Up to NOK 53 million for research on utilisation and management of wild living marine resources

Research needs

Applicants can choose whether the application is aimed at Sustainable harvesting and value creation (VERDISKAPING) and/or Management and societal perspectives (SAMFUNN).

Detailed research needs for both VERDISKAPING and SAMFUNN are given the text below. Applicants must target their application towards at least one of these research needs.

Sustainable harvesting and value creation (VERDISKAPING)

It is important to strengthen the knowledge base for ecosystem-based management of fisheries and sustainable value creation from the harvesting of marine resources. The fisheries rely on renewable biological production and are thus fundamentally dependent on clean and healthy oceans and coastal areas. Enhancing sustainable value creation in the marine value chain will require more insight into the ramifications of different framework conditions, both formal and informal, under which the industry operates. In this context, knowledge about life-cycle approaches in the bioeconomy will be essential for fully utilising harvested marine resources. In the context of ecosystem-based fisheries management, socially optimal utilisation of joint marine resources will not necessarily coincide with economic profitability in the short term. MARINFORSKs activities in this area will be targeted towards research that can mitigate the harmful environmental impact of harvesting in addition to research on the scope and effects of such activities. Relevant themes within this research area include:

Harvesting levels

- cost-effective methods for mapping and monitoring marine resources, both commercially important stocks and resources with limited potential economic returns.
- further development of management strategies and rules for harvesting commercial stocks, in order to adapt fisheries to changes in climate and the marine environment, among other things. This necessitates research related to effects on multiple stocks and development of models based on socio-economic principles.
- the potential for and impact of harvesting species at lower trophic levels (such as copepods) and harvesting other, little-utilised species.

Environmental effects of harvesting, harvesting patterns and capture technology

- the impact of fisheries activities on marine ecosystems, habitats, species and stocks.
- how to refine technologies and methods to improve both product quality and species/size selectivity as well as reduce discards, unwanted bycatches, bycatch mortality rates and negative impacts on vulnerable benthic habitats.

- how to refine existing catch technologies and initiate future-oriented research on new, more environment-friendly catch technology. These technologies must also fulfil requirements relating to profitability, including catch- and energy-efficiency.
- the relationship between resource bases, regulations, harvesting methods and patterns, reception, industry, logistics, markets and overall value creation.
- possible negative impacts on the genetic makeup of fish stocks, and how this may affect optimal catch levels.
- development of methods for collecting, treating and distributing environmental and catch data from the fishing fleet.

Monitoring methodologies and resource control

- knowledge, technology and instruments for identifying species, quantities and size of individuals before and during catch operations.
- how to improve technology and methods for determining actual catch levels, measuring both quantity and species composition.
- technology and methods to facilitate more effective, risk-based resource control.

Ethical capture and killing methods

- the relationship between harvesting and fish welfare both from an ethical perspective and from the perspective of quality and value creation.
- knowledge, technology and methods for preventing the loss of nets and other fishing gear, which can continue killing fish long after being lost (a problem known as ghost fishing).

Processing and production

- how to promote innovation, value creation and higher profitability in the marine value chain by focusing on optimal, efficient resource utilisation that safeguards quality and shelf life.
- enabling full utilisation of harvested marine resources using a bioeconomy-based life-cycle approach.

Consumers and markets

- the markets for marine raw materials, with a focus on how social structures affect the industry actors, and on the interaction between social structures and industry actors.
- consumers' purchasing choices and consumption of products based on marine resources.
- the interaction between consumers, retailers and seafood producers.

Management and societal perspectives (SAMFUNN)

Achieving sustainable utilisation of marine resources requires knowledge- and ecosystem-based management with an integrated approach. Research activities within this thematic priority area should enhance understanding of which factors serve to facilitate or impede the management of marine resources. This may encompass studies of policy, national and international legislation, strategies, policy instruments, agreements, barriers and opportunities, attitudes and behaviour, gender perspectives and the capacity of society to design and implement change. One central issue is global change processes, e.g. changes in climate and population that lead to changes in demand for biological, chemical and geological resources. These pose challenges to effective management within and between sectors, both nationally and internationally. A better understanding of these issues is critical for sustainable blue growth. These are multi- and interdisciplinary challenges that require insight from the natural sciences and social sciences alike. Relevant themes within this research area include:

Marine ecosystem services

- the scope and value of marine ecosystem services.
- how to balance different ecosystem services and the management-relevant knowledge needed to do this.
- the extent and development of recreational and tourism fishing.

Management of marine and coastal waters

- mechanisms and obstacles for integrated use of land and sea area and other resources under management today.
- interactions between and impact of various interest groups.
- development of models to resolve disputes about use of coastal land and sea area.

Management challenges in light of climate and environmental change

- societal processes that have an impact on the design of management tools, including knowledge about the relationship between research and policy design.
- existing management tools, including whether they function as intended.
- the Law of the Sea with respect to safeguarding national rights in an international perspective.

Ecosystem-based management

- development of robust, sustainable, productive strategies for management of marine ecosystems, including strategies that take into account that marine systems are in a state of flux and are changing.
- further development of indicators along with associated threshold limits and reference values.

- development of methods for expressing combined environmental effects in ocean and coastal areas.
- development of new, cost-effective methods for mapping and monitoring marine biodiversity.

Food safety and nutrition

- food safety and correlations between human health and the consumption of seafood and other marine raw ingredients.
- societal processes that have an impact on the design of management tools related to food safety and nutrition, including knowledge about the relationship between research and policy design.