



Hrönn Ólína Jörundsdóttir

Örrusl og annað plast í hafi





Plast í hafinu.....





Plast í hafinu.....

Hvað vitum við um Ísland??



Blái herinn

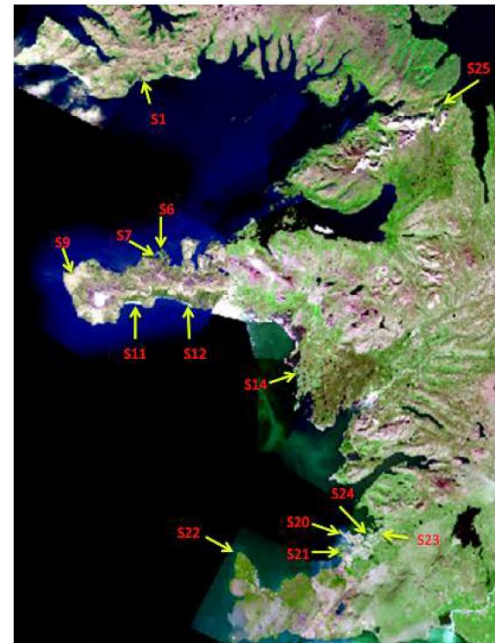


Figure 3.2 Location of established study sites

Frá Benjamin Dippo, M.Sc. ritgerð



Figure 4.10.1: Label described in Table 4.2



Figure 4.10.2: Label described in Table 4.2



Figure 4.10.3: Label described in Table 4.2



Figure 4.10.5: Label described in Table 4.2



Figure 4.10.4: Label described in Table 4.2

Frá Theresa Kinitz, M.Sc. ritgerð



En hvað ef við sjáum ekki plastið?

Örplast - Er það vandamál?





Samstarf þriggja Norðurlanda

- **Svíþjóð**
 - IVL, Swedish Environmental Research Institute
- **Finland**
 - SYKE (Finnish Environment Institute)
 - Aalto University
- **Ísland**
 - Matís, Icelandic Food and Biotech R&D





Rannsaka hvort skólphreinsistöðvar séu gátt
fyrir öragnir út í umhverfið

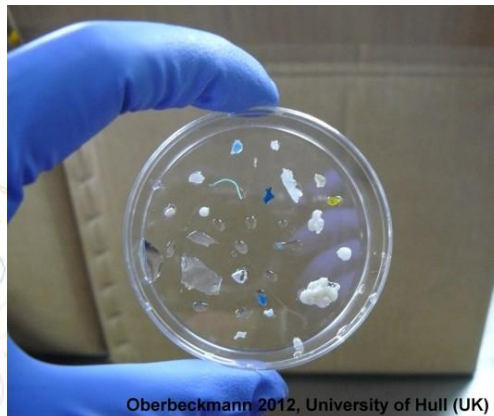
Meta magn öragna í viðtakanum (hafinu) við
útfallsrör og safna upplýsingum svo hægt sé
að meta áhrif öragna á lífverur



Ör hvað...?

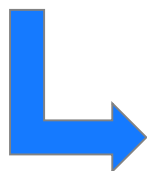
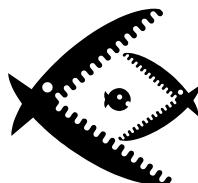
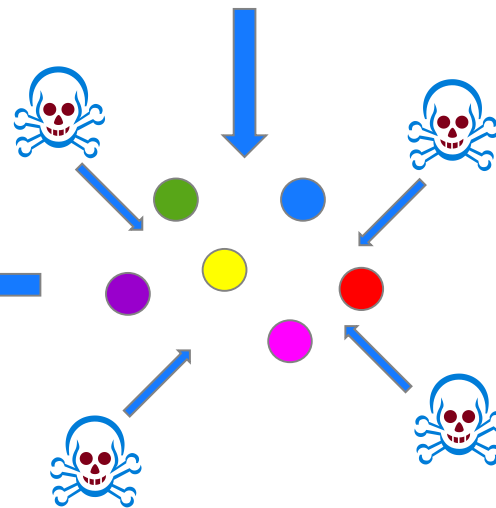
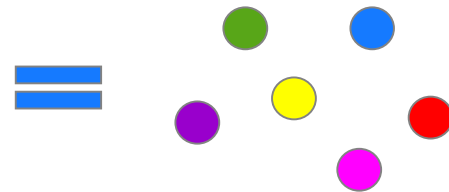
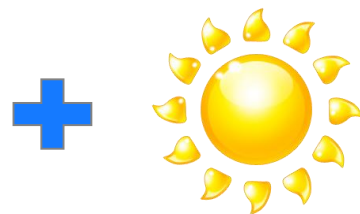
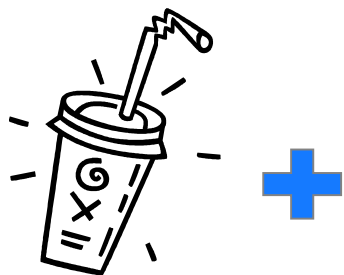
Við notum hugtakið Öragnir

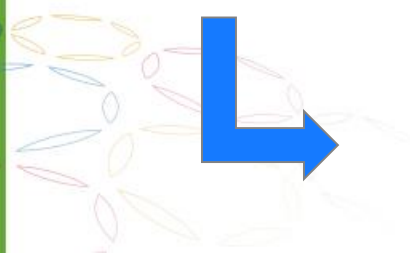
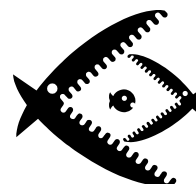
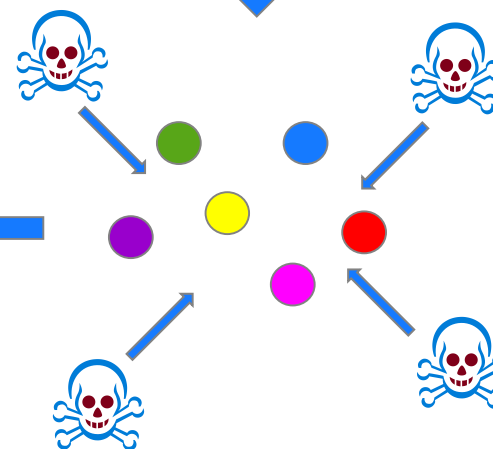
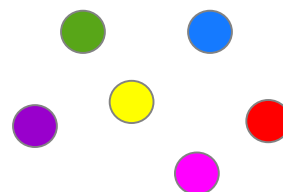
- Á ensku *microlitter*
- Agnir/brot/trefjar <5mm size (<1mm),
- Örplast myndast vegna niðurbrots stærri plasthluta, einnig til sem örplast frá upphafi
- Ógna lífríki hafsins

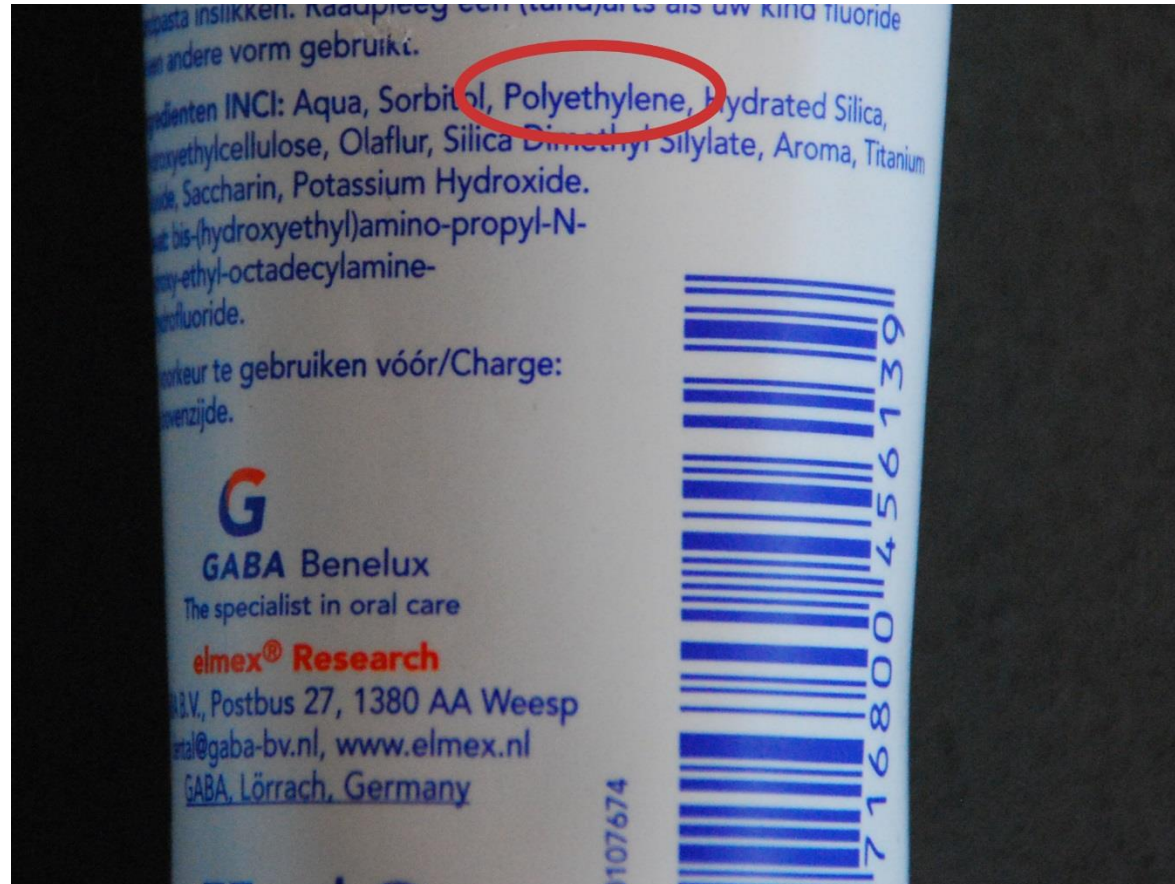


Oberbeckmann 2012, University of Hull (UK)



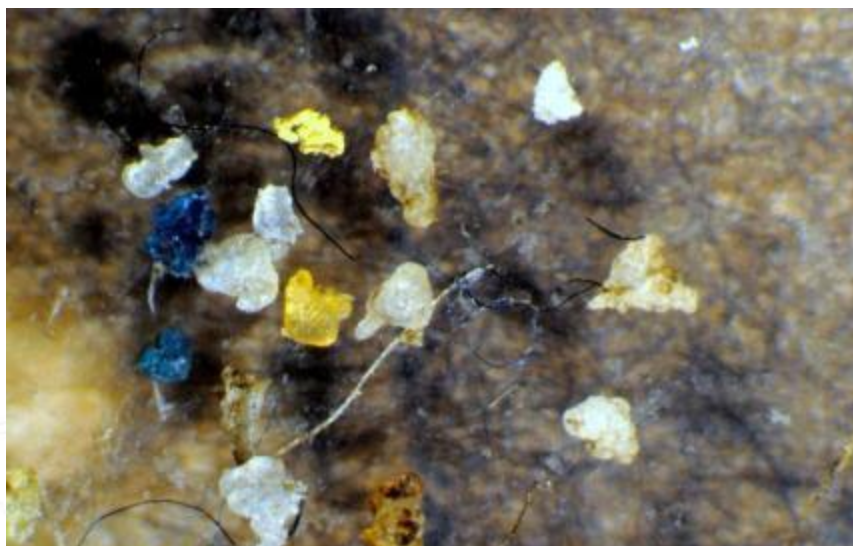
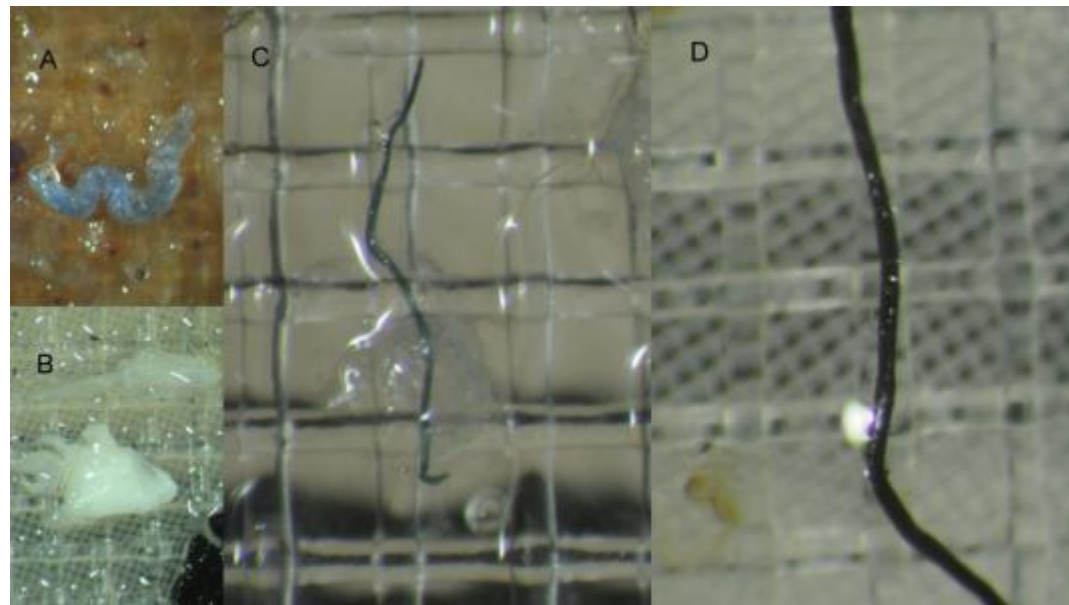


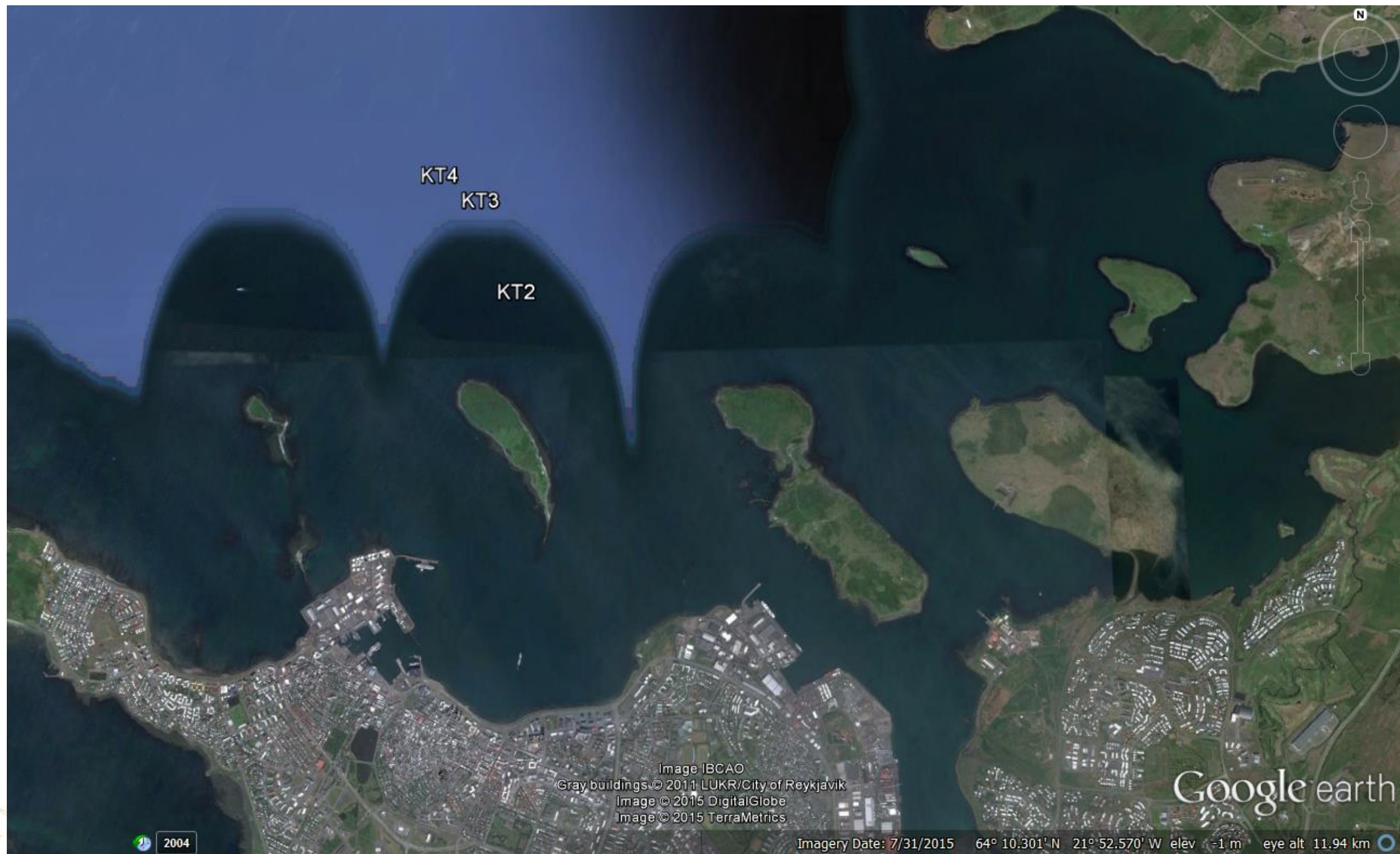






Dæmi um örplast í skólpsýnum



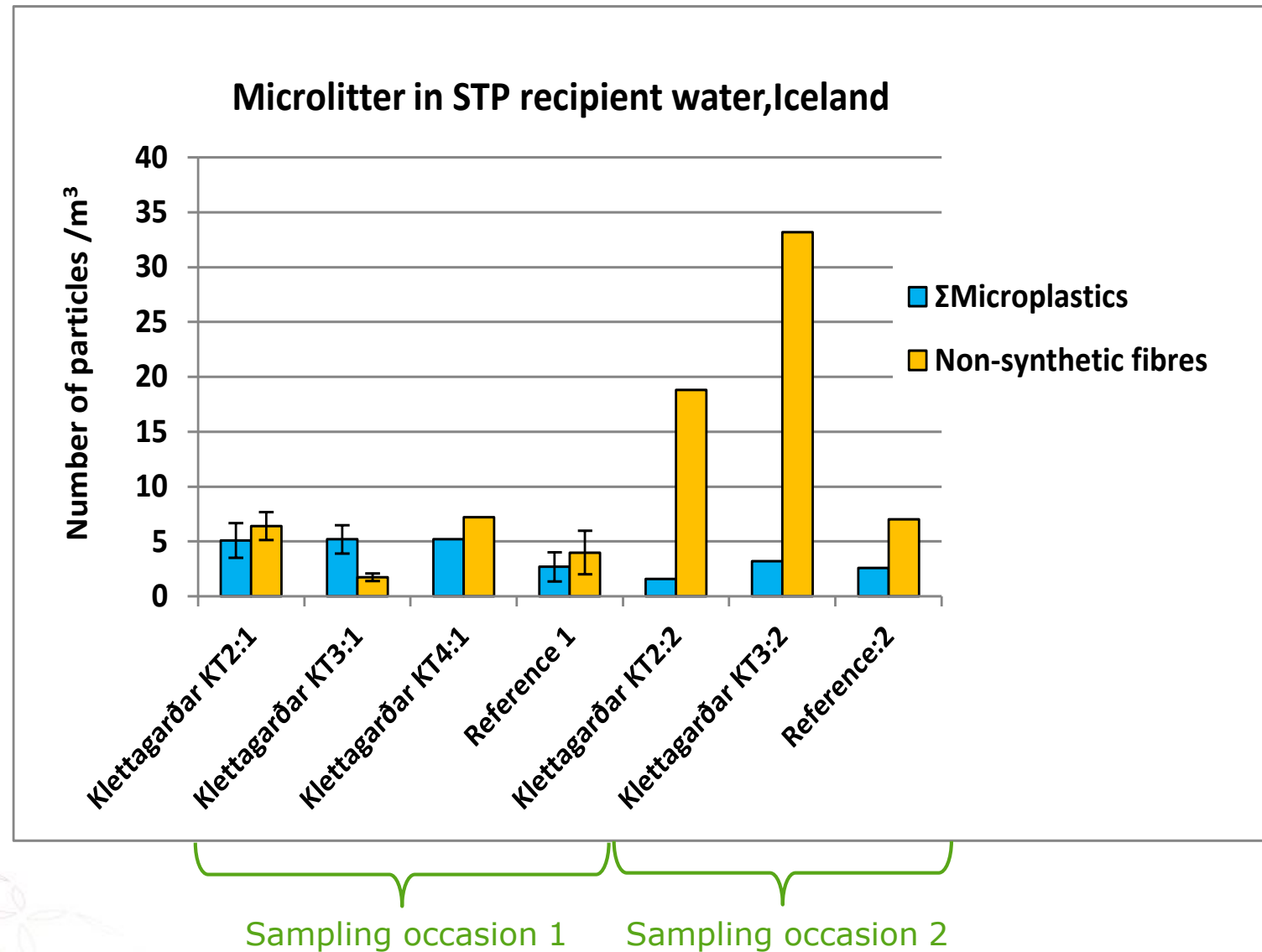














	Microlitter in STP effluent water (number particles/hour)		Microlitter in STP effluent water adjusted to PE (number particles/hour and PE)	
	Microplastic particles	Non-synthetic fibres	Microplastic particles	Non-synthetic fibers
Ryaverket	120.100	54.400	0,16±0,14	0,07±0,03
Långevik	9.100	24.700	0,65±0,06	1,76±0,67
Viikinmäki	468.400	319.600	0,41±0,41	0,28±0,32
Kalteva	11.700	15.700	0,29±0,29	0,39±0,37
Klettagarðar	6.348.800	52.224.000	65,2	53,8
Hafnafjörður	2.232.000	4.104.000	10,9±5,7	65,2±45,5



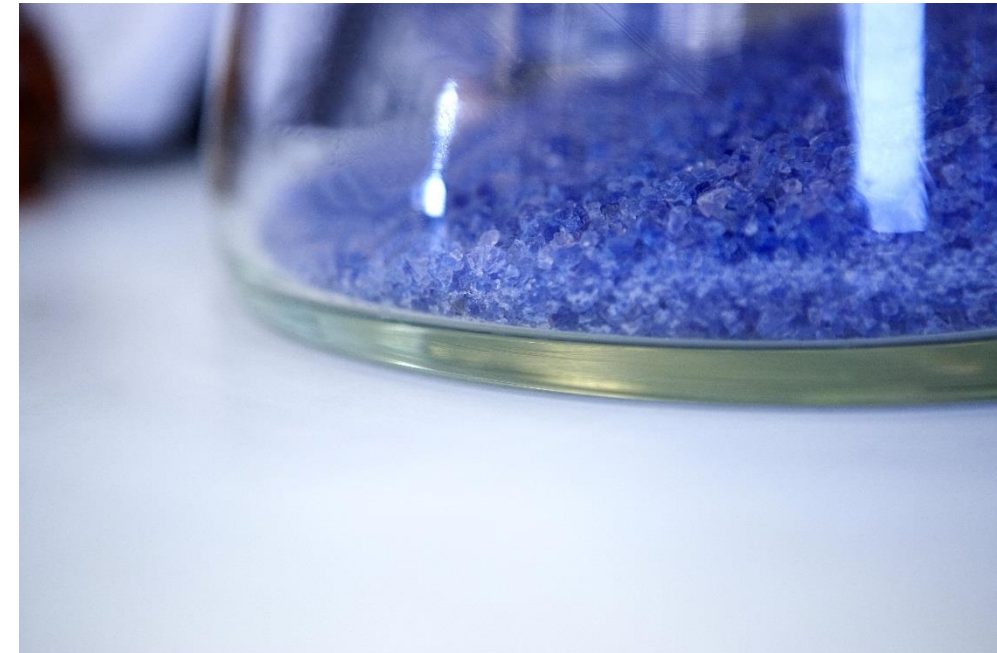
	Retention efficiency of microlitter in STP	
	Total	Non-synthetic fibres
Ryaverket	99,89%	99,99%
Långevik	99,71%	99,81%
Viikinmäki	99,93%	99,99%
Kalteva	99,97%	99,99%
Klettagarðar	(-118,23%)	(-16,46%)
Hafnafjörður	(50,17%)	(57,59%)



Helstu niðurstöður

Ísland:

- Gróf síun á skólpi á Íslandi – takmörkuð hreinsun
- Enginn munur á fjölda öragna í inn og útflæði í íslenskum sýnum





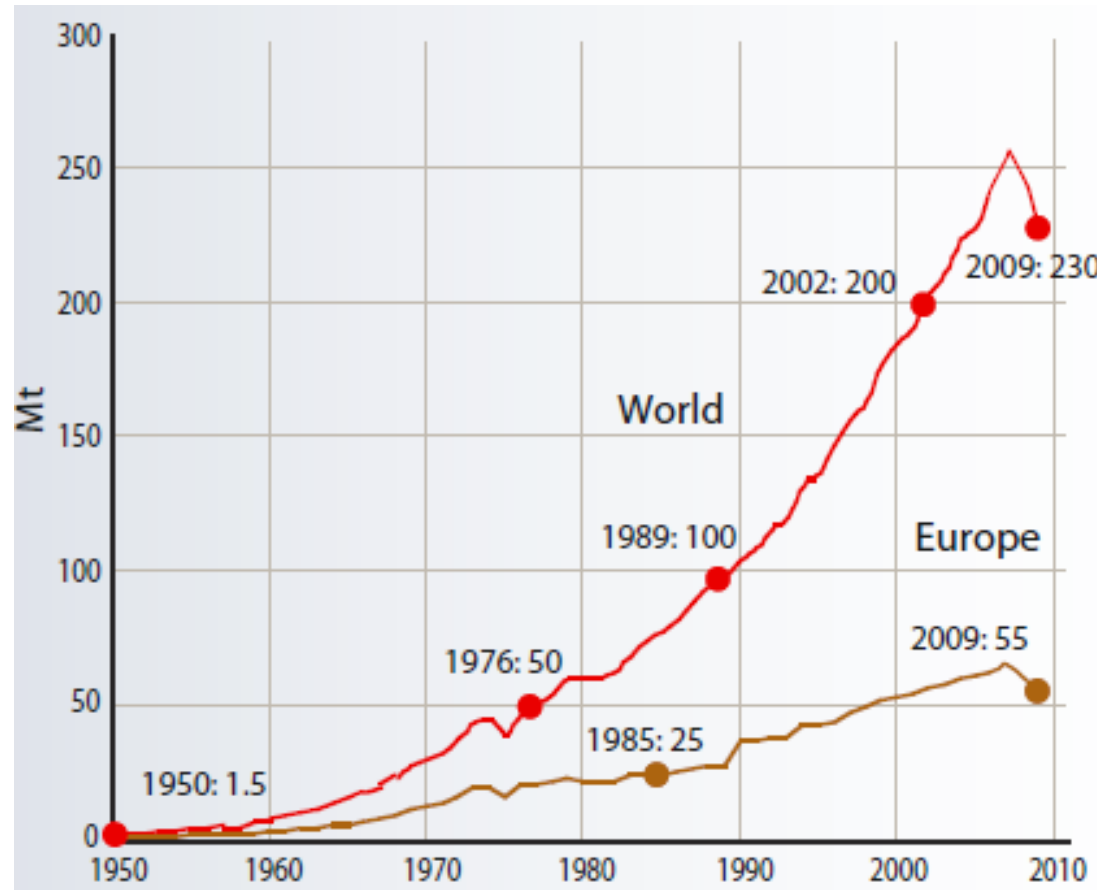
Helstu niðurstöður

Finland og Svíþjóð

- Finland og Svíþjóð með meiri hreinsun – disk fíltar
- 99% örgna setjast í seyrana
- Örgnir sleppa samt út frá hreinsistöðvum í Finlandi og Svíþjóð, allt að **500.000 agnir/klst en >6 milj agnir/klst á Íslandi**
- Polypropylene algengast tegundin sem fannst



Plastframleiðsla í heiminum



40% eru pakkningar



Óbein áhrif

Plast inniheldur oft skaðleg efni

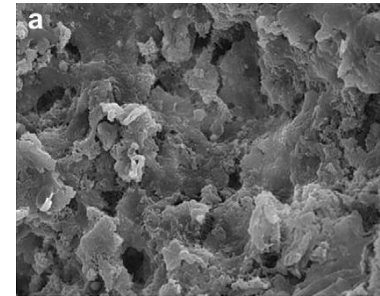
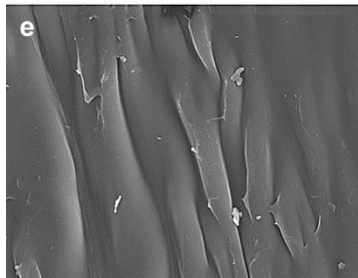
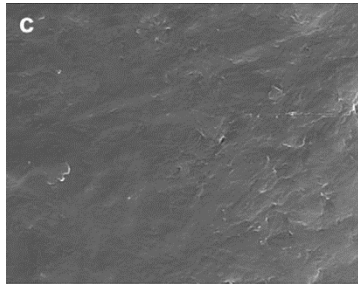
- t.d. mýkingarefni eins og Phthalates og Bisphenol A (BPA)

POP geta bundist plasti

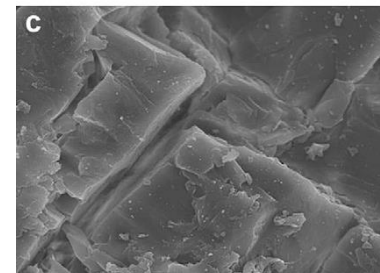
- PCBs, DDT, o.s.frv.

Yfirborð og veðrun

Virgin pellet surface



Weathered pellet surface

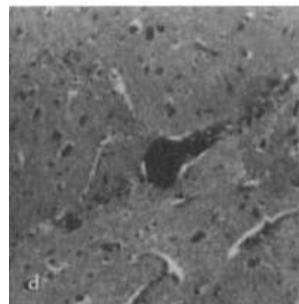
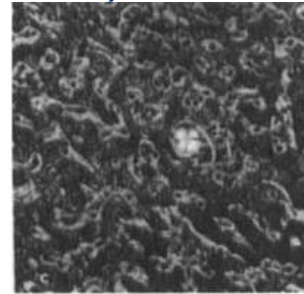
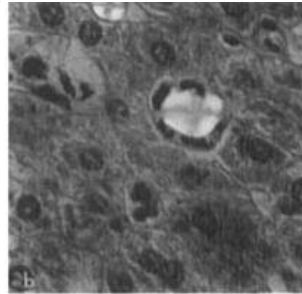
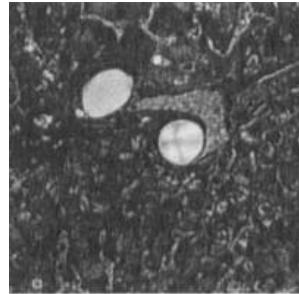




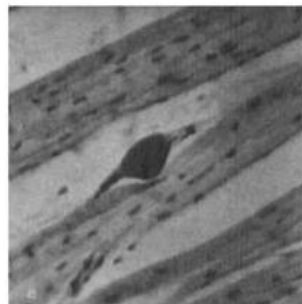
Bein áhrif möguleg? – Volkheimer 1975

Upptaka örplasts í rottum

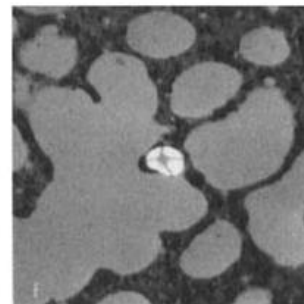
Liver (3 min, 30 min, 300 min)



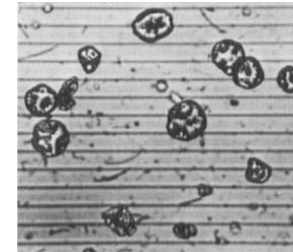
Heili



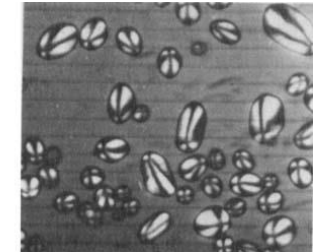
Vöðvi



Lungu



PVC



Potato Starch

Sterkju agnir í mönnum:

- Þvag
- Lungnablöðrur
- Kviðarholi
- Heila og mænurvökva
- Mjólk
- *Kemst yfir fylgjuna!*