

Environmental pressures in Iceland's coastal waters

Location snapshot

Nested approach



- Marine region: Subpolar North Atlantic
- Local scale focus: Skjálfandi Bay (NE Iceland).
- Wider community context: Eyjafjörður and Grímsey region.
- Regional scale focus: the entire Icelandic Exclusive Economic Zone (EEZ).
- Example of seafloor topographies: fjords, canyons, ridges, moraines, iceberg scars, banks and troughs.

Key habitats



- Kelp forests
- Maerl beds
- Cold-water coral reefs and gardens
- Sponge aggregations

Key species



- Commercially important fish and invertebrates
- Seabirds
- Marine mammals



Stakeholder context

Coastal communities, small-scale and large-scale commercial fishers, national agencies, researchers.

Main pressures on the marine environment

1. Climate change & ocean warming:

Increasing water temperature and ocean acidification may affect marine organisms and habitats, including cold-water coral reefs, coral gardens, sponge aggregations, and maerl beds, with potential impacts on species distribution, growth, and reproduction.

2. Human activities:

Fishing causing selective extraction of species and habitat impact. Coastal development causing habitat disruption, ecosystem fragmentation, and aquaculture causing localised impacts on benthic habitats.

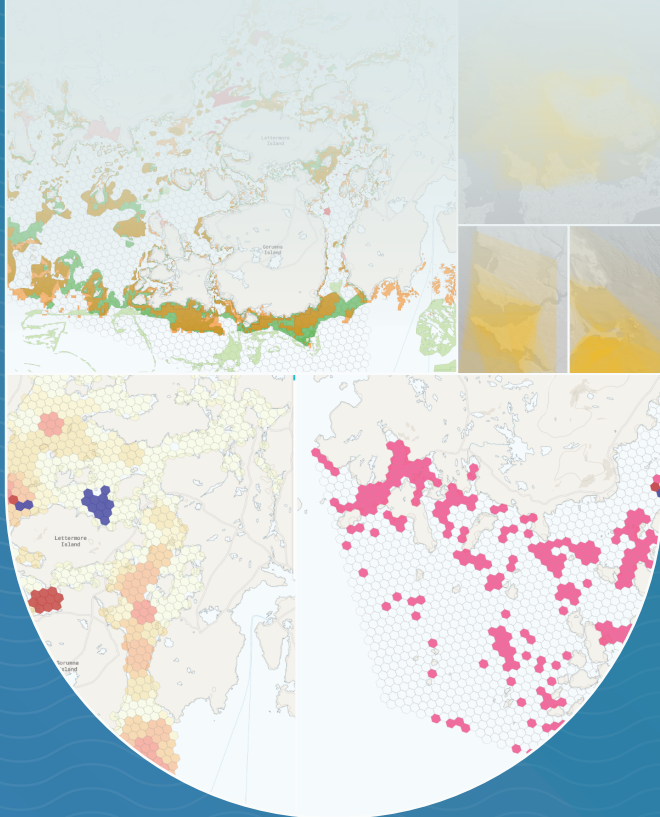
3. Knowledge gaps in biodiversity:

The extent and composition of nearshore and offshore habitats remain poorly studied. The status of benthic ecosystems is only monitored in selected locations.





The BioProtect solution in action



What BioProtect is doing here

- Enhance knowledge on the biodiversity of Icelandic waters, nearshore habitats and in deep seas.
- Identify priority areas for conservation using BioProtect co-developed tools.
- Test and develop tools for sustainable fishing and detecting invasive species.



Key project activities

- Enhancing biodiversity mapping through AI annotation of underwater imagery.
- eDNA sampling to monitor biodiversity and detect invasive species.
- eDNA sampling around Iceland with ultra-marathon swimmer Ross Edgley, during the Great Iceland Swim.
- Systematic conservation planning (SCP) to identify priority areas for conservation and restoration.
- Community engagement using PPGIS in local community, integrating their knowledge and values into marine spatial planning.
- Development of the BioProtect CO₂ calculator to estimate carbon emissions from fishing vessels, to promote sustainable fishing and reduce pollution.

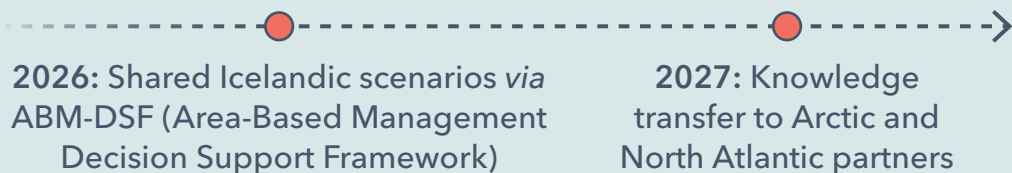


Expected impact

Enhanced biodiversity knowledge that supports:

- Protection and restoration of key habitats
- Sustainable management of human activities
- Early detection and management of invasive species
- Strengthened community engagement
- Implementation of Marine Spatial Planning
- Better overall understanding of those ecosystems, aiming towards climate resilience

What's next?



Learn more

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