

# Ocean Decade – Arctic Action Plan

## ANNEX C

Documents about the process, guidance,  
participants etc.



# C1: NON-PAPER - scope of the process and the alignment between the Ocean Decade's societal goals international policies and initiatives in the Arctic. Developed by the Task Force as a scoping document for the working groups who were active in autumn of 2020.

## Introduction

A key ambition of the United Nations Decade of Ocean Science for Sustainable Development (Ocean Decade) is to harvest the potential of modern science and technology to bring about the transformation in marine governance that is needed to transition from the ocean we have to the ocean we want. This development depends on both overcoming specific research and innovation challenges, and the accelerated implementation of existing policies supporting sustainable management of resources and societal development. This translates into calls for actions and participation across borders and sectors at local, regional and global levels. The Ocean Decade Action Framework (below) illustrates this goal.



The Arctic region is closely interlinked with its marine environment, and it is currently experiencing dramatic change. This change is impacting local communities and ecosystems but also has regional and global implications. It is therefore important to align efforts towards a coordinated regional Action Plan to leverage the maximum benefit from the momentum of the global process.

The content of the Action Plan should address three levels of activities, which are mutually interlinked and thus dependent on each other:

- Knowledge generation driven by research and observations
- Policy development implementing the new insights into societal action
- Innovation providing society (industry, government, public) with the means and arenas to operate within agreed policies and targets

## Purpose of the non-paper

This short non-paper (i.e. an unofficial paper to inform discussions) was prepared by the Arctic Ocean Task Force to support the seven working groups that will draft the input to the final plan. The development of the final Action Plan should be inspired by and recognize existing frameworks and activities. It should also strive to demonstrate the connection between drivers from industry, the general public, policymakers, Arctic residents and scientific stakeholders and the specific "Arctic challenges" and potential solutions (i.e. the proposed actions).

Working groups are therefore encouraged to use this non-paper as a starting point for developing discussions, including policies that might be more easily implemented or instituted if certain action(s) are performed.

## Spatial scoping

The Task Force suggests using the delineation of the Arctic marine area used in the “Agreement on enhancing International Arctic Scientific Cooperation” (map to the right) as a suitable spatial demarcation in relation to topics and policies to consider in the drafting of the action plan. This delineation is different from the International Maritime Organization’s (IMO) demarcation of “Arctic Waters”, which e.g. does not cover the areas around Iceland, as well as other definitions of the Arctic including that used by the Arctic Monitoring and Assessment Program (AMAP).



It is also important to note that several nations outside the area are operators of regional or international observation, research and innovation programmes that are highly relevant to the Ocean Decade process.

## Overview of international environmental and research policies relevant to the Arctic

The Arctic Ocean nations are all to different degrees parties in both international and regional agreements that cover the Arctic Ocean area. The table below presents the Task Force's mapping of key policies (inspired by [Arctic Portal](#)) and their likely overlap with the O. Decade societal outcomes that are also consistent with working groups.

International policies* and policy targets relevant to the Arctic Ocean and it's nations	Arctic Ocean nations							Likely overlap with ambitions in Decade societal outcomes							
	Canada	Kg. of Denmark Greenland	Farøese Is.	Finland	Iceland	Norway	Russia	U.S.A	1 Clean	2 Healthy	3 Productive	4 Predicted	5 Safe	6 Accessible	7 Inspiring
UN Sustainable Development Goals <b>SDG's</b>															
UN Convention on the law of the Sea <b>UNCLOS</b>															
UNCLOS Instrument: Marine Biodiversity of Areas Beyond National Jurisdiction ( <b>BBNJ</b> ) – In prep															
International Convention for the Regulation of Whaling <b>IWC</b>															
UN Fish Stocks Convention															
Convention on international trade in endangered species <b>CITES</b>															
UN Convention on Biological Diversity <b>CBD</b>															
Agreement on the Conservation of Polar Bears															
Convention on Environmental Impact assessment in a transboundary Context <b>Espoo convention</b>															
Agreement to prevent Unregulated High Seas Fisheries in the Central Arctic Ocean															
UN Framework Convention on Climate Change (i.e. Paris A.) <b>UNFCCC</b>								Withdrawal pending							
UN Stockholm Convention on Persistent Organic Pollutants															
Convention on the Long-range Transboundary Air Pollution, Geneva															
UNEP Minimatna Convention on Mercury															
Int. Convention for the Control and Management of Ship's Ballast Water and Sediments															
<b>Arctic Council agreements</b>															
Agreement on Cooperation on Aeronautics and Maritime Search and Rescue in the Arctic SAR or Arctic Search and Rescue Agreement															
Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic															
Agreement on Enhancing International Arctic Scientific Cooperation															
<b>Non convention frameworks</b>															
Sendai Framework															

Green = Parties which have ratified the policy

Yellow = Parties which have signed but not ratified the policy

Red = Not parties to the treaty



## **Funding of research, observation programmes and innovation**

Most activities in the Arctic marine area, be they industrial, governmental, public or scientific, depend highly on an array of supporting services and enabling technologies. This includes the availability of chartered sailing routes, weather and ice forecasts, echo sounders, GPS-transmitters and communications. Large-scale international investments for example in space-based satellite systems, are an excellent example of how coordinated international investments in innovation can support a large range of Arctic activities and further initiate local innovation and regional societal development.

This development would not have been possible without considerable long term financial investment such as undertaken for satellite-based earth observation and communication programs. The challenge now is to identify and strengthen other existing innovative research and observation programs, including those that are earth-surface based. One consideration for the actions to consider is therefore where likely funding could be obtained.

## **C2: Guidance on the interpretation of the Ocean Decade societal outcomes - and the working groups**

### **Working group 1:**

#### **How to achieve - A clean ocean where sources of pollution are identified, reduced or removed**

Chairs:

- Colin Moffat – Scottish Government (UK)
- Toril Inga Røe Utvik - Equinor (Norway)

#### ***Ocean Decade definition of the societal outcome:***

Society generates a vast range of pollutants and contaminants including marine debris, plastic, nutrients, underwater noise, pharmaceutical pollutants and heavy metals. These pollutants and contaminants derive from a wide variety of land and sea-based sources, including point and non-point sources. The resulting pollution is unsustainable for the ocean and jeopardises ecosystems, human health, and livelihoods. It will be critical to generate interdisciplinary and co-produced knowledge on the causes and sources of pollution and its effects on ecosystems and human health. This knowledge will underpin solutions co-designed by multiple stakeholders to eliminate pollution at the source, mitigate harmful activities, remove pollutants from the ocean, and support the transition of society into a circular economy.

Examples of potential issues and actions to be discussed by working groups based on the Task Force's interpretation of the outcome.

#### **Challenge**

- Sustained international coordinated pollution source and distribution mapping
- Characterising new threats to Arctic marine ecosystems and the risk to environment and humans of current and future arctic marine pollution
- Ensuring the necessary local cooperation across the Arctic

#### **Actions**

- Advance the categorisation of relevant pollutants in the Arctic
- Increased international coordination of sustained mapping and reporting efforts

- Regionally coordinated action plans to manage pollution sources
- Active involvement of local communities

### **Working group 2:**

#### **How to achieve - A healthy and resilient ocean where marine ecosystems are understood and managed**

Chairs:

- Brendan Kelly - University of Alaska Fairbanks (USA)
- Katherine Richardson - University of Copenhagen (Denmark)

#### ***Ocean Decade definition of the societal outcome:***

Degradation of marine ecosystems is accelerating due to unsustainable activities on land and in the ocean. To sustainably manage, protect or restore marine and coastal ecosystems, knowledge of these ecosystems, and their reactions to multiple stressors, needs to be enhanced. This is particularly true where multiple human stressors interact with climate change, including acidification and temperature increase. Such knowledge is critical to developing tools to implement management frameworks that build resilience and avoid ecological tipping points, and thus ensure ecosystem functioning and continued delivery of ecosystem services for the health and wellbeing of society and the planet as a whole.

Examples of potential issues and actions to be discussed by working groups based on the Task Force's interpretation of the outcome.

#### Challenge

- Understand the effects of multiple stressors on arctic marine ecosystems
- Understand what solutions will be best to protect, monitor, manage and restore ecosystems and their biodiversity
- Ensuring that progress also benefits local Arctic communities

#### Actions

- Identification of the key stressors at key locations, their temporal variability and their source(s)
- Study of the impacts on biodiversity and function, resulting from exposure to multiple stressors
- Improved understanding of the impacts of multiple stressors on marine ecosystem services, in particular climate change
- Development of marine spatial planning initiatives, marine protected areas and ecosystem-based management practices towards good Arctic ocean stewardship
- Initiate internationally coordinated habitat restoration or protection initiatives.
- Identification of the state, functioning and value of Arctic marine geosystems, including diversity and heritage in relation to designation of marine protected areas

### **Working group 3:**

#### **How to achieve - A productive ocean supporting sustainable food supply and a sustainable ocean economy.**

Chairs:

- Anne Christine Brusendorff - ICES (International)
- Henry Huntington – The Ocean Conservancy (USA)

#### ***Ocean Decade definition of the societal outcome:***

The ocean will be a foundation for future global economic development and human wellbeing, including assuring food security and secure livelihoods for hundreds of millions of the world's poorest people. Knowledge and tools to support the recovery of wild fish stocks, deploy sustainable fisheries practices, and support the sustainable expansion of aquaculture, while protecting essential biodiversity and ecosystems, will be essential. The ocean also provides critical goods and services to a wide range of established and emerging industries including extractive industries, energy, tourism, transport and pharmaceutical industries. Each of these sectors has specific needs in terms of increased knowledge, and support to innovation, technological development and decision support tools to minimise risk, avoid lasting harm, and optimise their contribution to the development of a sustainable ocean economy.

Examples of potential issues and actions to be discussed by working groups based on the Task Force's interpretation of the outcome.

#### Challenge

- Predicting the potential future opportunities for a sustainable blue Arctic economy
- Ensuring that progress also benefits local Arctic communities
- Ensure long-term food security in the Arctic
- Developing a model for sustainable management of marine resources, which is supported by local stakeholders
- Future needs for marine-geological resources that are essential for a sustainable economic development, e.g. quartz sand, critical minerals such as REE's

#### Action

- Assess current and future exploitation potential of wild fish/seafood stocks and aquaculture in the Arctic
- Identify main challenges and solutions for increasing or managing different types of sustainable tourism, offshore renewable energy or extractive industries
- Development of geodiversity variables and operational indicators to assess the pressure impact on Arctic marine geosystems and ecosystems, and to support sustainable planning and management of resources

### **Working group 4:**

#### **How to achieve - A predicted ocean where society understands and can respond to changing ocean conditions**

Chairs:

- Sandy Starkweather - NOAA (USA)
- Mark Payne – Technical University of Denmark (Denmark)



### ***Ocean Decade definition of the societal outcome:***

The vast volume of the ocean is neither adequately mapped or observed, nor is it fully understood. Exploration and understanding of the changing ocean including its physical, chemical and biological components and interactions with the atmosphere and cryosphere is essential, particularly under a changing climate. Such knowledge is required from the land-sea interface along the world's coasts to the open ocean, and from the surface to the deep ocean seabed. It needs to include past, current and future ocean conditions. More relevant and integrated understanding and ultimately prediction of ocean ecosystems and their responses and interactions will underpin the implementation of ocean management that is dynamic and adaptive to a changing environment and changing uses of the ocean.

Examples of potential issues and actions to be discussed by working groups based on the Task Force's interpretation of the outcome.

#### Challenge

- The Arctic marine environment is inadequately mapped, observed, and poorly understood
- Climate change impacts on established and emerging maritime industries
- Enabling Arctic local communities to respond adequately to increasing levels of ecosystem change

#### Action

- Establish commitment for and develop a coordinated sustained Arctic marine observation program encompassing biotic, abiotic, industrial and socio-economic parameters
- Strengthen capacity for prediction of arctic marine ecosystems and their responses and interactions
- Develop processes inclusive of Indigenous knowledge and highly local needs
- Identifying the potential impacts of Arctic change on established and emerging maritime industries and how to address them, e.g. opening of new Arctic shipping routes

### **Working group 5:**

#### **How to achieve - A safe ocean where life and livelihoods are protected from ocean-related hazards**

Chairs:

- Matthew Owen – Geological Survey of Denmark and Greenland (Denmark)
- Lena Holm Saxtoft - SKULD (Denmark)

### ***Ocean Decade definition of the societal outcome:***

Both geophysical and human induced hazards create devastating, cascading and unsustainable impacts for coastal communities, ecosystems, and economies. The changing frequency and/or intensity of weather- and climate-related hazards is exacerbating these risks. Mechanisms and processes for assessing the risk, mitigating, forecasting and warning of these hazards and formulating adaptive responses are required to reduce short- and longer-term risks on land and at sea. Higher density ocean data and improved forecast systems—including those related to sea level, marine weather and climate are needed from near real time through decadal scales. When these enhancements are linked to education, outreach, and communication, they will empower policy and decision-making and mainstream individual and community resilience.

Examples of potential issues and actions to be discussed by working groups based on the Task Force's interpretation of the outcome.

#### Challenge

- To identify and quantify current and future threats to coastal Arctic communities, and develop mitigation and forecasting approaches
- Ensuring safe shipping in increasingly ice free waters

#### Action

- Establish the need for coordinated early warning systems for marine, incl. geo-hazards
- Development of a coordinated Arctic Ocean Observation System, covering key societal, environmental and industrial priorities
- Understanding present gaps and needs in shipping safety and SAR coverage

#### **Working group 6:**

#### **How to achieve - An accessible ocean with open and equitable access to data, information and technology and innovation.**

Chairs:

- Nicole Biebow – Alfred Wegener Institute (Germany)
- Molly McCammon – Alaska Ocean Observing System (USA)

#### ***Ocean Decade definition of the societal outcome:***

Inequalities in ocean science capacity and capabilities need to be eradicated through simultaneously improving access to data, knowledge, and technology, and by increasing skills and opportunities to engage in data collection, knowledge generation and technological development. Increased dissemination of relevant ocean knowledge to the scientific community, governments, business and industry, and the public through relevant and accessible products will improve management, innovation and decision-making contributing to societal goals of sustainable development.

Examples of potential issues and actions to be discussed by working groups based on the Task Force's interpretation of the outcome.

#### Challenge

- To optimise transnational sharing of data and infrastructure relevant for Arctic marine communities, research and development
- Development of enabling technologies capable of being used consistently in Arctic environments
- To ensure access to data, information and products across wide range of internet and bandwidth capacity

#### Action

- Identification of key data, with high demand across sectors
- Development of a system for a higher degree of open access to Arctic data and infrastructure and sharing of best practices
- Partnerships on the development of key high demand technology needed in the Arctic for the Blue Economy

- Development of a system capable of disseminating data products identified as key priorities in other working groups, including those of an integrated Arctic Observing System

### **Working group 7:**

#### **How to achieve - An inspiring and engaging ocean where society understands and values the ocean in relation to human wellbeing and sustainable development.**

Chairs:

- Raychelle Danielle – Pew trust (USA)
- Gunn-Britt Retter – Saami Council (Norway)

#### ***Ocean Decade definition of the societal outcome:***

In order to incite behaviour change and ensure the effectiveness of solutions developed under the Decade there needs to be a step change in society's relationship with the ocean. This can be achieved through ocean literacy approaches and other public awareness and education tools that will build a significantly broader understanding of the economic, social, and cultural values of the ocean and the plurality of roles that it plays to underpin health, wellbeing and sustainable development. This outcome will highlight the ocean as a place of wonder and inspiration, thus also influencing the next generation of scientists, policy makers, government officials, managers and innovators

Examples of potential issues and actions to be discussed by working groups based on the Task Force's interpretation of the outcome.

#### Challenge

- Recognition of the importance of the role of the marine ecosystems as basis for sustainable development in the Arctic
- Ensuring increasing capacity building among Arctic Indigenous and Local People and stakeholders working in the Arctic Blue Economy

#### Action

- Facilitate the integration and recognition of Indigenous knowledge across all themes of the Arctic Action plan
- Efforts on Arctic capacity building (ocean education) and resource-sharing between countries and communities
- Development of an Arctic regional cooperation on ocean literacy approaches, including of strategies for contributions to global ocean literacy initiatives that focus on the long range effects of Arctic change
- Development of global outreach initiatives on improving understanding of the economic, social, and cultural values of the ocean and the roles that it plays to underpin health, wellbeing and sustainable development
- Recognizing the importance of shared logistical platforms and building international collaboration to meet the challenges of working in the Arctic

[www.oceandecade.dk/decade-actions](http://www.oceandecade.dk/decade-actions)

*Danish  
Center for  
Marine Research*



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**2030** of Ocean Science  
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