

Marine litter on the seafloor around Iceland

Analyzing images from benthic habitat mapping in 2004-2019

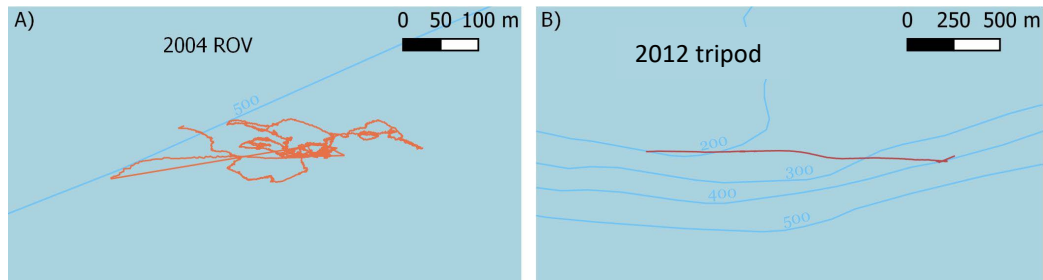
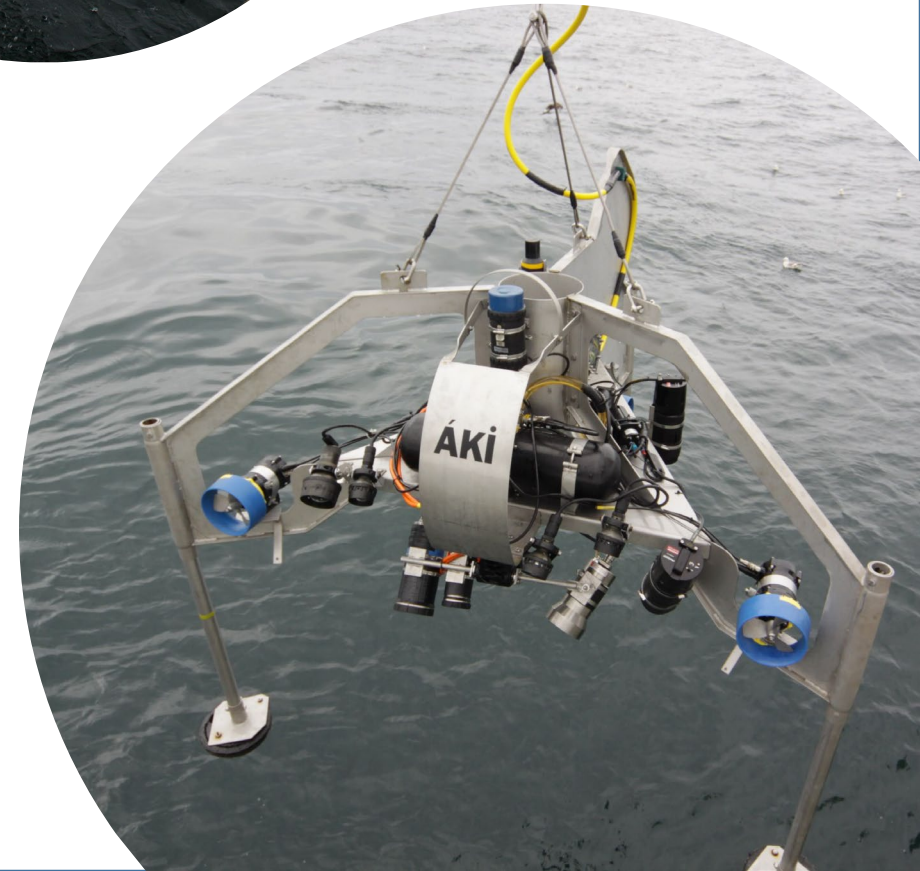
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MARINE & FRESHWATER
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Filming on the seafloor

- ROV or tripod
 - Only images or video, no sampling
- ROV transects make it difficult to calculate field of view (2004-2009)



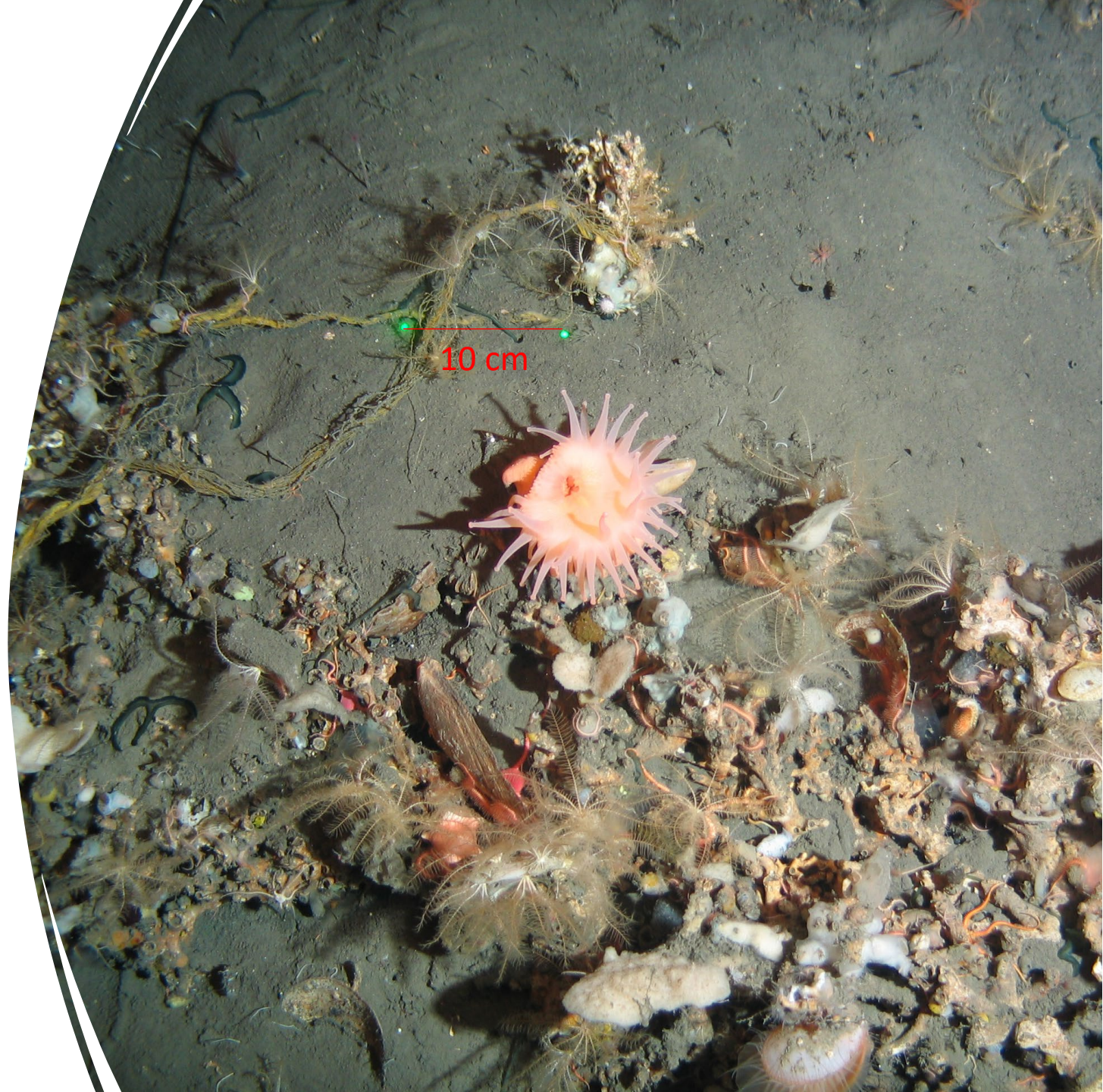
Benthic habitat mapping

- The project aims to locate, film and document vulnerable ecosystems to be able to protect them.
- 8 cruises in 2004-2019
 - 325 transects



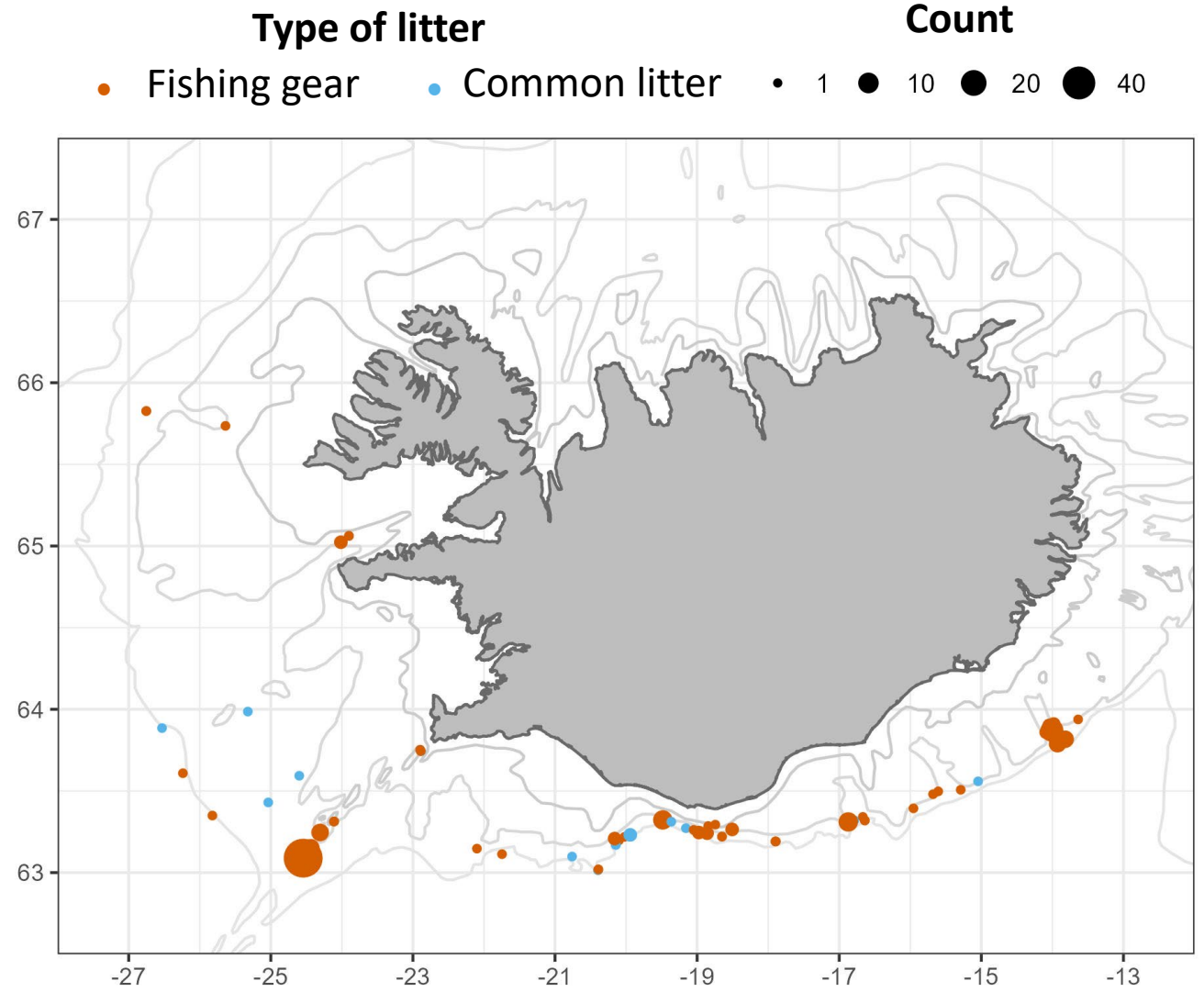
Methods

- Lazer pointers
 - Measured 25 images
 - Average field of view is $1,2 \pm 0,38$ m
- Transect lengths 160 – 4500 m
 - Average length 900 ± 623 m
- $\sim 0,4$ km² area filmed



Locations

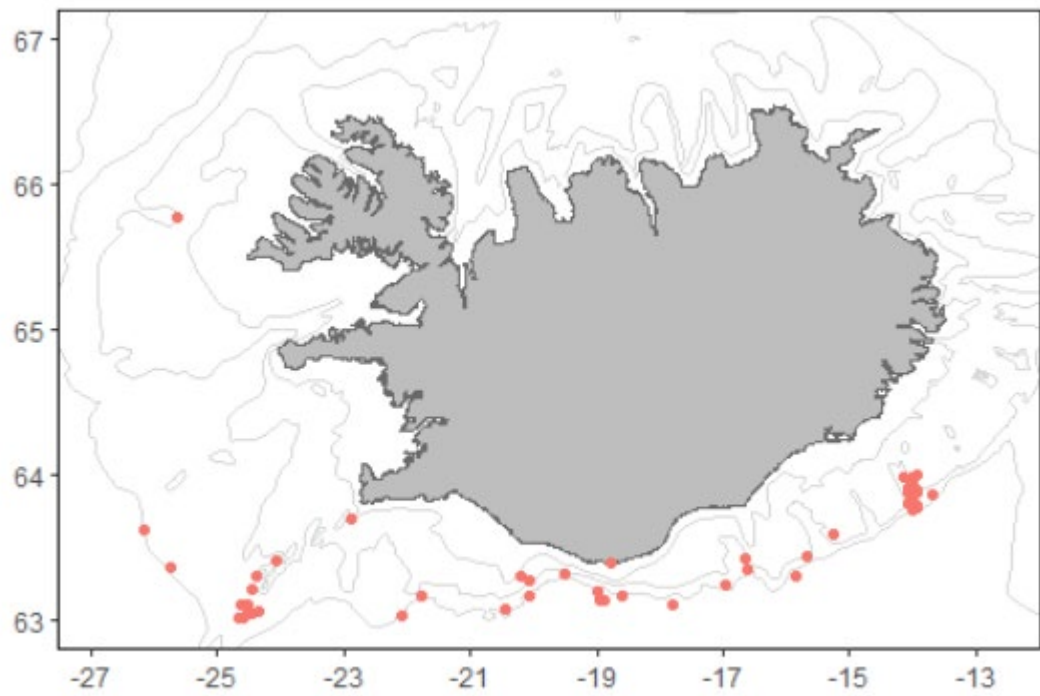
- Transects mostly in the south and west
 - Most on common fishing grounds
- Litter found on 22% of stations
 - 15 of 21 areas had litter
 - A total of 307 litter items



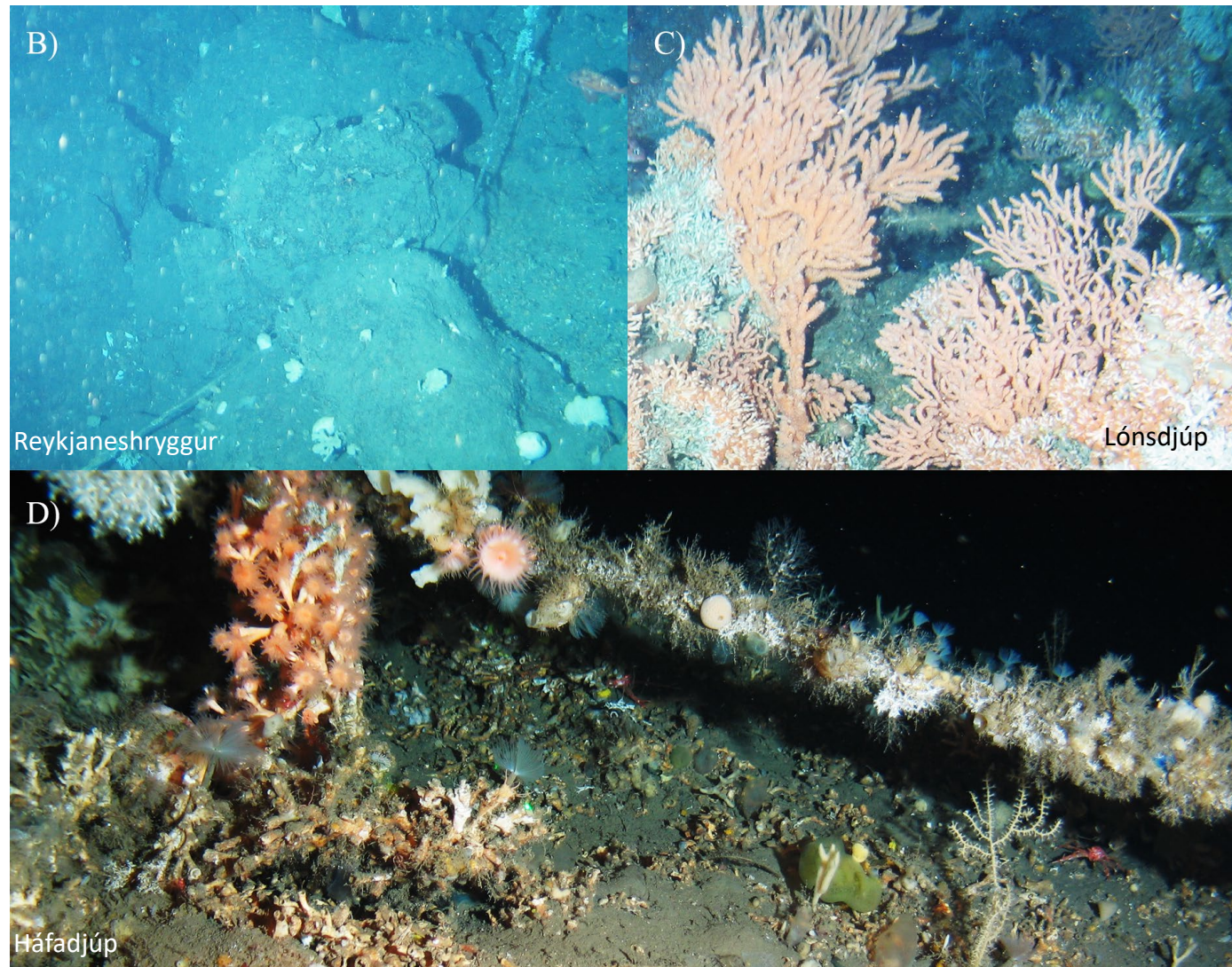
Most common litter

- Fishing gear most abundant (94,1%)
 - Longline 80,5%
 - Trawl-net, wires and ropes 10,5%
- 18 units of general litter (5,9%)
 - Mostly plastic (2,6%)
- 92% of all litter was plastic
 - Assuming all longlines are made of plastic

Type of litter	n	Proportion (%)
FISHING GEAR		
Longline	247	80.5
Trawl-net	11	3.5
Wires	11	3.5
Ropes	11	3.5
Cuttings	6	2
Other gear	3	1
SUM	289	94.1
GENERAL LITTER		
Aluminum cans	2	0.7
Other metals	2	0.7
Plastic bags	1	0.3
Sheet plastic	5	1.6
Other plastic	2	0.7
Cardboard	3	1
Wood	1	0.3
Other litter	1	0.3
Undefinable	1	0.3
SUM	18	5.9
Total SUM	307	100

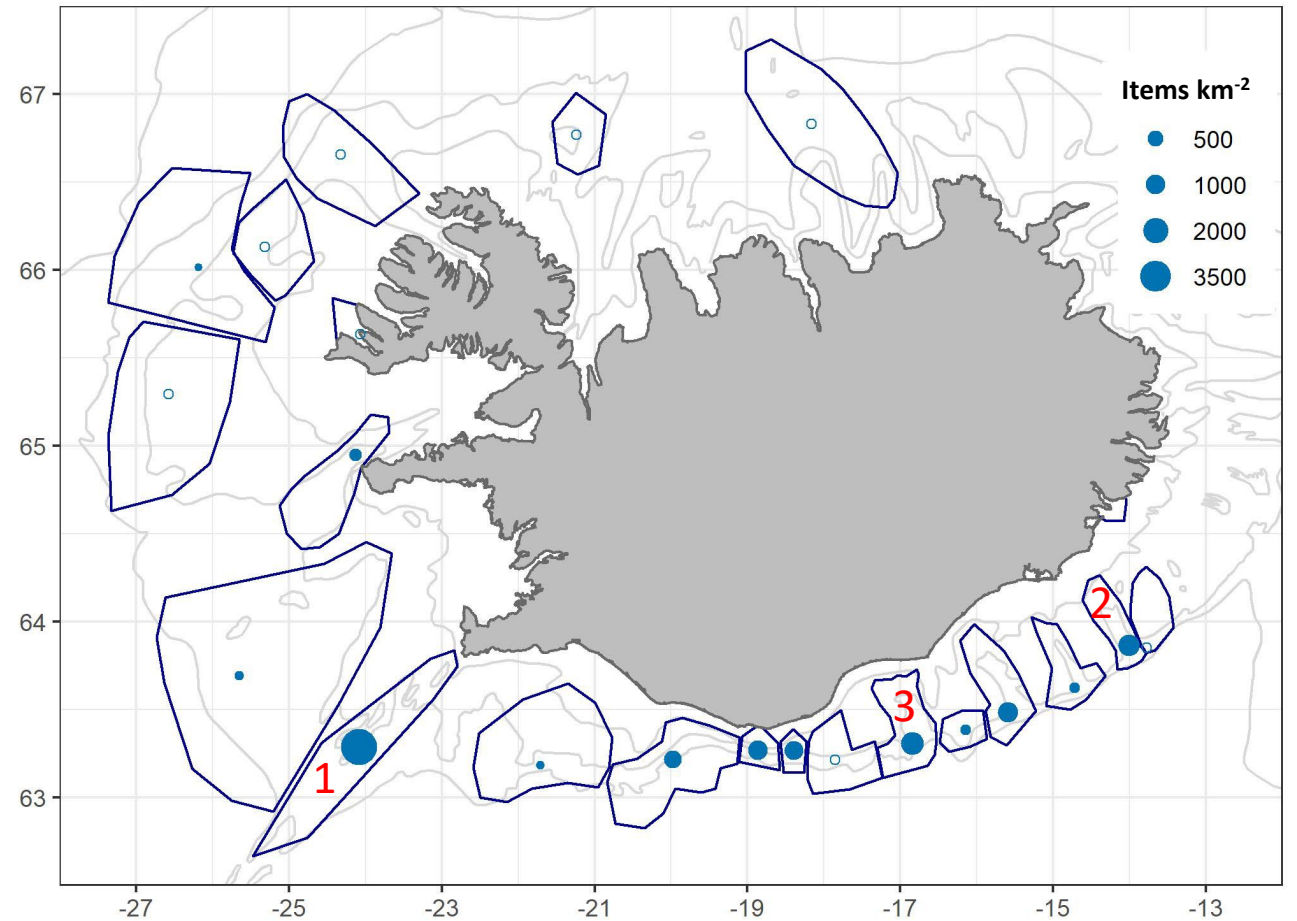


Longlines



Litter density

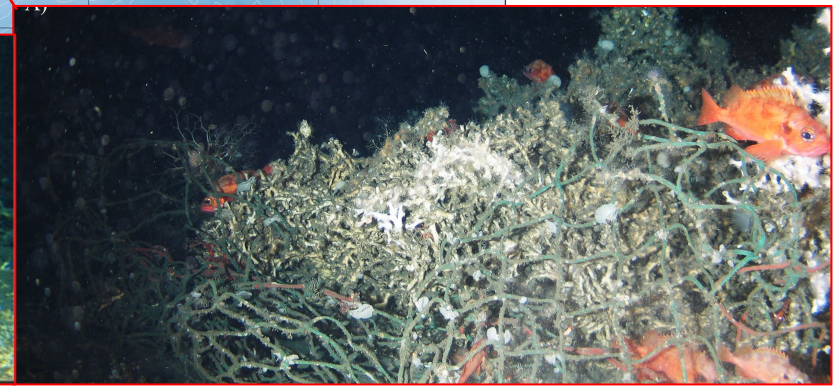
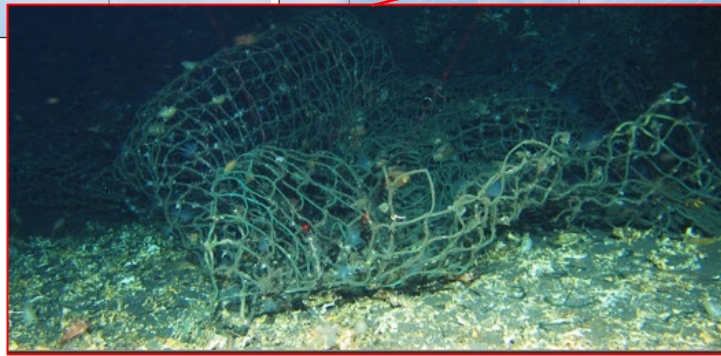
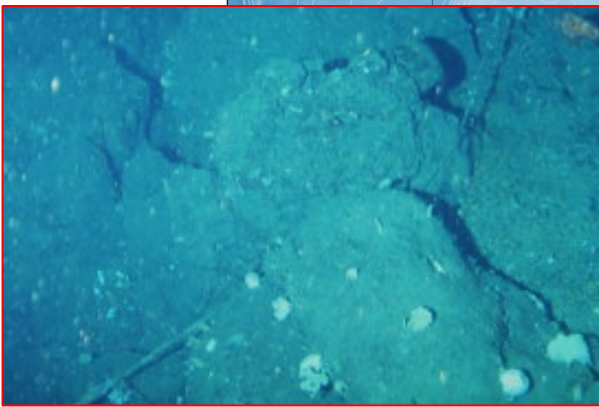
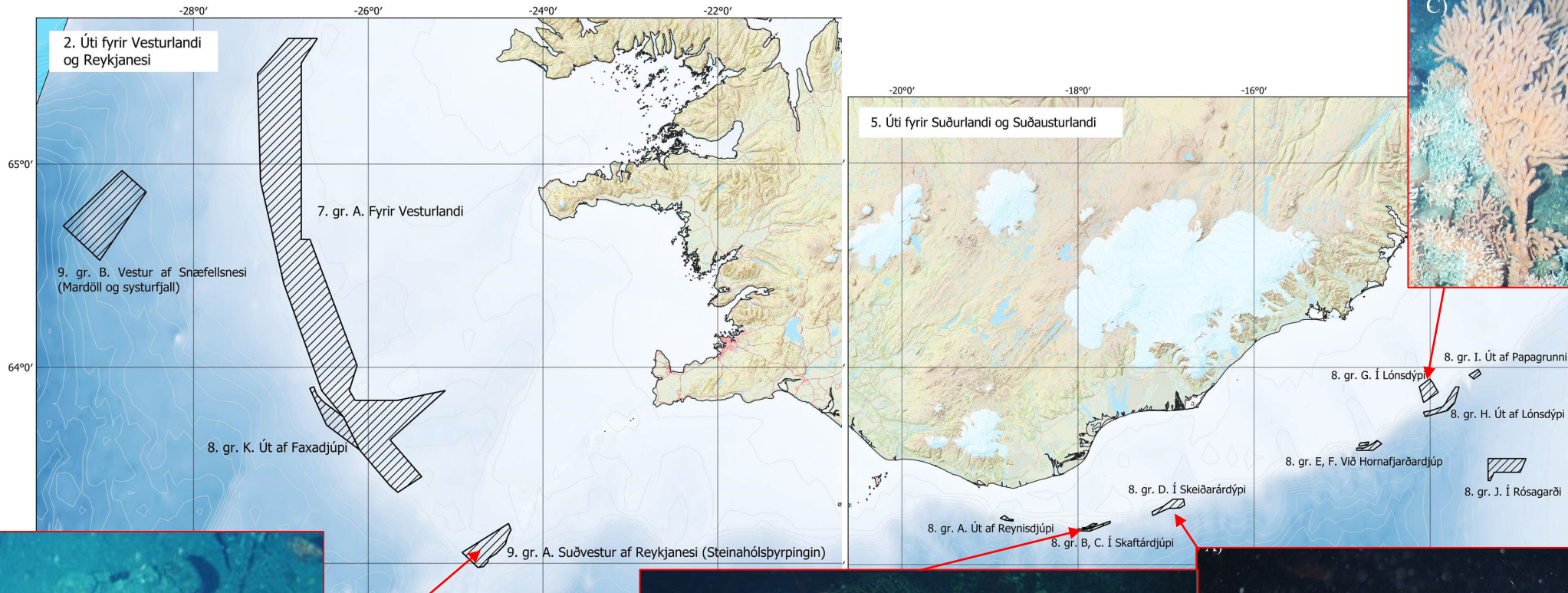
- Only calculated in 2010-2019
 - ROV vs. tripod...
- Average 869 items km⁻²
- Reykjaneshryggur, Lónsdjúp and Skeiðarárdjúp have most litter
- Small area filmed overall...




Top 3	Area filmed (km ²)	# of litter items	Items km ⁻²
Reykjaneshryggur 1	0,030	151	5094
Lónsdjúp 2	0,036	49	1150
Skeiðarárdjúp 3	0,007	10	1030

Protecting vulnerable ecosystems

- Many areas we examined are now protected.



An underwater photograph showing a large, crumpled piece of brown plastic litter, possibly a bag or tarp, lying on a sandy seabed. The plastic is heavily stained and has some small pieces of debris attached to it. The surrounding water is a murky greenish-brown color, and the seabed is composed of fine sand and small shells.

In conclusion...

- Not a lot of general litter
 - More in other areas?
 - Litter in common fishing grounds likely to be mostly fishing gear...
- Bottom type and habitats often affect where litter is found.
- Some of these areas are now protected.
- More areas need to be filmed.

