

# National Implementation Plan for the UN Decade of Ocean Science

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# National Implementation Plan for the UN Decade of Ocean Science

Prime Minister's Office Helsinki 2022

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**2021** United Nations Decade  
**2030** of Ocean Science  
for Sustainable Development

Prime Minister's Office  
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## National Implementation Plan for the UN Decade of Ocean Science

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**Abstract**

The UN General Assembly took the decision on the UN Decade of Ocean Science for Sustainable Development 2021–2030 in 2017. The aim is to support marine research in the implementation of the Sustainable Development Goals. The task of the steering group appointed by the Prime Minister's Office on 2 June 2021 was to draw up a proposal for the UN Decade of Ocean Science for Sustainable Development in Finland and to coordinate its implementation.

The implementation of the Decade of Ocean Science is based on the Government Resolution on Finland's Maritime Policy Guidelines of 2019. The proposal for the implementation of the decade in Finland is based on the policy guidelines and the Government Resolution on Finland's Maritime Policy Action Plan of 2022. The Implementation Plan for the Decade of Ocean Science follows the priorities of the global Implementation Plan and takes into account the development needs and trends in the research on and sustainable development of both the Baltic Sea and oceans. The plan promotes the implementation of the Sustainable Development Goals and the incorporation of marine information even more broadly in the discussion and decision-making in society.

**Keywords** UN Decade of Ocean Science, climate change, marine production, marine information, marine research, seas and oceans, marine protection, state of the environment, shipping, maritime safety, sustainable development

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## YK:n merentutkimuksen vuosikymmenen kansallinen toimeenpanosuunnitelma

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### Valtioneuvoston kanslian julkaisuja 2022:19

<b>Julkaisija</b>	Valtioneuvoston kanslia		
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### Tiivistelmä

YK:n yleiskokous päätti vuonna 2017 kestävästä kehityksestä tukevasta YK:n merentutkimuksen vuosikymmenestä 2021-2030 tukeakseen merentutkimusta kestävästä kehityksestä tavoitteiden toteuttamisessa. Valtioneuvoston kanslia asetti 2.6.2021 ohjausryhmän, jonka tehtävänä oli laatia ehdotus kestävästä kehityksestä tukevasta YK:n merentutkimuksen vuosikymmenestä (2021-2030) Suomessa ja koordinoita sen toteuttamista.

Merentutkimuksen vuosikymmenen toimeenpano perustuu vuonna 2019 tehtyyn valtioneuvoston periaatepäätökseen meripolitiikan linjauksista. Ehdotus vuosikymmenen toteuttamisesta Suomessa laadittiin linjausten ja Suomen meripolitiikan toimenpideohjelmasta vuonna 2022 tehdyn valtioneuvoston periaatepäätöksen pohjalta. Merentutkimuksen vuosikymmenen toimeenpanosuunnitelma noudattaa maailmanlaajuisen toimeenpanosuunnitelman painopistealueita ja huomioi sekä Itämeren että valtamerien tutkimuksen ja kestävästä käytön kehitystarpeet ja suunnat. Suunnitelma edistää kestävästä kehityksestä tavoitteiden toteuttamista ja meritiedon saattamista entistä laajemmin osaksi yhteiskunnallista keskustelua ja päätöksentekoa.

**Asiasanat** merentutkimus, meret, meriensuojelu, ympäristön tila, merenkulku, meriturvallisuus, kestävä kehitys, YK:n merentutkimuksen vuosikymmen, ilmastonmuutos, merellinen tuotanto, meritieto

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## Nationell genomförandeplan för FN:s årtionde för havsforskning

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### Referat

FN:s generalförsamling beslutade 2017 att FN ska ha ett årtionde för havsforskning 2021–2030 för att stödja havsforskningen inom genomförandet av målen för hållbar utveckling. Statsrådets kansli tillsatte den 2 juni 2021 en styrgrupp med uppgift att utarbeta ett förslag till FN:s årtionde (2021–2030) för havsforskning som stöder hållbar utveckling i Finland och samordna genomförandet av det.

Verkställandet av årtiondet för havsforskning är baserat på statsrådets principbeslut om riktlinjer för havspolitik som fattades 2019. Förslaget om att verkställa årtiondet i Finland utarbetades utifrån riktlinjerna och statsrådets principbeslut om Finlands åtgärdsprogram för havspolitik 2022. Verktällighetsplanen för årtiondet för havsforskning följer de prioriterade områdena i den globala verktällighetsplanen och beaktar både Östersjöforsningen och forskningen om världshaven och olika utvecklingsbehov och riktningar inom hållbart utnyttjande. Planen främjar uppnåendet av målen för hållbar utveckling och integreringen av havskunskap i samhällsdebatten och i beslutsfattandet större utsträckning.

**Nyckelord** FN:s årtionde för havsforskning, klimatförändringen, marin produktion, havskunskap, havsforskning, hav, havsskydd, miljöns tillstånd, sjöfart, sjösäkerhet, hållbar utveckling

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## INTRODUCTION



The ocean sustains life on Earth and covers most of the planet's surface. It provides ecosystem services and directly or indirectly support livelihoods, wellbeing and the stability of societies. The ocean connects the planet and reaches all the way to the Finnish coasts as the Baltic Sea.

The impact of human activities extends everywhere in the ocean, and increasing attention has been paid to the global degradation of the ocean. Threats to the ocean include acidification, rising sea water temperatures and melting sea ice caused by global warming, loss of biodiversity, invasive species, pollution by nutrients, chemical substances, plastic debris and microplastics, and underwater noise. The state of the Baltic Sea is particularly affected by eutrophication caused by excessive nitrogen and phosphorus inputs, and nutrient loads are expected to increase as a result of climate change.

The ocean is still the least known and least understood of the planet's extensive natural systems. The protection of the marine environment and the sustainable use of marine resources require monitoring of the state of the ocean, research and up-to-date data and information on the ocean, and the use of this information in decision-making. It is important to improve the availability and usability of ocean data and information, to strengthen the ocean economy and to increase understanding of the ocean in societies.

The UN General Assembly declared 2021–2030 the Decade of Ocean Science for Sustainable Development (Ocean Decade) after an initiative from the Intergovernmental Oceanographic Commission of UNESCO (IOC) in 2016. The goal of the Ocean Decade is to enhance and improve the availability and use of ocean data and information to promote sustainable development. The overarching objective of the Ocean Decade is “the Science we need for the Ocean we want”.



The goal of the implementation of the Ocean Decade is to improve the state of the ocean and management towards that goal. The objectives and implementation must be ambitious and exceed the current level. The aim is to change the meaning of ocean knowledge in society and the visibility, comprehensibility and use of ocean knowledge.

The Ocean Decade is also guided by UN's 2030 Agenda for Sustainable Development. In particular, Sustainable Development Goal (SDG) 14, "Conserve and sustainably use the oceans, seas and marine resources for sustainable development", has ten targets in the context of the Ocean Decade's activities, but the Ocean Decade also supports the implementation of nine other SDGs.

Achieving sustainable marine development requires better production and availability of ocean data and information in UN member states. This requires cooperation in research, between public administrations, civil society and businesses. The Ocean Decade brings together different fields of science and sectors of society, inviting actors to solve the problems of the marine environment together and to produce new ocean knowledge for the benefit of sustainable development and societies.

The Ocean Decade is coordinated by UNESCO and its Intergovernmental Oceanographic Commission (IOC). The IOC adopts national actions as part of the global programme on the basis of twice-yearly reporting. The IOC does not finance actions but brings them together to promote synergies, cooperation, communication and visibility. The implementation of the programme is carried out in the national work of the UN member states and is the responsibility of the marine research community of each member state. National work is guided and coordinated by specially appointed national committees. In Finland, the implementation of the Ocean Decade is initiated and directed by a steering group appointed by the Prime Minister's Office with a term from 2 June 2021 to 31 December 2022. The steering group includes representatives from Finland's key research institutes and universities producing ocean knowledge and from the directing ministries and research funders. This plan has been produced by the steering group. The steering group has served as the national committee of the Ocean Decade since autumn 2021.

The plan describes the priorities and main features of the national implementation of the Ocean Decade. The structure of the plan is in line with the seven outcomes of the Ocean Decade. The plan will be supplemented by concrete milestones or objectives, monitoring, timetables and the designation of responsible parties. The Ocean Decade's actions may include research cooperation, programmes, projects, events or other measures to contribute to the global implementation of the Ocean Decade.

The focus of the Ocean Decade activities in Finland is on data and information on the Baltic Sea, but research on the oceans is also included, in line with Finland's Maritime Policy Guidelines (2019) and the Action Plan for Maritime Policy (2022). Regional cooperation is conducted in particular with the Nordic countries and the countries bordering the Baltic Sea.

Finnish marine research has been found to be of high quality and productive in a UNESCO report (GOSR 2022). Research is conducted by state research institutes and several universities. However, marine research in Finland is a small field that employs some 200 people. For this reason, marine research has been strengthened through cooperation. Examples of such cooperation include the Finnish Marine Research Infrastructure FINMARI and the MarineFinland.fi portal, which provides information and data for the general public and professionals. A number of institutions also jointly conduct large-scale research projects. The maintenance and development of marine research infrastructure, including the continuity of research vessel activities, is key to safeguarding the production of marine research and ocean knowledge during and after the Ocean Decade. The national implementation of the Ocean Decade brings together scientists and decision-makers in new ways. The aim is to also involve other actors in society, such as non-governmental organisations and industry, during the Ocean Decade.

As part of the implementation of this programme, Finland's national strategy for maritime research, drawn up in 2011, will also be updated. The update of the strategy for maritime research will address in more detail the implementation of the research activities of this action plan..

# 1 National Implementation Plan for the UN Decade of Ocean Science

## 1.1 Objectives of the national implementation plan

The overarching objective of the Ocean Decade is to produce ocean knowledge that will contribute to a lasting solution to the challenges of the marine environment and the sustainable use of the ocean. The objectives are to identify the required knowledge needed to support sustainable development, to strengthen research and a comprehensive knowledge base about the ocean, as well as to increase the use of ocean knowledge in societal decision-making and activities. The overall objective is divided into seven outcomes, and their actions may vary in scope and form, for example programmes, projects or events.

The global coverage and availability of ocean knowledge will be promoted through the development of observation systems, information systems and models. Strengthening technology and generating comprehensive knowledge and understanding of the ocean in societies is part of the package. Research data can be used to reduce marine pollution and loss of nature, to support food security and to promote adaptation to and preparedness for climate change and natural disasters. New human-induced threats to the marine environment and the sustainable use of the ocean can also be identified and managed with the help of new scientific knowledge. Impact studies examine the mechanisms of change ranging from organisms to the systemic functioning of society. Models can be used to anticipate future developments. Long-term monitoring can be used to verify the impact of human activities on the ocean and to steer actions and investments aimed at good environmental status in the right direction.

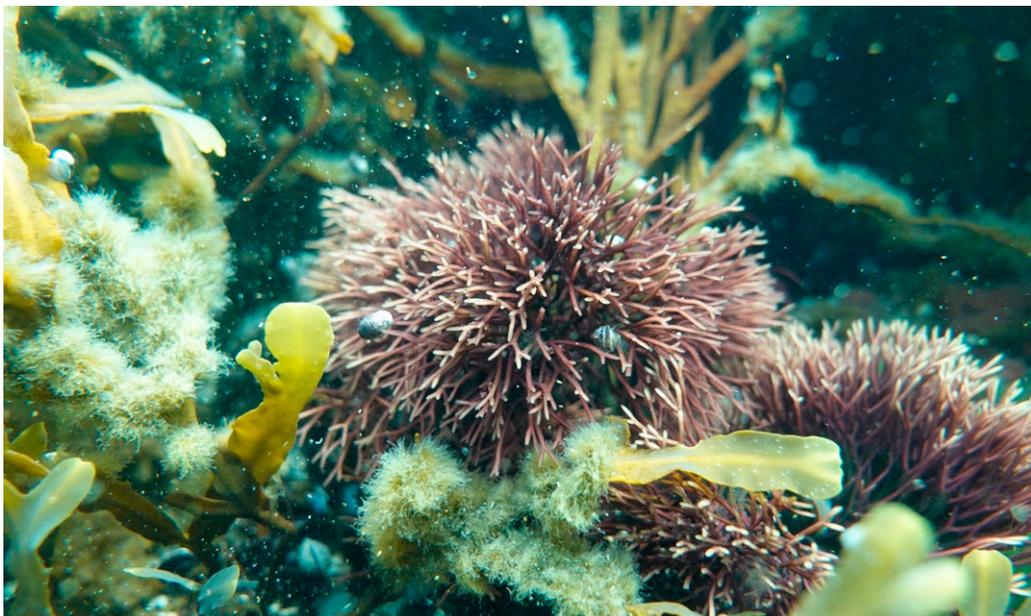
The Baltic Sea is part of the global ocean and an important local sea for us. However, it is under threat from intense human-induced stressors, both in the river basin and at sea. The progressive climate change in the Baltic Sea will change the rainfall, runoff and seasonality and reduce the ice cover of the Baltic Sea in the coming decades. Rapid environmental change has a wide impact on the Baltic Sea ecosystem and its processes, emphasising the need for up-to-date and future-orientated ocean data and information.

The development of marine research, knowledge and understanding of the Baltic Sea and regional cooperation with the Baltic Sea countries are a key part of the plan. The national implementation of the Ocean Decade will also be harmonised and coordinated with the other Nordic countries. International networking of Finnish marine research expertise and cooperation to strengthen it are also important.

## 1.2 Objectives and actions of the national implementation plan

The seven target areas of the plan presented below correspond to the outcomes of the International Implementation Plan of the UN Decade of Ocean Science, which aims to fulfil the Ocean Decade vision: “the Science we need for the Ocean we want”.

### 1. A clean ocean where sources of pollution are identified and reduced or removed



Excessive nutrients, harmful substances and litter end up into the marine environment, and human activity also causes physical disturbance, such as noise and decreasing water transparency. Pollution not only threatens the health of marine and coastal ecosystems, but also harms livelihoods and the value of the marine environment for people. Pollution prevention has long been a priority for marine protection in Finland and the Baltic Sea region as a whole, but there is still much work to be done. The green transition and sustainability upheavals can pose new challenges to pollution containment and control. Wars, crises and terrorism also have direct and indirect impacts on stressors on the marine environment in unforeseen ways..

**Actions:**

- 1.1. Develop domestic marine research, taking into account regionally identified information needs (in relation to the 'healthy and resilient ocean' theme) and regional cooperation (HELCOM Science Agenda/BSAP/BANOS SRIA).
  
- 1.2 Strengthen the link between research and decision-making through enhanced and properly targeted communication of research results and monitoring of the effectiveness of research knowledge.
  
- 1.3. Propose the establishment of a national Baltic Sea panel.

## 2. A healthy and resilient ocean where marine ecosystems are understood, protected, restored and managed



The health of marine ecosystems is threatened by the direct and indirect impacts of human activities both on land and at sea. The sustainable use, protection and management of marine and coastal ecosystems require the production of comprehensive information on these ecosystems. The cumulative effects of the multiple stressors induced by human activity and wide-ranging environmental changes, and climate change in particular, must be taken into account in the development of management. Healthy, resilient and functional marine ecosystems are also capable of providing vital ecosystem services for society and people.

### **Actions:**

- 2.1. Promote research on the health and diversity of marine and coastal ecosystems, in particular in relation to climate change and sustainable use, as well as for information needed for management and protection.
  
- 2.2. Ensure adequate monitoring of the diversity of marine and coastal ecosystems and develop it to support the conditions for sustainable development and the effectiveness of conservation.

2.3. Support the acceptability of marine environmental and climate policy-making through accessible communication of research knowledge to decision-makers and citizens, in particular in relation to the impacts of climate change and human activities and their interdependencies.

2.4. Promote research into the restoration and rehabilitation of marine habitats and ecological compensation.

### 3. A productive ocean supporting sustainable food supply and a sustainable ocean economy



The ocean is of great importance for the global economy, human wellbeing and food production, and that importance is predicted to grow significantly in the future. However, the growth of the ocean economy must be sustainable. The exploitation of fish stocks in the ocean and the Baltic Sea must be based on sustainable use, the environmental impact of fishing methods must be reduced if necessary, and research aimed at reducing the environmental impact of aquaculture must be promoted. At the same time, all actions must contribute to the protection and restoration of biodiversity and different ecosystems.

The ocean offers opportunities not only for fishing but also for other economic activities and new forms of activity. Examples include maritime transport, energy production and tourism. The ocean can also serve as a source of raw materials for various production sectors.

The governments, public authorities and industry of different countries need more information and tools to guide the development of a sustainable ocean economy. We need more information to assess the impact of all ocean-related activities and to ensure sustainability at local, regional and global levels. All sectors of the ocean economy have specific information needs which, if met, could stimulate innovation and technological development, speed up decision-making, minimise risks and avoid permanent negative changes in the marine environment.

**Actions:**

3.1. Establish an innovation platform for sustainable marine production, where industry, science and public authorities can interact and promote sustainable marine production based on the best available knowledge.

3.2. Strengthen research into the links and potential risks between the ocean economy, marine ecosystem services and biodiversity.

## 4. A predicted ocean where society understands and can respond to changing ocean conditions



The ocean is still the least well-known of the planet's extensive natural systems. Mapping the ocean and understanding the functioning of marine ecosystems is increasingly important in the context of climate change. Interactions and changes between the ocean, coasts and river basin are of key importance for societies, as the majority of the world's population lives in coastal areas. This also applies to the whole range of coastal ecosystems and river basin interactions in the Baltic Sea. Integrated research and forecasting of changes and responses to marine ecosystems in relation to human-induced stressors is essential. Research knowledge provides the basis for adaptive and dynamic management and enables the sustainable use of marine resources.

### Actions:

- 4.1. Update Finland's marine research strategy.
- 4.2. Strengthen the interaction between ocean data and information production and decision-making and the use of ocean information in decision-making.
- 4.3. Strengthen the use of digital data management in the production and use of ocean data and information. Creating a digital version/twin of the Baltic Sea by combining and developing a set of model systems for the Baltic Sea.

## 5. A safe ocean where life and livelihoods are protected from ocean-related hazards



Ocean-related natural and man-made disasters, such as floods, storms, toxic algae blooms and maritime accidents, pose serious threats and impact on coastal ecosystems, communities, maritime transport and security of supply. Risks caused by climate change and the increase in extreme weather phenomena emphasise the importance of risk management, forecasting and preparing for them. Real-time situational awareness of the risks of natural disasters and shipping based on ocean data and information promotes flexibility, adaptation and protection from the dangers of human activities and natural phenomena. It is also important to raise awareness of the risks of and protection against natural disasters. Finnish research can contribute to the observation and prevention of risks, especially in the Baltic Sea.

### Actions:

- 5.1. Increase the networking and international visibility of shipping and environmental protection cooperation, with the focus on HELCOM and HELCOM's BALEX exercises, IMO, PAME and its Arctic Shipping Traffic Data (ASTD).
- 5.2. Promote research and management of the specific characteristics of protection against natural disasters and adaptation to climate change in the Baltic Sea.
- 5.3. Develop real-time observation activities to promote a better situational awareness of shipping and preparedness, to promote maritime safety, and for the benefit of monitoring the state of the marine environment.

## 6. An accessible ocean with open and equitable access to data, information, technology and innovation



Research and new technologies improve the quality and quantity of ocean data and enable more efficient sharing of data. Extensive and properly targeted provision of ocean data and information enhances decision-making, innovation and the management of marine ecosystems, and supports the achievement of the SDGs. The production of ocean data and information requires considerable resources. The storage, accessibility and transparency of data sets are essential to enable society to make the best use of ocean data and information produced to date and in the future.

### Actions:

- 6.1. Develop the coherence and availability of ocean data flows, with the focus on cooperation between FINMARI, EMODnet and ICES. Establish a National Oceanographic Data Centre (IODE NODC) of the IOC based on FINMARI and the MarineFinland.fi portal.
- 6.2. Promote the discoverability, availability and usability of Finnish ocean data, taking into account the mapping and availability of old measurement and research data, in particular.
- 6.3. Ensure the continuity, maintenance and development of long-term ocean and coastal observation.

## 7. An inspiring and engaging ocean where society understands and values the ocean in relation to human wellbeing and sustainable development



The Baltic Sea is an Atlantic marginal sea and part of the global ocean. It is surrounded by nine countries and international cooperation in research and marine protection is effective and has a uniquely long history. The Baltic Sea is a forerunner for better or worse. The shallow sea suffers from the effects of human activities but, as a result of cooperation between science and management, the direction of developments has been reversed and the state of the sea has improved. The Baltic Sea can therefore be viewed as a test bed for international marine cooperation.

The Ocean Decade is a global effort to strengthen society's understanding of the ocean, the risks posed to it and the potential of the ocean economy and cultural cooperation. One of the key themes of the Ocean Decade is increasing awareness and understanding of the ocean, that is, strengthening the maritime literacy of society as an interactive dialogue between scientists and social actors.

### Actions:

7.1. Prepare an Ocean Decade action plan for marine literacy in Finland.

7.2. Hold an annual open marine information forum "How is the Baltic Sea doing?" on World Oceans Day, 8 June, where scientists and experts will describe the state of the Baltic Sea and the ocean.

7.3. Conduct a second development cycle of the MarineFinland.fi information portal, improving the site's functions and expanding the offering to include information on the ocean, and organise an Ocean Decade exhibition at the Maritime Museum of Finland.

7.4. Host an International Baltic Sea Science Congress (BSSC) in Helsinki in September 2023 in support of the implementation of the Ocean Decade.

7.5. Produce educational materials to strengthen maritime literacy and interaction with youth, schoolchildren and civil society, making them available in the MarineFinland.fi portal.

## 2 Abbreviations

<b>BSAP</b>	HELCOM Baltic Sea Action Plan
<b>EMODnet</b>	European Marine Observation and Data Network
<b>FINMARI</b>	Finnish Marine Research Infrastructure
<b>HELCOM</b>	Baltic Marine Environment Protection Commission (Helsinki Commission)
<b>ICES</b>	International Council for the Exploration of the Sea
<b>IMO</b>	International Maritime Organization
<b>IOC</b>	Intergovernmental Oceanographic Commission of UNESCO
<b>PAME</b>	Protection of the Arctic Marine Environment Working Group

### 3 Composition of the steering group responsible for preparing the implementation plan

On 2 June 2021, the Prime Minister's Office appointed a steering group to draw up a proposal for the United Nations Decade of Ocean Science for Sustainable Development (2021–2030) in Finland to support sustainable development and to coordinate its implementation.

The steering group was chaired by Jussi Soramäki, Senior Ministerial Adviser (Prime Minister's Office), with Maria Laamanen, Senior Ministerial Adviser (Ministry of the Environment) as vice-chair until 26 January 2022. The following members were appointed to the steering group: Helena Tuuri, Ambassador for Baltic Sea Affairs (Ministry for Foreign Affairs), Henna Rinne, Senior Specialist (Ministry of the Environment) from 27 January 2022, Heikki Lehtinen, Ministerial Adviser (Ministry of Agriculture and Forestry), Eero Hokkanen, Ministerial Adviser (Ministry of Transport and Communications), Mika Honkanen, Ministerial Adviser (Ministry of Economic Affairs and Employment), Aarno Kotilainen, Research Professor (Geological Survey of Finland), Alf Norkko, Professor (University of Helsinki), Jari Haapala, Research Professor (Finnish Meteorological Institute), Meri Kallasvuori, Programme Director (Natural Resources Institute Finland), Laura Raaska, Director (Academy of Finland), Elina Kari, Ph.D. (Suomen Merentutkijat marine research association), Paula Kankaanpää, Director (Finnish Environment Institute), Jari Hänninen, Associate Professor, Director (University of Turku) and Nina Tynkkynen, Associate Professor (Åbo Akademi University).

The following deputy members were appointed to the steering group: Tiina Ranne, Legal Counsellor (Ministry for Foreign Affairs), Laura Sarlin, Ministerial Adviser (Ministry of Transport and Communications), Riikka Aaltonen, Senior Adviser (Ministry of Economic Affairs and Employment), Joonas Virtasalo, Senior Scientist (Geological Survey of Finland), Petteri Uotila, Professor (University of Helsinki), Laura Tuomi, Head of Unit (Finnish Meteorological Institute), Sanna Kuningas, Research Scientist (Natural Resources Institute Finland), Jaana Lehtimäki, Senior Science Adviser (Academy of Finland), Kai Myrberg, Leading Scientist (Finnish Environment Institute), Veijo Jormalainen, Professor (University of Turku) and Marie Nordström, Senior Researcher (Åbo Akademi University).

The secretaries are Hermanni Kaartokallio, Leading Scientist (Finnish Environment Institute) and Jaakko Seppänen, Researcher (Finnish Meteorological Institute).

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