

Project title: Winners and losers in the climate casino: Arctic marine resources under climate change

Duration: January 2021 - December 2025

Client: The Research Council of Norway

Project leader: Sturla F. Kvamsdal

Project description

As effective measures against climate change are not implemented, climate-related risk and uncertainty increases in more and larger parts of both environment and society. William Nordhaus has described the global development as The Climate Casino (Yale University Press, 2013). In the climate casino, some species and related economic activities will flourish with climate change, while others will suffer. But there is significant uncertainty with regard to who become winners and who become losers, both in nature and society. But as Nordhaus explain, in all likelihood, we as society will lose, as expected in a casino.

The main purpose of the project is to study climate change effects in various fisheries in Arctic and sub-Arctic waters. Among the fisheries we study are cod fisheries in both the Barents and Bering Seas, pelagic fisheries for herring and mackerel in the Nordic Seas, and crab fisheries in various places in the region. The fisheries are analyzed within a common, theoretic framework and we track main impacts of climate change through the natural and societal parts of the seas and the economic activities they support. Our interdisciplinary and comparative perspective builds on experiences from our case studies to identify common and case-specific challenges. Our results will increase the understanding of climate-related challenges for Arctic marine resources and support integrated ocean management.

The research project utilizes an extensive data material and builds upon several recent and on-going initiatives in Norway and abroad. The focus is especially on biological and economic productivity changes, resilience of ocean resource management systems, and international governance.

A successful project will contribute to the research front with regard to the interdisciplinary understanding of Arctic marine environments and fisheries. A key moment is a close and continuous collaboration between researchers from different disciplines who share a common perception the issues at hand. Further, the project relates to the UN Sustainable Development Goal 14 on life in the ocean, contributes to the ongoing UN Decade of Ocean Science for Sustainable Development, and aligns with Norwegian policy objectives regarding integrated ocean management.

The project is still in an early phase where we consider different scenarios of climate change impacts on Arctic marine resources to study. The project has also contributed to some early publications, including a study of warming scenarios and effects on the natural capital value of the Barents Sea cod stock, a report on climate effects and related risks in Norwegian ocean areas, and a study on robust approaches for managing risks and uncertainties regarding climate change impacts on polar marine ecosystems.