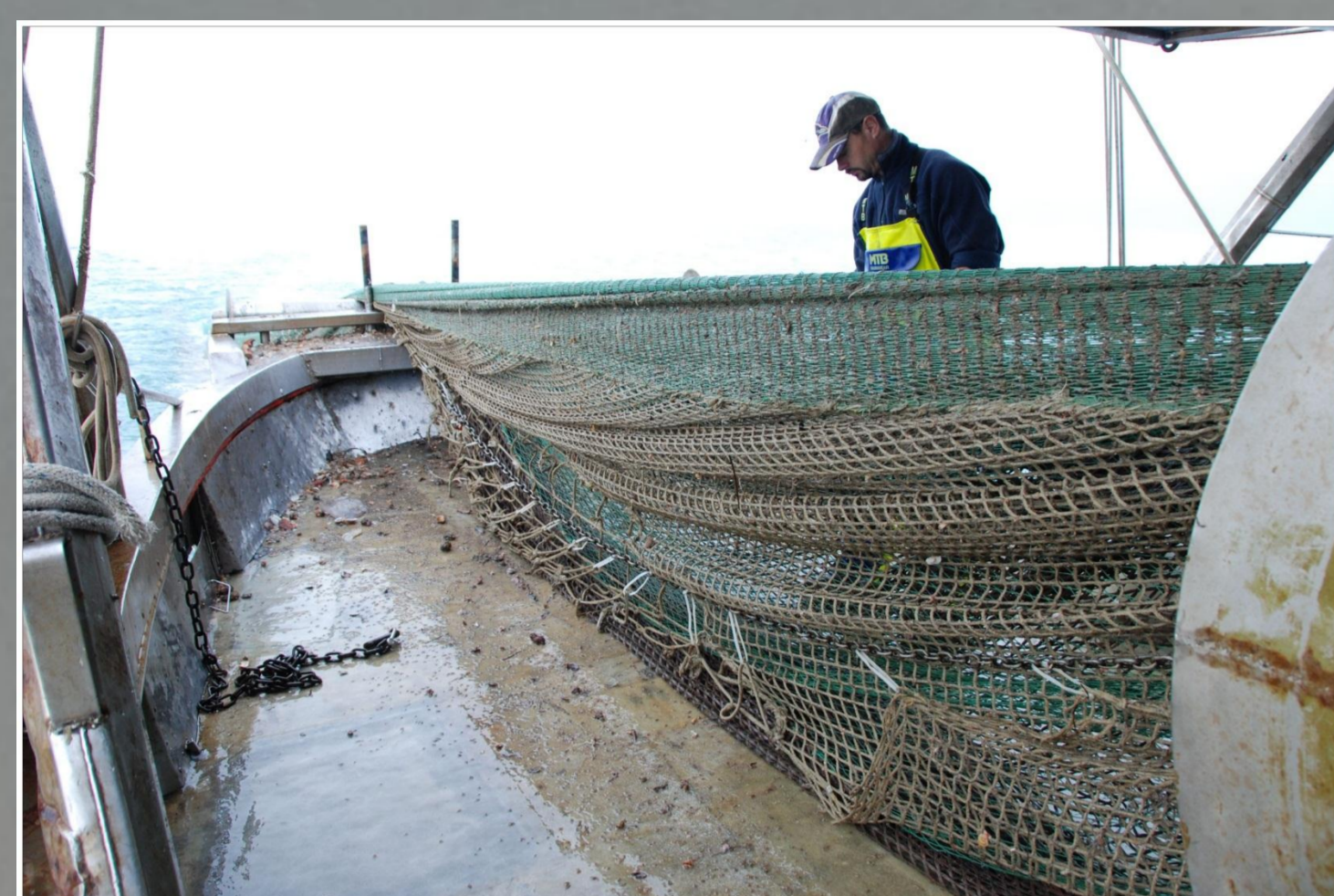


Fig. 1

The first survey on megabenthos of the bottom trawling was conducted according to the Descriptor 6 - Sea-floor integrity - of the Marine Strategy Framework Directive (MSFD Dir. 2008/56/EC), which was transposed into Italian law by Legislative Decree no 190/2010.

For this survey a trawl net with 40 mm cod-end mesh size (Fig. 1) was used in a 100 Km² trawled area of the Gulf of Trieste, for a total of 36 hauls (Fig. 2).

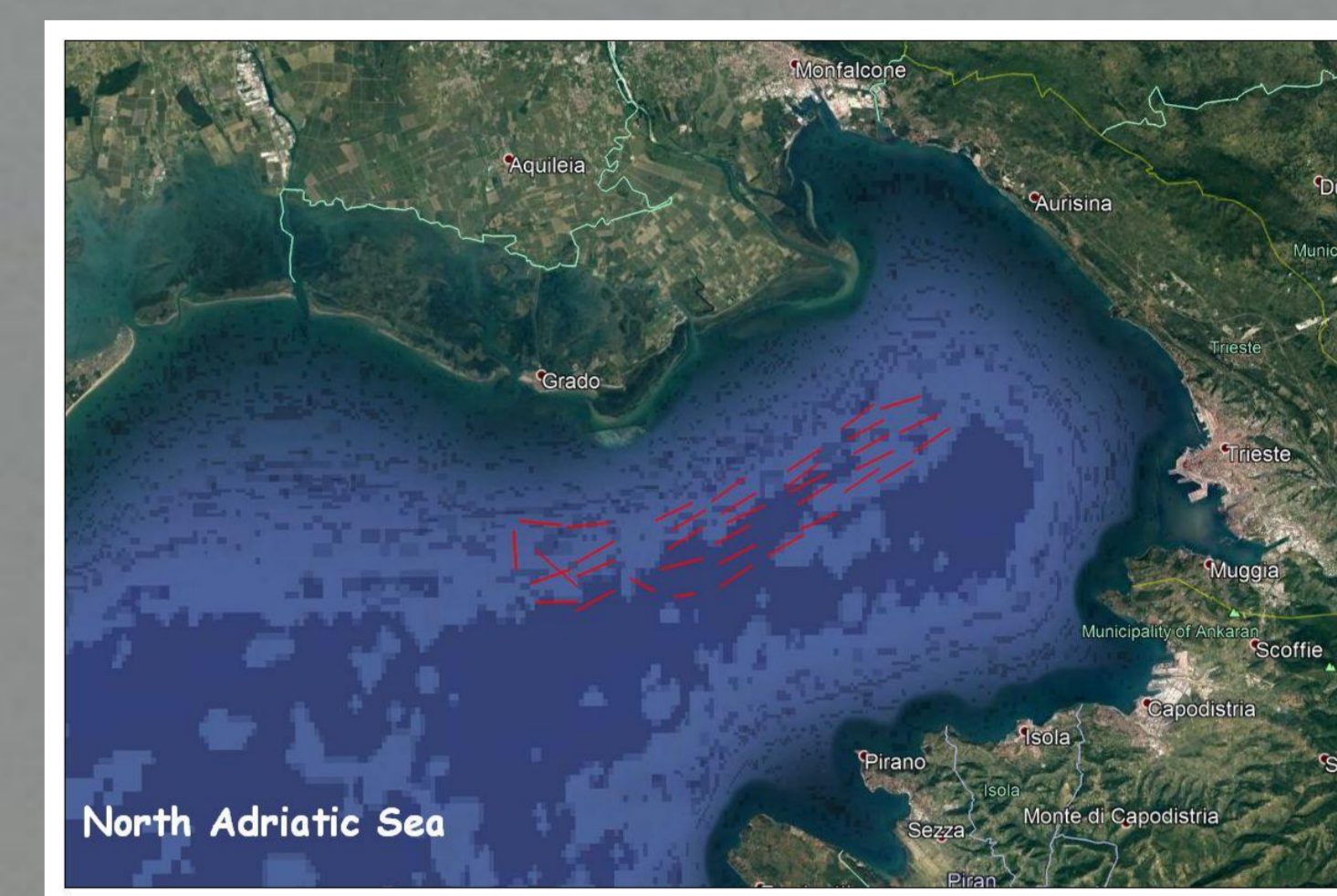


Fig. 2



Over 386,000 individuals were collected and 168 taxa were identified. The average number of taxa was 52 haul⁻¹ and the average number of individual was 10,734 haul⁻¹ (Fig. 3a,b,c). The main taxa in term of abundance were Crustacea (38%), Echinodermata (34%), Mollusca (12%), Ascidiacea (7%), Porifera (5%), Cnidaria (2%) and Polychaeta (2%); they included 28, 19, 60, 14, 28, 5 and 13 taxa, respectively. The decapods *Pisidia longimana* (Fig. 4) and *Paguristes eremita* (Fig. 5), the echinoderms *Ophiothrix fragilis* (Fig. 6) and *Psammechinus microtuberculatus* (Fig. 7) and the bivalve *Mimachlamys varia* (Fig. 8) constituted together 72% of total abundance in the trawl net.



Fig. 3a

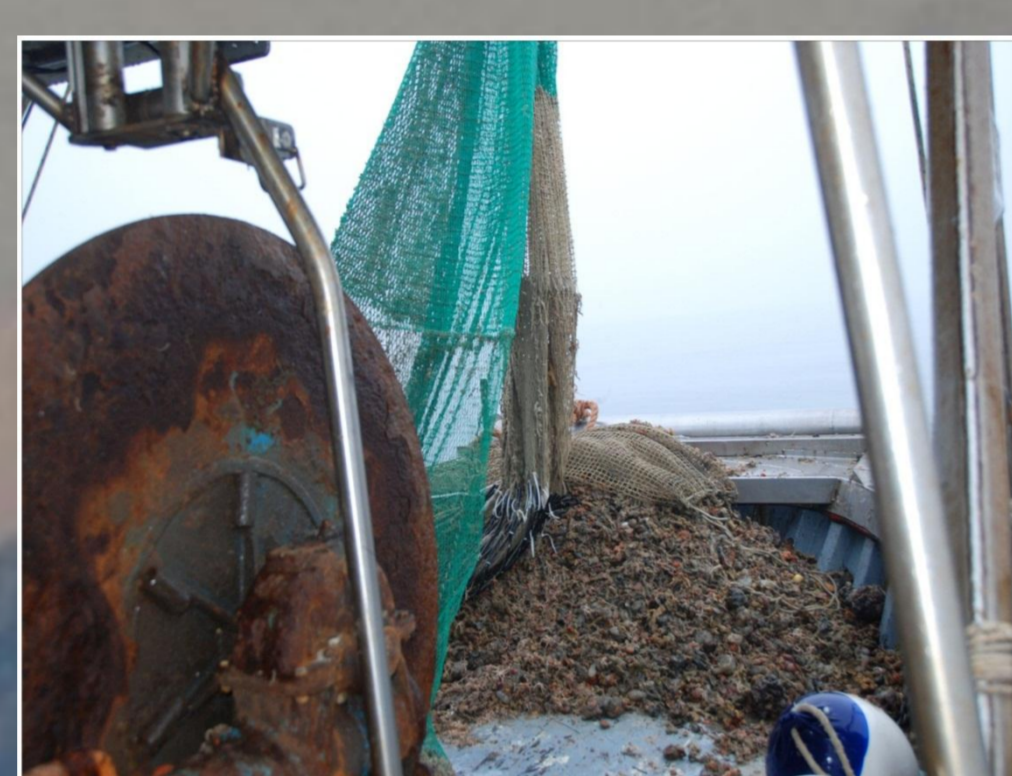


Fig. 3b



Fig. 3c



Fig. 4



Fig. 5



Fig. 6



Fig. 7



Fig. 8

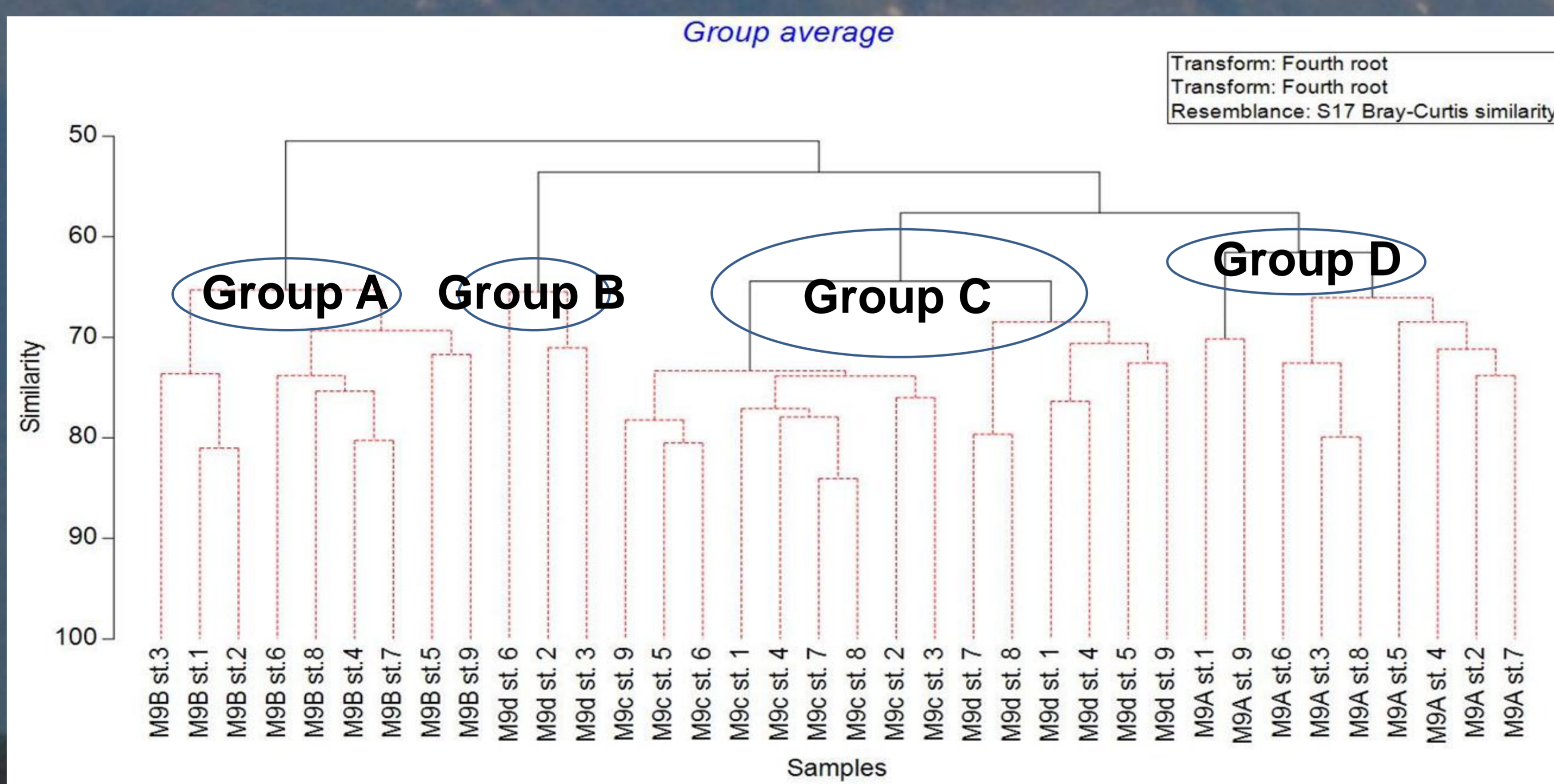


Fig. 9

Cluster analysis (Fig. 9) performed on the species abundance matrix revealed a clear separation among trawling areas (Fig. 10). Bionomic percentage affinity (A%) calculated for each cluster's group according to Pères & Picard (1964) identified the following biocoenosis traits in the trawling areas (Fig. 11a,b,c,d):

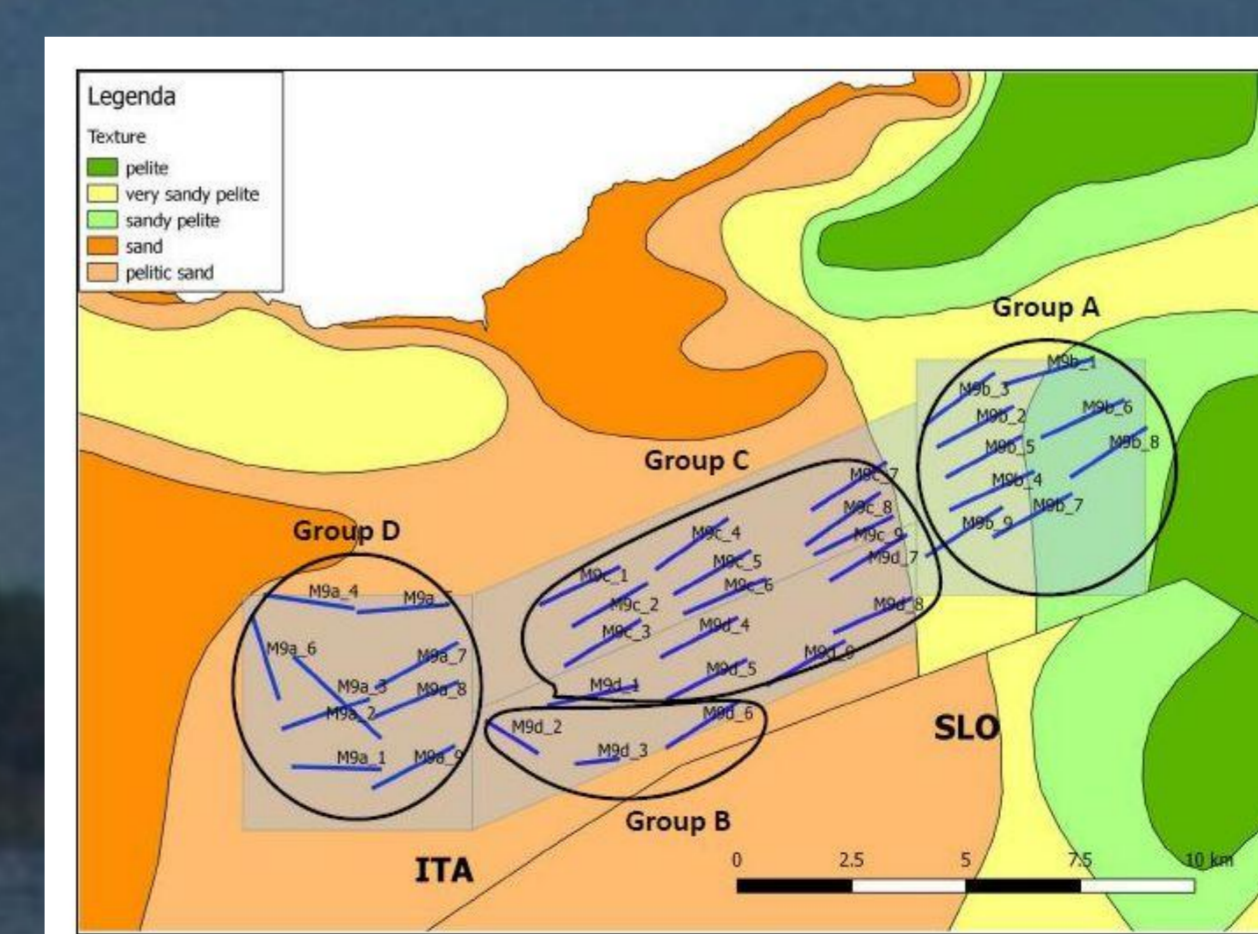


Fig. 10

Zone	Biocoenosis			
not related to specific belt	MI	SGCF		
infralittoral biocoenosis	AP	HP	SFBC	
circallittoral biocoenosis	VTC	DE	DC	C

MI unstable soft bottom
SGCF coarse sands and fine gravels under the influence of bottom currents
AP infralittoral algae
HP Posidonia oceanica meadows
SFBC well sorted fine sands
VTC coastal terrigenous muds
DE muddy detritic bottom
DC coastal detritic bottom
C coralligenous

Group A: texture is sandy pelite (sand 5%-30%) and very sandy pelite (sand 30%-70%), where DC and VTC are the dominant biocoenosis; in addition the presence of MI biocoenosis is noteworthy (Fig. 11c).

Group C: texture is pelitic sand (sand 70%-95%); this area is the most diversified in term of biocoenosis, although DC is dominant and MI is present (Fig. 11b).

Group B and D: these areas are quite similar, texture is pelitic sand (sand 70%-95%), DC was always dominant, but MI was absent. In addition AP biocoenosis was detected in group D (Fig. 11a,d).

Groups A and C, where MI biocoenosis was detected, embody the zones where trawling fisheries prevail, whereas those of groups B and D are often avoided by fishermen due to the presence of many outcrops.

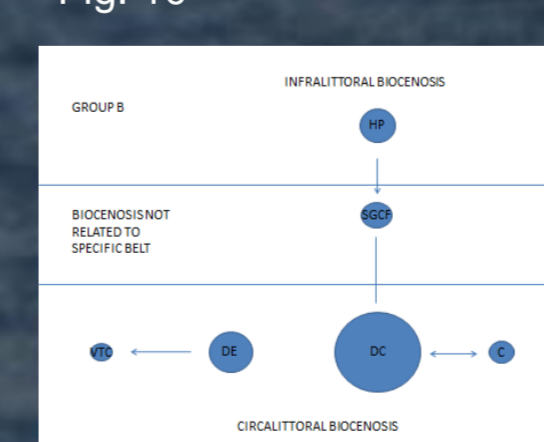


Fig. 11a

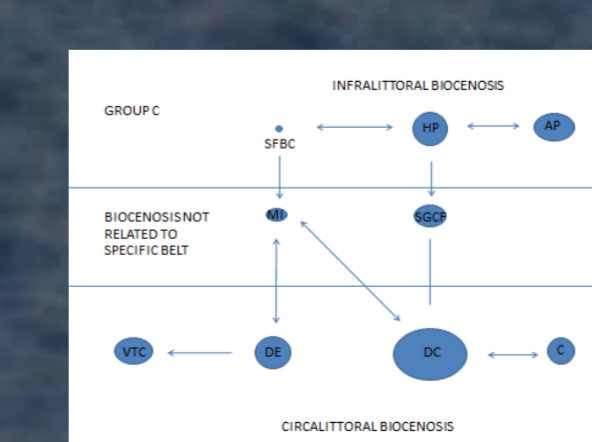


Fig. 11b

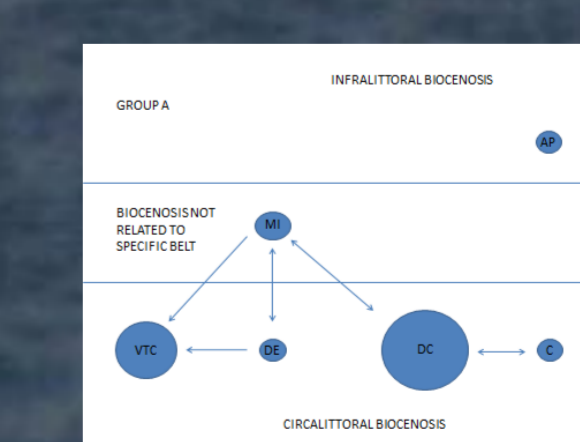


Fig. 11c

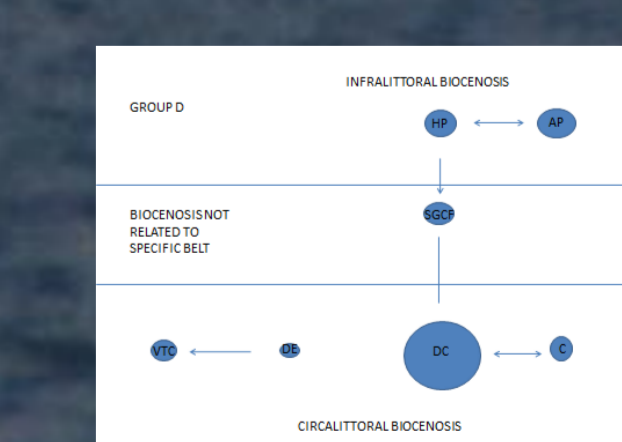


Fig. 11d

