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From Mid to High Latitudes: Marine Litter Research at the Alfred Wegener Institute (AWI)

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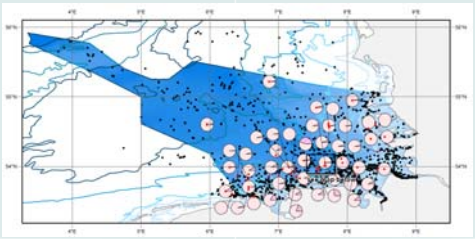
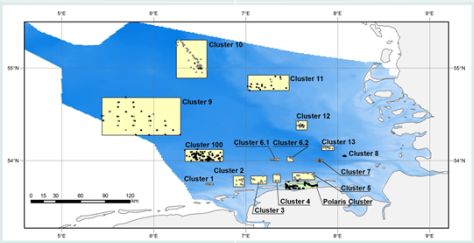
Litter at the Arctic deep-sea observatory HAUSGARTEN

- Litter quantities doubled between 2002 and 2010 → densities > Lisboa Canyon
- ~60% of the litter was plastics
- >60% of the litter was associated with fauna
- Source: rising ship traffic in this remote region as a result of reduced sea ice cover and/or import of litter with Atlantic water masses?

(responsible: melanie.bergmann@awi.de)

Litter and ghost nets on the seafloor of the German Bight





- Analysis of bottom trawl protocols and ship wreck videos
- Ghost nets have been found entangled with 83% of the wrecks investigated
- Litter densities on the seafloor will be available for coastal and offshore waters

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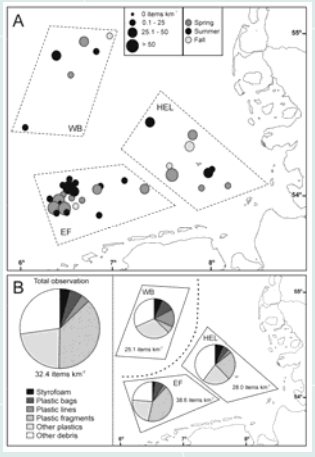
Task Force „Students Against Marine Pollution: Litter Monitoring on the Beaches of Sylt“

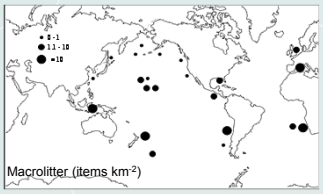
- Pilot study in March 2013; extensive campaign to be conducted in summer 2013
- Joint activity of AWI and Naturschutzgemeinschaft Sylt e.V.
- Standardised sampling of different coastal habitats
- Scientific education of young citizen scientists

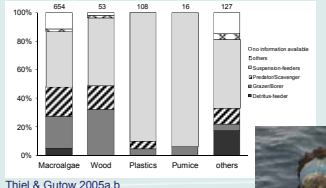
(responsible: naturschutz-sylt@t-online.de)

Distribution of floating litter and bio-geographic implications



Thiel et al. 2011





Thiel & Gutow 2005a,b

- Uneven global distribution of marine litter
- Litter quantities in the North Sea increased 10-fold in 30 years
- Marine litter allows for rafting dispersal over vast oceanic distances

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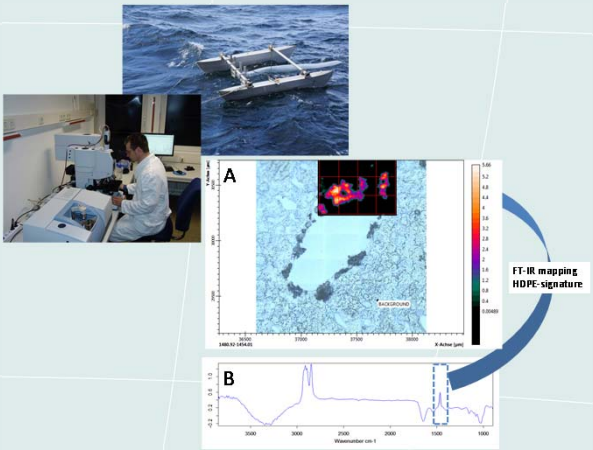
Detection of microplastics in field and tissue samples



- Development of standardised analysis procedures based on FT-IR microspectroscopy (MICROPLAST project)
- Detection of microplastics in mussel tissue
- Uneven regional distribution of microplastics in the North and Baltic Sea

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