

Microplastics: Sampling through a Ferry Box system

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The NIVA logo is located in the bottom left corner of the slide. It consists of the letters 'NIVA' in a bold, blue, sans-serif font. The background of the slide features a light blue, wavy graphic that resembles water or a stylized landscape, with a vertical blue line extending upwards from the bottom center.

Marine Litter A global Problem



Report: Plastic pollution in the ocean is reaching crisis levels, Indonesia Claire Groden, 2015, Fortune /Time Magazine

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Fann 30 plastposar i magen på den sjeldne kvalen

Gåsenebbkvalen var aldri dokumentert i Norge før han blei avliva. I magesekken fann forskarane 30 plastposar og store mengder småplast.



PROPPFULL: Over 30 plastposar og store mengder småplast blei henta ut av magesekken til den sjuka og avliva gåsenebbkvalen. FOTO: CHRISTOPH NOEYER / UNIVERSITETET I BERGEN

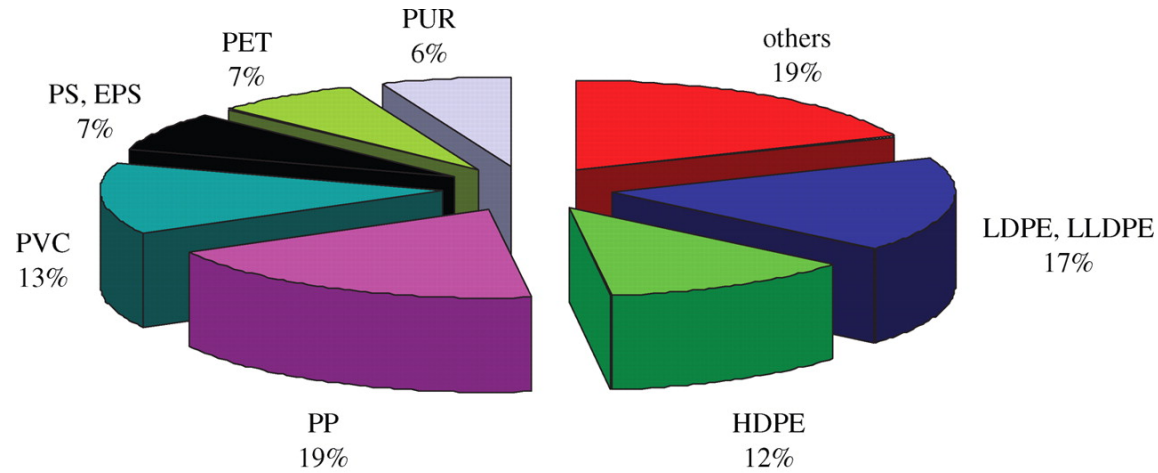


Even Nørheim Johansen
@evennor
Journalist

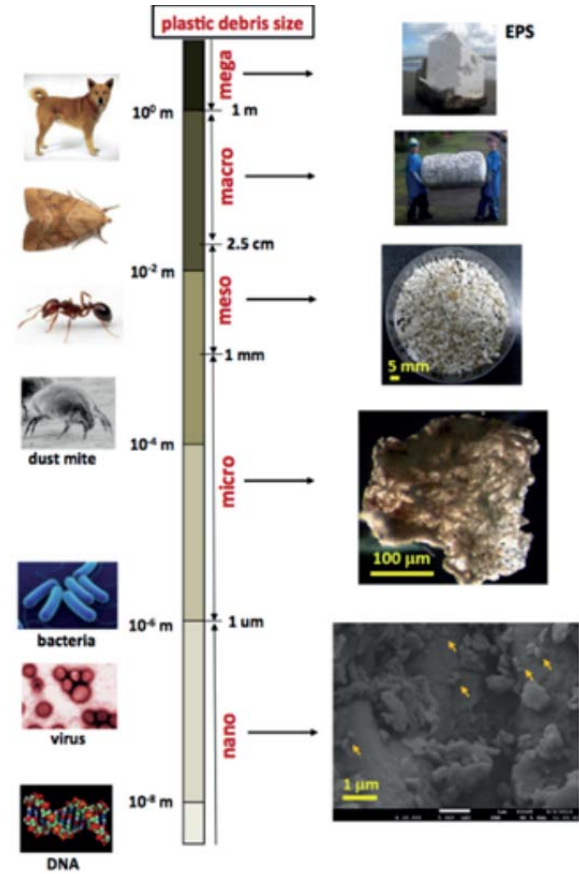
- MER OM NATUR OG DYRELIV
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- MER OM NORGE

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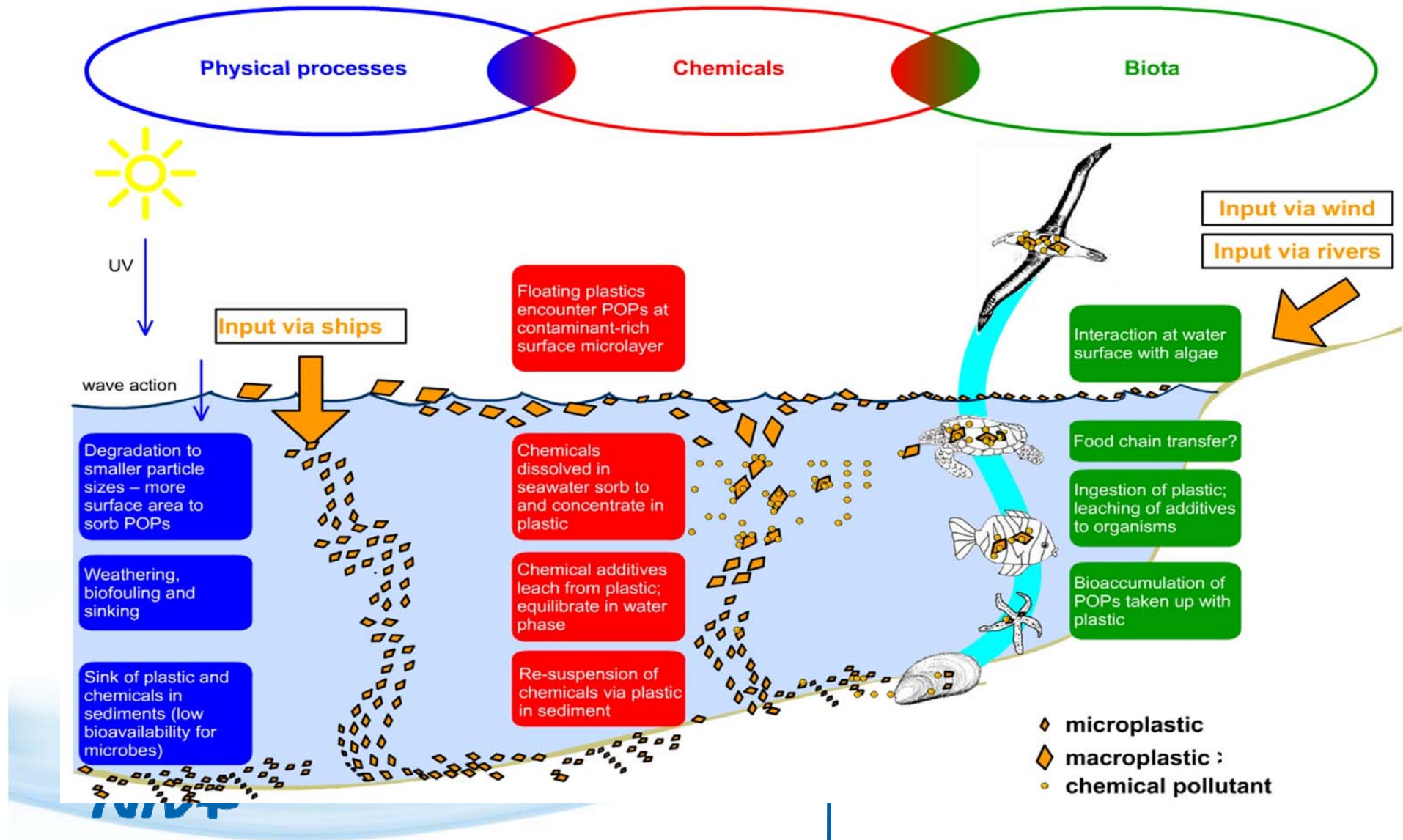
Marine Litter



49.5 million tonnes
including 5 million tonnes other plastics



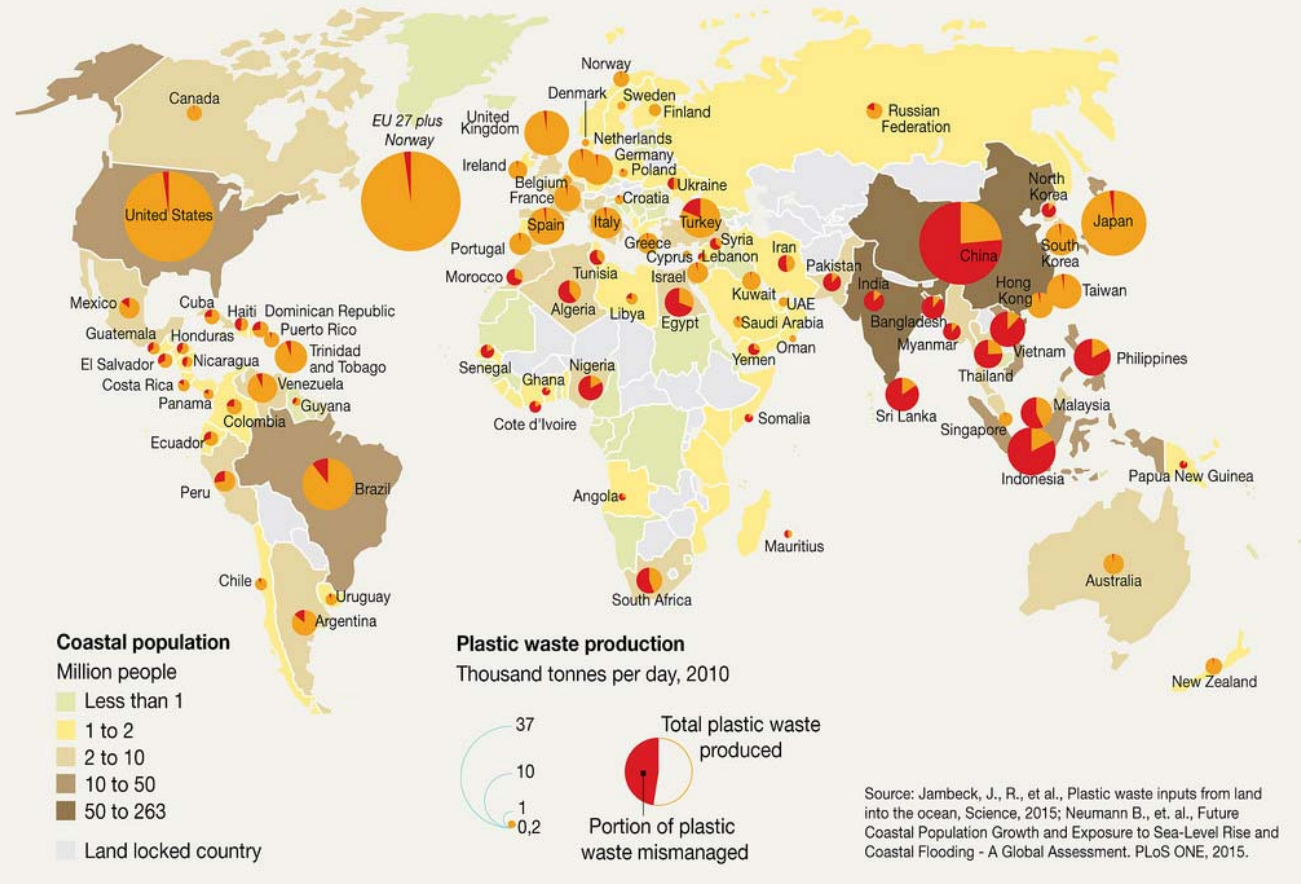
Marine litter



Marine Litter

A global Problem

Plastic waste produced and mismanaged



Microplastics in seawater



Microplastics / m ³	Net mesh	Location	Ref
0.04 - 0.05	280 µm	shipping routes UK, 10 m depth	Thompson et al. 2004
0.2-1.6	333 µm	Doggerbank, sea surface	Leslie 2012
150-2400	80 µm	Swedish coast, sea surface	Norén 2008
200-1000	10-500 µm	Skaggerak, Norwegian S coast, sea surface	Norén & Naustoll 2011
102,000	0.5-2 mm	Swedish harbour near PE plant, sea surface	Norén 2008

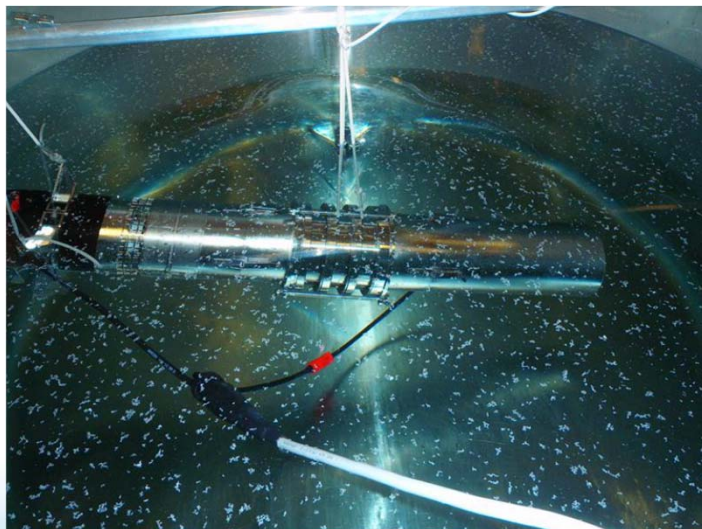
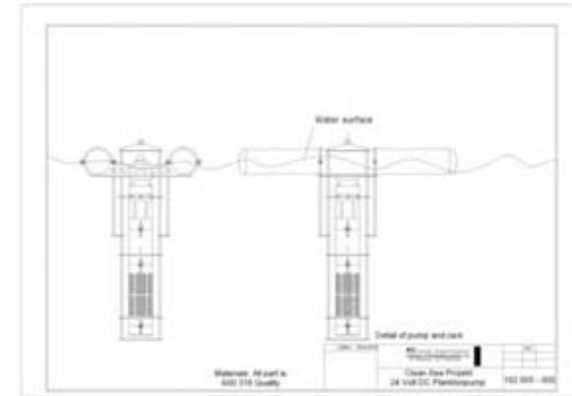
Baltic Sea Expedition 2014



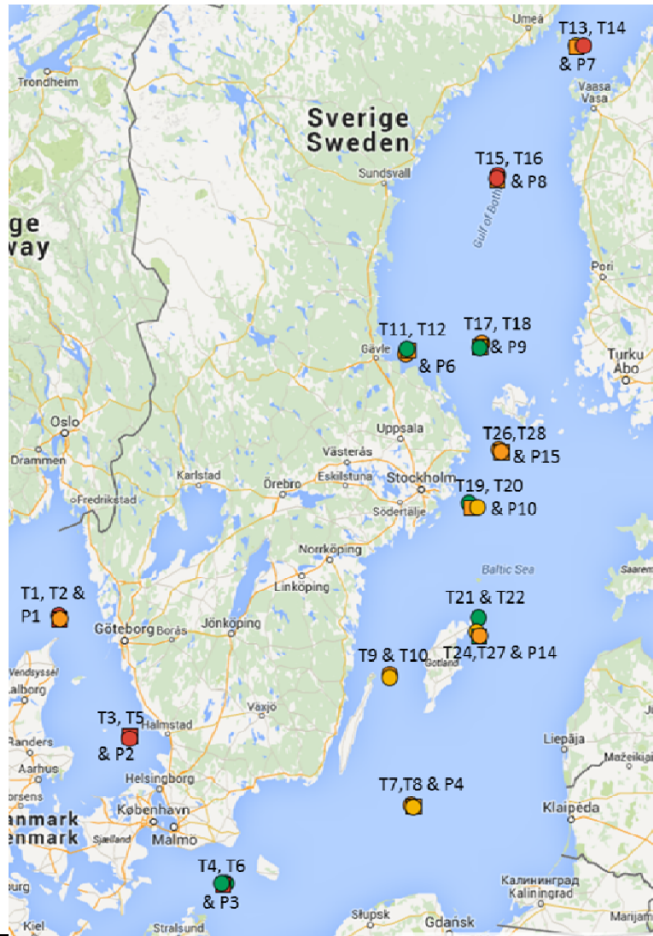
Innovative tools for marine litter monitoring



- Three stage sampler
 - 500 um, 300 um 50-100 um
 - Surface and water column (deep sea water)
 - Large volume > 10 000 L/hour



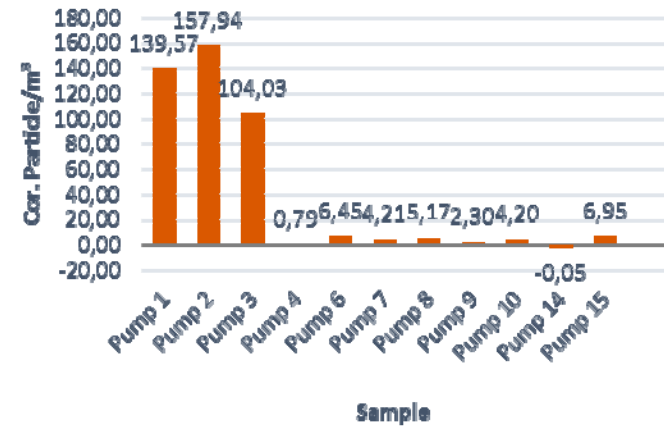
Comparison Manta Trawl / 3 Stage Pump



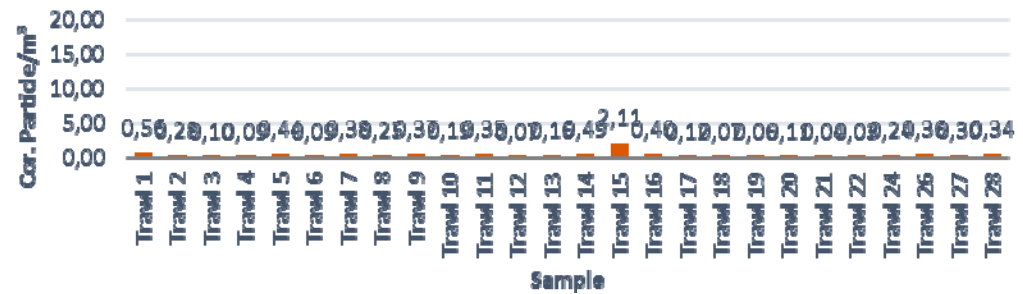
Legend

- Trawl: 0,03 – 0,09 Particle/m³
- Trawl: 0,1 – 0,38 Particle/m³
- Trawl: 0,4 – 2,11 Particle/m³
- Pump: -0,05 Particle/m³
- Pump: 0,79 – 6,95 Particle/m³
- Pump: 157,94 – 104,03 Particle/m³

Comparison Pump samples

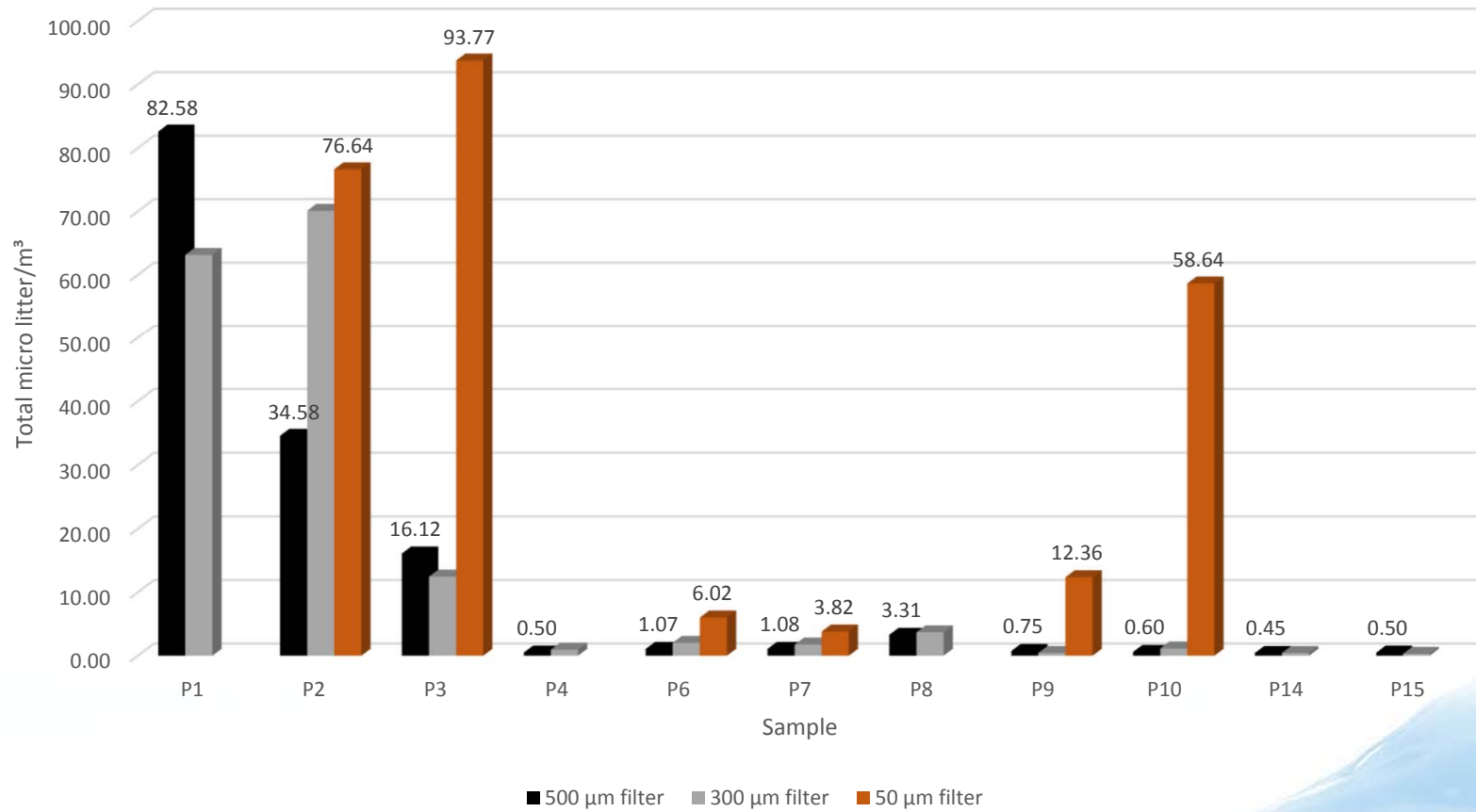


Comparison Trawl samples



Sample Device	Min particle/m ³	Max particle/m ³	Σ Particle/m ³	Average particle/m ³	Fibers [%]	Pieces [%]
Trawl	0.03	2.11	8.01	0.31	90.74	9.26
Pump	0	157.94	431.55	39.23	86.03	13.97

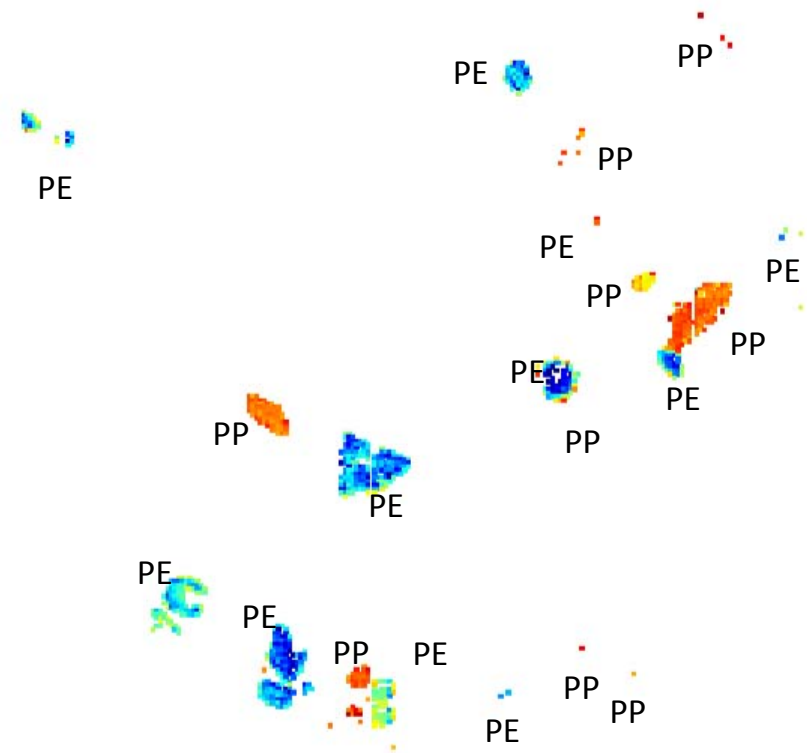
Comparison of all pump filters



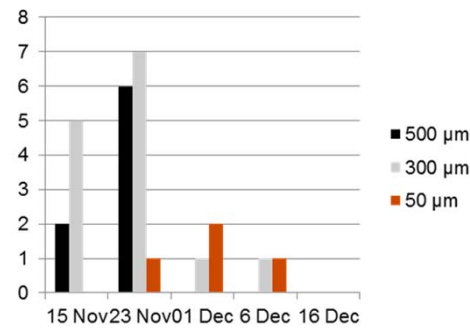
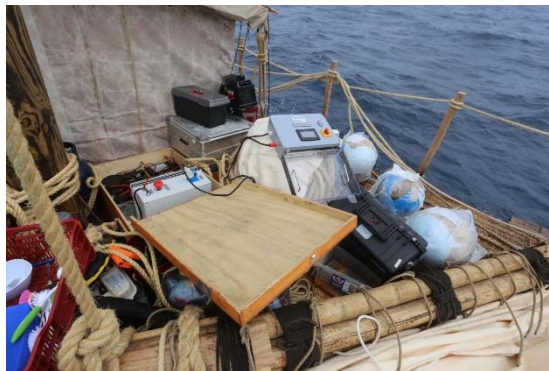
Traditional Analysis with Microscope



Trawl 7 (50-100 um, PP, PE) Baltic Sea Expedition 2014



3 –stage sampler on the Kontiki 2 expedition



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