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# NORDMAR PLASTIC RISK:

SOCIO-ECONOMIC RISKS OF PLASTIC TO THE BIOECONOMY

– ICELANDIC CASE STUDY

EXECUTIVE SUMMARY



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### EXECUTIVE SUMMARY

#### AUTHORS:

HRÖNN ÓLÍNA JÖRUNSDÓTTIR

GUNNAR ÞÓRÐARSSON

BRYNDÍS BJÖRNSDÓTTIR

PHOTOS: SHUTTERSTOCK.COM

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## 1. AIM

Risks related to plastic pollution and its impacts on the bioeconomy are not only of biological, toxicological and chemical nature, but also societal and economical. Poor environmental reputation of the Nordic environment or Nordic production could have negative impacts on tourism, marketing and general wellbeing. The aim of NordMar PlasticRISK is to evaluate the diverse impacts and main socioeconomic risks of marine plastic pollution on the bioeconomy of Nordic countries, with Iceland as a case study. The results are based on a literature review as well as interviews with experts and stakeholders. The results are then used to form recommendations for actions to reduce the societal and economic impact of plastic pollution.

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## 2. MAIN INDUSTRIES IN ICELAND

Iceland is heavily dependent on environmental quality and bioresources, as a large part of the nation's GDP relates to the bioeconomy. The two main industries in Iceland are fisheries and tourism and plastic pollution and poor environmental quality would impact these sectors heavily.

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## 3. FISHERIES

Consumer awareness on environmental issues is constantly increasing and the focus on the environment, sustainability, quality, safety and traceability in seafood marketing is growing. For the Icelandic seafood industry, major data limitations exist on the occurrence, distribution or amount of macro- or microplastic within the Icelandic Economic Zone. With funding secured, data collection could be performed in collaboration between the industry, academia and research institutes in Iceland, and potentially serve as a marketing tool.

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## 4. TOURISM

In a 2018 survey, tourists were asked where they got the idea to visit Iceland. Of the respondents, 92% replied that Icelandic nature and natural phenomena influenced their decision to visit. When asked what it was about Icelandic nature that attracted them to the country, the most common answer was the unspoilt nature and the cleanliness of the country. Another study shows that a large majority of visitors are happy with their stay; they find the nature to be the most memorable part of their stay and would recommend visiting Iceland. It is therefore expected to be of the upmost importance for Iceland to maintain its image of unspoilt and pure nature in order to fulfil tourists' expectations and continue attracting foreign visitors.

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## 5. SUMMARY AND RECOMMENDATIONS

Two of the main industries in Iceland, the fishing industry and tourism, heavily depend on the bioeconomy, as well as the clean and pristine Icelandic environment. Economical risks due to visual plastic debris and macro-plastics pollution, as well as the unclear status of occurrence and quantity of microplastic, are estimated to be high due to increased environmental awareness of consumers, including tourists. The main driver of tourists visiting Iceland is for them to experience pristine environment. Thirty Icelandic municipalities experienced 15% population decline or more during the period 1994 – 2011, underpinning the importance of tourism, both in terms of economics (income) and socio-economics (job creation) for the rural development of Iceland. Maintaining tourism is therefore important and it is unclear how much impact debris could have on tourism development.

Studies of litter on beaches around the North Atlantic Ocean suggest that the fishing industry is a large source of marine plastic (Falk-Andersson & Strietman, 2019), therefore identifying the fishing industry an important target for preventative actions. Considering the environmental impact of marine related litter found on beaches and the potential economic impacts to the fishing industry itself, education and awareness raising within the fisheries industry should be one of the priorities in the near future. Successful implementation of preventive actions requires a good understanding of waste sources using expertise and know how to determine the best practice to solve the problem in the future.

The Icelandic system for recycling of fishing gear appears to be functioning well, but with room for improvement, particularly in terms of aligning all stakeholders within the waste management and recycling chain. After improvements and modification, this system could be used as a best-practice model for other fishing nations world-wide.

The Icelandic society has several environmental and industrial strengths useful in marketing within the seafood and tourism industry. There are potentials and there are risks. Following are issues important to focus on. For example, the Ministry for the Environment and Natural Resources established a working group focusing on mitigating plastic pollution in Iceland. The working group developed an action plan with 18 actions, those that are important for the fishing industry and tourism from the results of the working group are following:

<b>Action 3</b>	Establishment of a research and innovation fund for plastic issues.
<b>Action 8</b>	Strategic policy for agriculture, industry, seafood industry and tourism on reducing use of plastic.
<b>Action 13</b>	Comprehensive monitoring of plastic (macro, micro and nano) in the Icelandic biosphere.
<b>Action 14</b>	Better waste water treatment.
<b>Action 15</b>	Use of detention basins for road water.
<b>Action 17</b>	Cleaning Icelandic coastlines.
<b>Action 18</b>	Labelling of all fishing gear for better traceability.

## RECOMMENDED ACTIONS ARE AS FOLLOWS:

- Establish a research and monitoring system evaluating occurrence and trends of plastic debris and microplastic in the Icelandic marine environment. To evaluate the current status of plastic in the marine environment as well as evaluate the impact of actions taken, it is important to install this system, as stated in Action 13 above.
- To evaluate marketing options and value of advertising low and responsible plastic use in the tourism sector.
- To evaluate marketing options and value of advertising low and responsible plastic use in the seafood sector.
- To further reduce the discharge of waste to the sea by the Icelandic fishing fleet and seafood industry, it is important to improve education regarding environmental issues and recycling of waste material and to emphasise the topic to the curriculum of the School of navigation for marine captain and master of ships study programs.
- Evaluate and improve the recycling system of used fishing gear with e.g. better collection stations in harbours as well as establish incentives for the seafood industry to use environmentally friendly fishing gear.
- Evaluate and improve the recycling system of used fishing gear by improving cooperation between different actors within the whole value chain of recycling and waste management of fishing gear.
- After improvement of the Icelandic recycling system, it is important to share the experience and setup of the system of recycling fishing gear as best-practice with other Nordic and Arctic areas.
- Increase cooperation with international initiatives in plastic research, clean-up and citizen science and further support global efforts to mitigate plastic waste.
- To strengthen the citizen science and citizen initiative it is valuable to increase support to beach clean-up initiatives around the country.

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