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# Sustainable blue foods: drivers and barriers in northern Norway

9–11 minutes

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There is a push for transition to sustainable blue food systems in the High North. An interdisciplinary group of Fram Centre researchers have looked closer at the drivers motivating the transition and identified a set of barriers to sustainable blue food systems in northern Norway.

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*Photo: Paolo Cipriani / Institute of Marine Research*

The oceans and the seas are playing an increasingly important role in the transition to a sustainable food system. Blue foods refer to wild-caught or cultivated aquatic animals, plants and algae in freshwater and marine environments. Blue foods provide people with nutrition worldwide, are important for local culture, economies, and livelihoods, and can under certain circumstances provide an environmentally sustainable alternative to land-based food which tends to have a higher environmental footprint.

In the first year of the Fram Centre research programme “CoastShift” (2022–2026), researchers have identified some critical factors for the transition to sustainable blue food in northern Norway.

The factors were identified through synthesis of literature and contributions from key stakeholders such as representatives from fishery, aquaculture, oil and gas, green energy, agriculture, NGOs, business development, academia, and the public. The team identified 25 factors as driving the transition and 43 factors as barriers that need to be addressed to enable a sustainable transition. The factors were classified according to their political, economic, social, technological, legal, or environmental characteristics following the PESTLE framework. The research team then performed a cross-impact analysis to understand the potential links between the factors, and thereby each factor’s role and importance for a transition to sustainability.

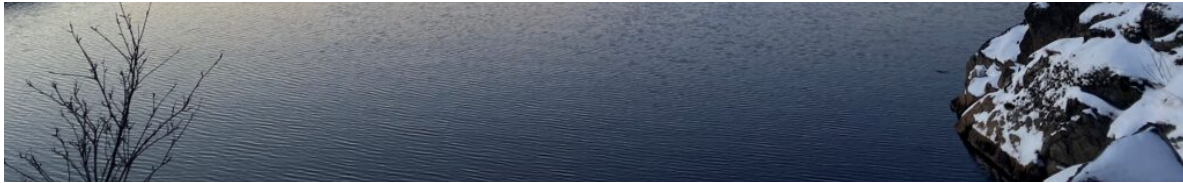
## **Drivers**

Multiple expert workshops with long and rich discussions were conducted to identify and rank critical factors driving the transition in northern Norway. The analysis reveals that the potential drivers are dominated by economic and social factors. The main drivers motivating change are (perhaps not surprisingly) attitudes to sustainability that are closely linked to knowledge and a willingness to engage in the transition.

This also includes the recognition of the value of healthy ecosystems: that conserving and restoring biological diversity is necessary for a resilient food system. Economic factors such as access to cheap and renewable energy and resource efficiency are influenced by such social factors and in part by involvement of responsible and conscientious politicians, who also share long-term, realistic political goals for society.

Other economic drivers include growing consumer demand for sustainable goods and services and shrinking demand for fossil fuel products. A transition to sustainable blue food is also seen as promising local value creation.





*Photo: Live Eva Kirkesæter / Institute of Marine Research*

## Barriers

Similar workshops were conducted to identify the critical factors challenging the transition to sustainable blue food. Again, we found social factors – such as lack of collaboration, lack of communication, and lack of common understanding between sectors and actors – to be among the most important barriers. In the Norwegian fossil fuel mindset, oil and gas play an important cultural and socioeconomic role which cannot easily be replaced. Moreover, many Norwegians have an economically negative perception of the transition.

Other important barriers to the blue food transition include: a weak and contradictory political governance; the policy paradox of Norway aiming to be a climate leader yet continuing to produce oil and gas; the lack of awareness about environmental change and emergency preparedness among the public at local and national levels; the focus of research and innovation on reducing the impact of the oil and gas industry rather than on sustainability; the lack of private and public funding for the transition; and the fragmented, insufficient nature of existing policies and legislation.





## DRIVERS and BARRIERS

Key factors driving and challenging the transition to sustainability.

Drivers are presented in green; barriers in red. “Activity”

demonstrates how much a factor impacts other factors, whereas

“passivity” demonstrates how much a factor is impacted by other

factors. Each factor is categorised as Political (P), Economic (E),

Social (S), Technological (T), Legal (L), or Environmental (En),

according to the PESTLE framework. Note that the scores for

barriers and drivers in this figure cannot be compared; however,

barrier scores can be compared with barrier scores and driver

scores with driver scores. This is because the analyses of drivers

and barriers were realised completely independent from each

other. Nonetheless, the results are displayed together here. Our

work identified a total of 68 factors – 25 drivers and 43 barriers.

The 22 factors presented here are those that scored highest in the cross-impact analysis and were selected for further analysis.

## What is next?

Sustainability is a concept that covers a broad range of domains, making it quite challenging to grasp. A transition to sustainability requires a change in the way we think of our lives, our economy and our production systems. The EU has developed a framework for classifying activities that can be considered as environmentally sustainable. This framework, called the EU taxonomy, could also have implications for the transition towards sustainable blue food systems in northern Norway.

The taxonomy relies upon six environmental objectives that are used to classify activities as sustainable: (i) climate mitigation; (ii) climate change adaptation; (iii) the sustainable use and protection of water and marine resources; (iv) the transition to a circular economy; (v) pollution prevention and control; and (vi) the protection and restoration of biodiversity and ecosystems.

A sustainable activity should contribute to at least one of these objectives without being harmful to any of the others. We are currently developing indicators to capture sustainable transition of blue food systems based on the EU taxonomy, but we are also recognising the diverse interpretations of the concept “sustainability” as illustrated by our stakeholders’ own definitions (see text box). Research to be continued!

## Two views of sustainability

Survey participant involved in aquaculture:

*Sustainability is all about environmental, economic, social and institutional (regulatory) sustainability. In order to achieve a*

*sustainable transition, all these aspects need to be taken into account and balanced. I would say that this is a sustainable society.*

*We need to look after the environment while also smoothing the way for profitable companies that provide a basis for employment. In this respect it is important that nature conservation is balanced in such a way that development in coastal areas is still possible. Too much conservation can hamper the development of coastal areas.*

*One key concept in this context is coexistence between different industries along the coast. In order to achieve a sustainable transition, dialogue and openness are also important, as well as having regulations and framework conditions that are perceived as fair.*

Survey participant from the public sector:

*Sustainable development is all about finding a balance between environmental, social and economic development. In light of the challenges currently facing us, we need to devote greater attention to the environmental aspects of this issue.*

*It is crucial that we do not degrade the ecosystem services provided by the ocean – perhaps we should be reinforcing them instead.*

*We have to acknowledge that the marine ecosystem is very complex and that our ocean management needs to be founded on a careful, precautionary approach. Harvesting needs to be done with care.*

## **CoastShift in brief**



fiskebåt i havet

CoastShift will develop and communicate relevant knowledge for a transition to a more sustainable food production system in light of other human activity. Specifically, we will:

- Develop a set of scenarios and define pathways to sustainable food systems in northern Norway (WP1)
- Analyse how selected new technologies and practices in north-Norwegian coastal food production can contribute to sustainable development, better coexistence, the circular economy, and a green shift (WP2)
- Assess the risk of negative effects on the terrestrial and marine ecosystems, based on cumulative human activities in the areas



today and from a future perspective (WP3)

- Analyse how management of the coastal zone, aquaculture and agriculture promotes and inhibits increased sustainability (WP4)
- Conduct an inclusive sustainability assessment of coastal municipalities in northern Norway using co-developed indicators of environmental, social, cultural, and economic sustainability. (WP5)