



Nordic perspectives on plastics in the marine environment

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Brug og forvaltning af de nordiske havområder i dag og i morgen

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norden

Nordiska ministerrådet

Marine group of the Nordic Council of Ministers

- Finland
- Aaland
- Sweden
- Denmark
- Norway
- The Faroe islands
- Iceland
- Greenland

4 ongoing projects on marine litter

– *funded by the Nordic Council of Ministers*

- Plastic loading in Northern Fulmars
(plast i havhest)
- The importance of sewage treatment plants as sources to marine microlitter
(betydelsen av avloppsreningsverk som källa til marint skräp)
- Marine litter and it's sources in Nordic waters
(marin nedskräpning och dess källor i nordiska vatten)
- Marine litter in Nordic waters
(marint affald i de nordiske farvande)

1. Plastic loading in Northern Fulmars

Research started on plastic in stomachs around 1980 (van Franeker)

Northern Fulmars (NF) are used as an indicator for ingestion of marine litter, regular measures since 2004

On average: 95 % of NF stomachs in the North Sea contain plastics.

Aim of the present study is to:

- fill knowledge gaps + assess pollution levels in NFs from
 - **Faroe Islands**
 - **Iceland**
 - **Svalbard**
- Also focus on harmful effects resulting from the possible uptake of **chemicals** from plastics (relate stomach content to chemical loading in primarily liver, breast muscle, brain tissue)



1. Plastic loading in Northern Fulmars

– *preliminary results from Svalbard*



- **87.5% of fulmars on Svalbard had ingested plastic (n=40)**

- 0.08g per individual
- 15.3 pieces per individual

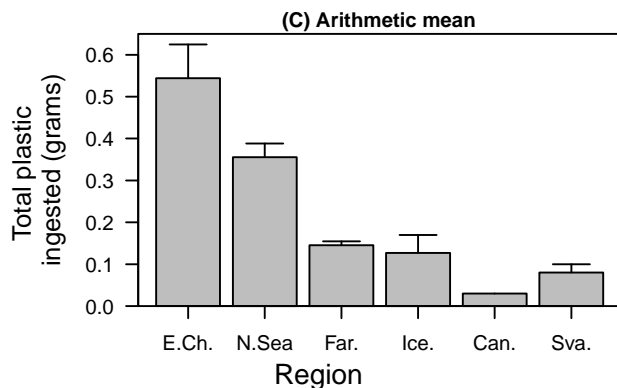
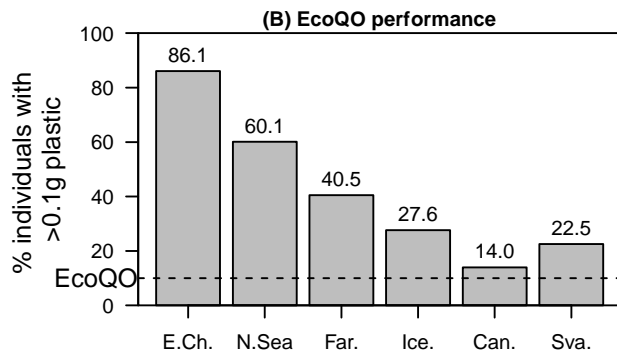
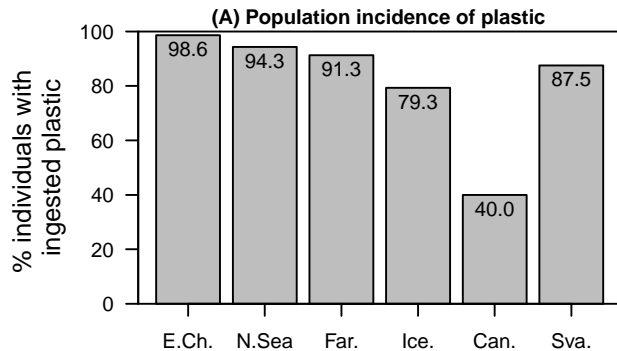
- **Increase since 1980s:**

- 29% ingested plastic (n=62)
- 0.75 pieces per individual (n=20)

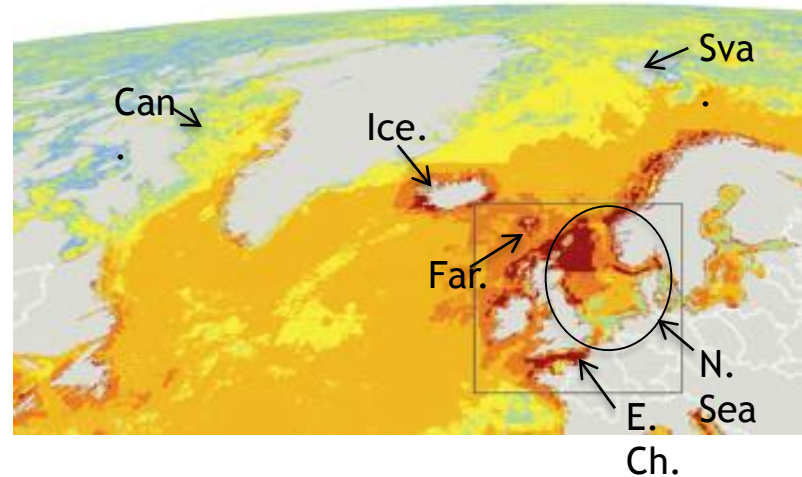
Trevail et al. submitted

1. Plastic loading in Northern Fulmars

– results: *Regional comparison of fulmar monitoring*



- Higher levels of plastic ingestion than lower latitudes in Arctic Canada
- Increase in plastic content southwards
- Ingestion levels comparable to Iceland, despite less direct human impact



Halpern, et al. (2008) *Science*, 319: 948-52

2. The importance of sewage treatment plants as sources to marine microlitter – *aim and purpose*

Investigate the WWTP as a gateway for microlitter to the environment

Investigate the presence of microlitter in the recipient, gathering knowledge for assessing impact on recipient biota

- Ref: Introductory lecture by Hrönn Jörundsdottir under the parallel session on «Consumer goods»

3. Marine Litter sources in Nordic waters

Project was related to on-going clean-up activities in Finland, Sweden, Denmark and Norway



3. Clean Europe Day in Sweden 10th of May

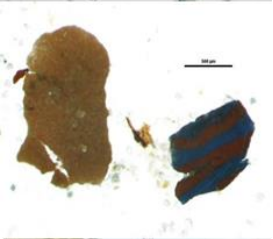


3. Four pilot studies – Here are summary from the Swedish pilot study on sources

- 3 m 3 beach litter + 1300 pieces analysed
- MATERIAL: 87% plastic
- USE DURABILITY: 75% single use products
(vs multiple use or long term use)
- SOURCE ACTIVITY: 66% related to consumers/individuals (vs industry)
- USE CATEGORY : 68% packaging material
(vs recreational items, raw material or other consumable goods)



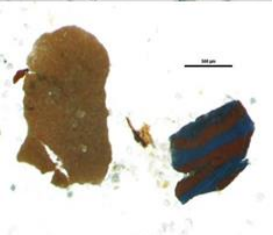
4. Marine litter in Nordic waters – *aim and purpose*



Objective: collect and exchange common knowledge and experiences with relevance to research, monitoring and assessment of marine litter in Nordic waters as a basis for future actions.

- Establish Nordic network of experts, from both research institutions and environmental management
- Describe a common knowledge status on marine litter in Nordic waters to be published in a TemaNord Report (ready by the end of 2014).
- Provide suggestions for methods and approaches that can be used for establishing monitoring activities and prioritisation of actions in Nordic waters.
- Discuss relevant management actions and region action plans for marine litter in Nordic waters
- Organize two workshops:
 - WS I - common knowledge status on Marine Litter in the Nordic Countries, and indicators relevant for EU MSFD (November 2013, Göteborg, Sweden).
 - WS II - Nordic Government officials will discuss status and future ACTIONS including monitoring and management actions(November 2014, Oslo, Norway).

4. Marine litter in Nordic waters – *conclusions so far*



- There has been and are on-going studies (research and monitoring) that demonstrate ubiquitous occurrence of marine litter, inclusive microplastics, both on beaches, in water column, at sea floor, and in biota in Nordic waters (Baltic Sea, North Sea and Arctic).
- Results of these studies are not always comparable as different methodologies for sampling and analyses are employed. There is a need to find out to what extent the monitoring data can produce comparable datasets.
- These studies provide a basis for initiation of activities on marine litter indicators for MSFD monitoring and national management plans in the Nordic countries.



Thank you, for your attention!