

Monitoring floating plastic fragments in the Ligurian Sea, NW Mediterranean

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Introduction & Methods:

Surface floating plastic fragments were collected during the Expedition MED citizen science association exploration of the Ligurian Sea between Toulon and Genova in July and August 2013.

Plastic fragments were collected by Manta trawl (a) and counted and measured using the ZooScan method (b, Hydroptic). c) Plastic fragments imaged by ZooScan. Non-destructive Fourier transform infrared spectroscopy (FTIR) was used to specify absorption bands of plastic fragments (d).

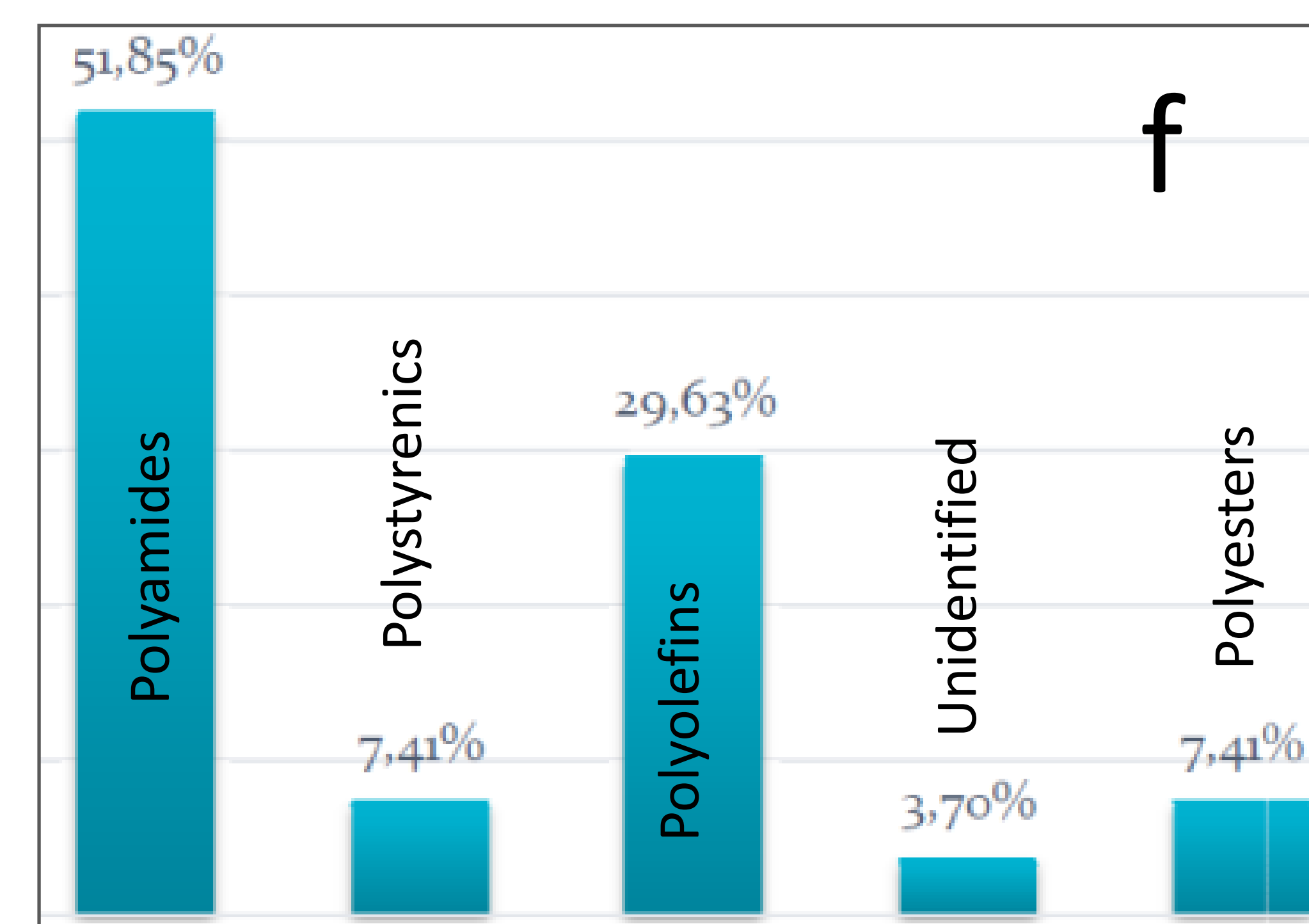
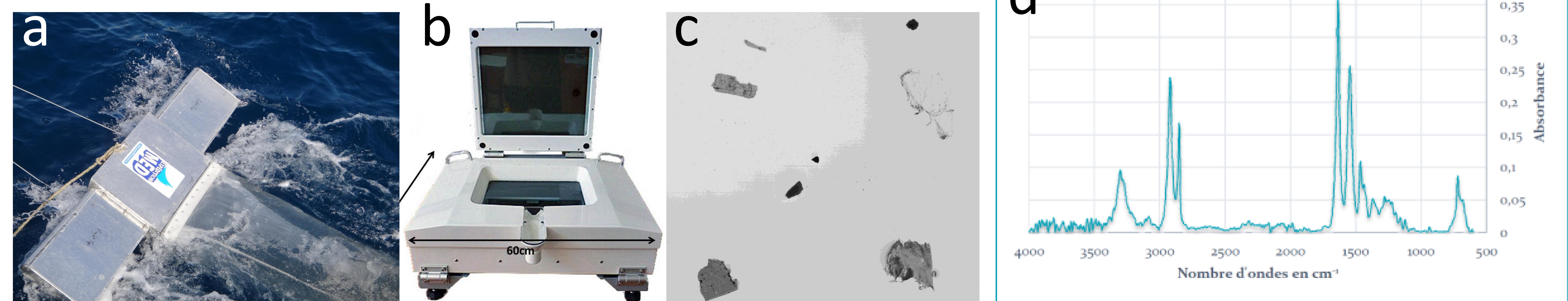
Results and Discussion:

Our results suggest that plastic fragments are widespread in the Ligurian Sea (e). They were present in all Manta tows, varying from 13000 to more than 300000 plastic debris per km². The most frequent plastic families were polyamides, polystyrenes, polyolefins and polyesters (f).

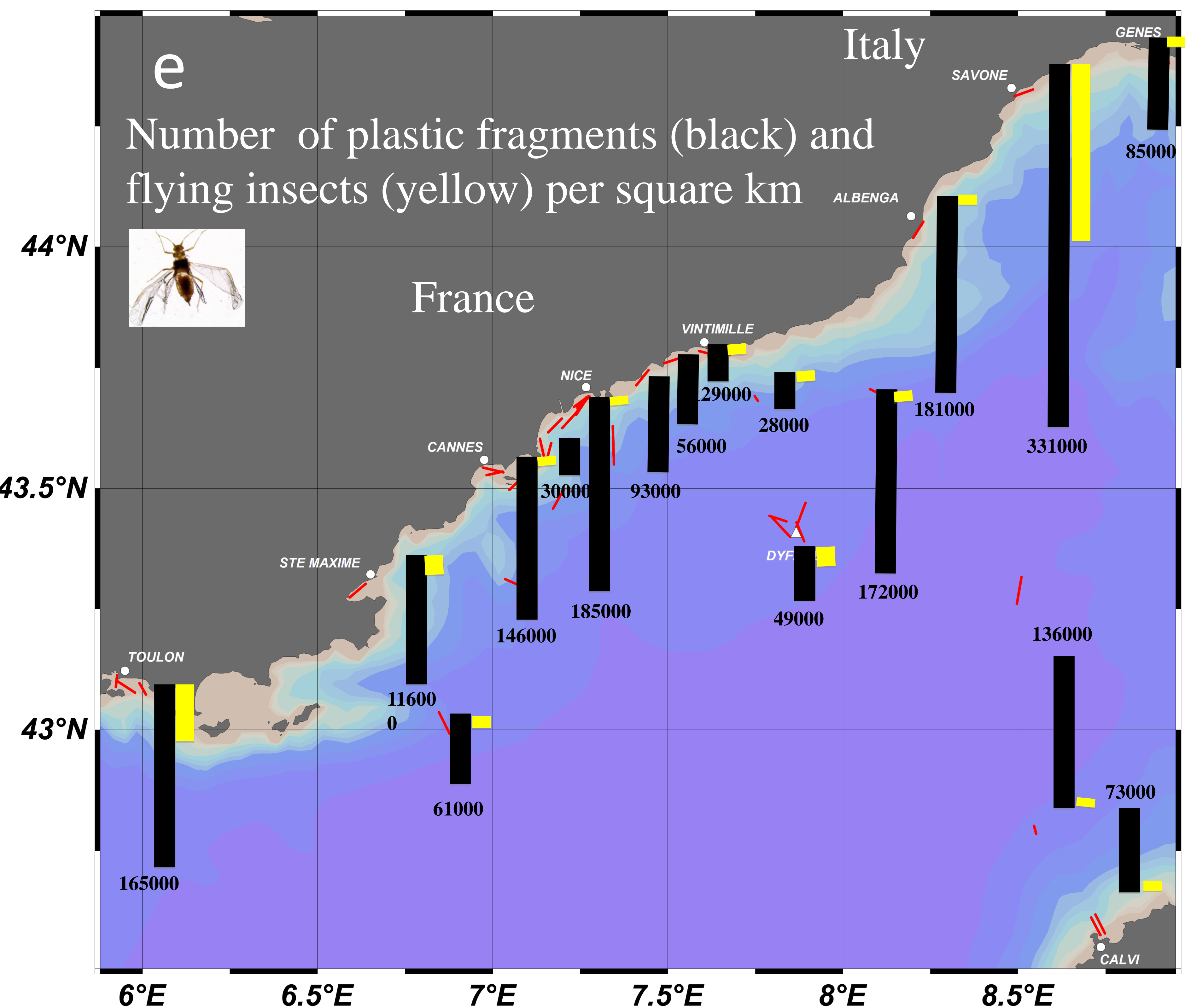
Different marine organisms were associated with and transported by floating plastic fragments. Beside of plastics, high amount of terrestrial insects were collected at almost all the stations, including offshore (mean concentration: 15000 individuals per km²).

Copepods were the most abundant organisms in the surface layer but neustonic mollusks and cladocerans were also abundant.

It is essential to organize a long-term monitoring of surface plastic fragments. Collaboration with citizen science organizations may significantly contribute to this effort.



Mean plastic families found in the samples. Analyses are ongoing.



Colonized plastic fragments

