Norwegian Ministry
of Foreign Affairs

Meld. St. 22 (2016–2017) Report to the Storting (white paper)

The place of the oceans in Norway's foreign and development policy

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The place of the oceans in Norway's foreign and development policy

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Recommendation of 24 March 2017 from the Ministry of Foreign Affairs, approved in the Council of State the same day. (White paper from the Solberg Government)

1 Introduction

This is the first time a Norwegian government has presented a white paper on the place of the seas and oceans in the country's foreign and development policy. Its aim is to highlight the opportunities the oceans offer for Norway and the challenges we will need to deal with, and to describe how Norwegian foreign and development policy can be used to safeguard Norway's ocean interests and promote the achievement of the UN Sustainable Development Goals (SDGs).

Norway has a range of vital national interests relating to the seas and oceans. More than 80 % of Norway's population lives less than 20 kilometres from the coast. This has been a key factor in shaping Norwegian identity and in influencing how Norway is seen by others. Ever since the Viking Age, coastal waters have linked the various parts of the country and brought them together into a single kingdom, and the seas have connected Norway to the rest of the world.

The oceans are not only crucial to our understanding of the past; they also hold an important key to the future – in Norway as in the rest of the world. The Norwegian Government is actively promoting a transition to a greener Norwegian economy. If we are to succeed, we must safeguard biodiversity for current and future generations. At the same time, we must make the most of opportunities for economic development in maritime areas, and promote production and consumption patterns that have less negative impact on the climate and marine environment than is the case today. The importance of this was made clear in 2015 when world leaders adopted the 17 SDGs, including one specifically concerning the oceans: SDG 14, to conserve and sustainably use the oceans, seas and marine resources for sustainable development.

The oceans offer huge potential for human development. According to the UN, the world's population is set to reach 9.7 billion in 2050. Most of the growth will be in developing countries, particularly in Africa and Asia. All these people will need food and energy, and population growth will drive an expansion of trade and maritime transport. Shipping has a key role to play in promoting global trade and growth.

However, there is also concern about the state of the world's oceans. Population growth, urbanisation and the concentration of human activity in coastal areas will increase pressure on the oceans. Climate change, pollution, marine litter, overfishing and the destruction of coastal ecosystems are all threats to the oceans.

Global development trends indicate that Norway, as a coastal and maritime nation, will face a complex set of challenges and opportunities in the decades ahead. The choices we make and the pri-

orities we set will have important implications for our relations with the rest of the world and our ability to exploit the potential of the oceans.

The UN Convention on the Law of the Sea, often referred to as the 'constitution of the oceans', is of key importance in this context. Just as a country's constitution ensures predictability and stability at the national level, the Law of the Sea promotes peaceful international cooperation on conservation and sustainable use of the world's oceans. The Convention regulates the rights and obligations of states as regards use of the seas and oceans, utilisation of marine resources and conservation of the marine environment. This ensures a predictable framework and stability for investments and economic activity. The Convention is vital for Norway, with its strong environmental, energy, seafood and shipping interests. Together with other international legal instruments, it provides the legal framework for Norway's cooperation with other countries on conservation and sustainable use of the oceans and marine resources at the global, regional and bilateral levels.

There is considerable potential for growth in many sectors of the ocean economy, including the seafood industry, marine biotechnology, energy (renewable and non-renewable), seabed mining, maritime transport and trade, coastal and maritime tourism and maritime surveillance. Together these sectors make up the ocean or 'blue' economy. Policies and tools to promote economic development and reduce poverty must take ecological limits and climate change into account and ensure an integrated approach to different kinds of activities and environmental pressures. Ensuring sustainable use is a priority for Norway and vital for ocean-based activities in Norway and the world as a whole. Growth in the blue economy may include both steps to improve the environmental performance of existing industries – for example by deploying new technologies – and the development of new ocean-based industries that have less environmental impact.

The SDGs provide a global framework for the international community's efforts to promote development that meets the needs of the present without compromising the ability of future generations to meet their own needs. SDG 14 requires us to include the oceans in this concerted global effort. Achieving SDG 14 is important in itself, and will also have positive ripple effects in other strategically important areas that are vital to peace, stability and security. With its extensive experience and knowledge of ocean-based activities, Norway is well placed to make an important contribution in this area.

This white paper makes it plain that the oceans are a key focus area in Norwegian foreign and development policy, and highlights three priority areas: sustainable use and value creation, clean and healthy oceans, and the role of the blue economy in development policy. Together with the Government's ocean strategy, the integrated management plans for Norwegian sea areas and other important policy documents, the white paper will promote a clear and integrated Norwegian approach to ocean issues.

Box 1.1 Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Figure 1.1

14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in parti- cular from land-based activities, including marine debris and nutrient pollution

14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans

14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels

14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unrepor- ted and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shor- test time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics

14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information

14.6 By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation

14.7 By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, inclu- ding through sustainable management of fisheries, aquaculture and tourism

14.A Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries

14.B Provide access for small-scale artisanal fishers to marine resources and markets

14.C Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158

2 Summary

Norway's ocean interests in an international context

Norway's ocean interests are related to value creation, the environment, climate change and sustainable use of resources. Long-term, integrated management of natural resources and the marine environment is crucial for securing the livelihoods of present and future generations. We must look to the oceans to find solutions to many future challenges, and we will have to cooperate closely at the international level if we are to be able to exploit the potential of the oceans to the full. The OECD has calculated that many ocean-based industries have the potential to outperform the growth of the global economy as a whole by 2030. A high level of growth will only be possible if the oceans are managed sustainably.

Norway is in a strong position to promote its ocean interests, share knowledge and contribute to global development that is in line with the SDGs. Norway's experience of sustainable marine management has given us valuable expertise that we can use in our international efforts to advocate development that fosters growth through protection of the marine environment, not at its expense. Safeguarding Norway's ocean interests also involves working with other countries to address climate and environmental problems.

International ocean policy is being strongly influenced by the shift of power from west to east, and to some extent southwards. Geopolitical changes and the interests of emerging countries will affect international ocean cooperation and the options available to Norway. Global problems include overfishing, pollution, marine litter, ocean acidification, global warming and the loss of biological diversity. The Government considers it vital to promote sustainable use of marine resources and the view that sound use and conservation need not be mutually exclusive.

There is a pressing need for more knowledge about the oceans. Some ocean governance issues are global in nature and require global solutions, whereas many of them can best be addressed at the regional level. The Government is working actively to promote Norway's ocean interests in multilateral, regional and bilateral arenas. There is considerable potential for blue growth in many developing countries and the knowledge, expertise and experience of countries like Norway is sought after. Sharing experience and knowledge gained from its system of integrated marine management plans is one important way in which Norway can contribute to international marine management.

Ocean policy is a priority area for influential countries in all parts of the world and provides Norway with important, long-term opportunities for cooperation with other countries. The Government will launch dialogues on ocean affairs with relevant countries with a view to exchanging experience and expertise and cooperating on measures to promote clean and healthy oceans, sustainable use of marine resources and growth in the blue economy.

Norway's ocean interests in the Arctic are related to the utilisation of resources and to managing this in a way that ensures good ecological status and safeguards valuable biodiversity and the basis for future harvesting and use of resources. The Arctic is Norway's most important foreign policy priority. There are growing opportunities for industrial development in sectors such as seafood and oil and gas. However, global warming is bringing about rapid change in Arctic sea areas. The Government is giving high priority to developing knowledge on issues relating to the Arctic seas. The Government will, in consultation with the academic community, the public administration and the business sector, consider establishing a centre of expertise on ocean and Arctic issues in Tromsø.

In the Antarctic and the southern Atlantic Ocean, Norway's ocean interests are related to conservation of the unique marine ecosystems, research and responsible harvesting of living marine resources.

The framework for Norway's ocean interests

No nation can solve ocean-related problems alone. Good cooperation mechanisms are needed at both

global and regional level. In order to be able to promote its ocean interests, Norway is dependent on respect for the UN Convention on the Law of the Sea, effective international organisations and secure seas and oceans. In different ways, these three factors influence the options and opportunities available to Norway. Norway has a core interest in the strengthening and further development of the Law of the Sea. The Convention provides the international legal framework for all human activity in the oceans. The principles set out in the Convention on the obligation to protect and preserve the marine environment and the right to exploit natural resources, and its regional approach to marine management are particularly important.

Norway cooperates with multilateral, regional and bilateral partners on international ocean governance. A number of organisations and forms of cooperation have been set up to promote international cooperation and regulate activities in different areas. Coordination and cooperation between international institutions is needed if we are to succeed in managing ocean-related challenges.

The UN is the most important forum for developing international norms, and to a large extent it determines the overall framework for ocean-based activities. In addition, a number of UN agencies and multilateral and regional organisations have a responsibility and mandate to address marine and maritime issues. Some of them, such as the International Maritime Organization, the International Whaling Commission, and the North East Atlantic Fisheries Commission, focus mainly on these issues. Others, such as the UN Food and Agriculture Organization (FAO) and the United Nations Environment Programme (UNEP), have a number of other focus areas as well.

Norway and the EU maintain close contact on maritime and ocean-related matters, and cooperate at many levels. Most exports from Norwegian ocean-based industries go to countries in the EU. The EU regards the oceans as a driver of the European economy, with great potential for innovation and growth. In 2016, the EU presented a Joint Communication on international ocean governance, and later in 2017, it will be hosting the fourth Our Ocean Conference. The EU is a key partner for Norway in many ocean-related areas, at both global and regional level.

Secure seas and oceans are a prerequisite for promoting Norway's ocean interests. The Government considers it crucial to pursue a security policy that safeguards Norway's interests at sea. Agreements on maritime delimitation and respect for the Law of the Sea are the keys to peaceful cooperation in the future. The Norwegian Armed Forces have the main responsibility for exercising Norwegian authority at sea, and the Coast Guard maintains a presence in Norwegian waters throughout the year to safeguard our interests.

Close cooperation between NATO and the EU on maritime security benefits Norway.

Safe and secure conditions for all maritime transport are vital for Norway as a major shipping nation. Human smuggling by sea is a major challenge. The maritime operations in the Mediterranean play a key role in controlling the Schengen external border, combating human smuggling and dealing with flows of refugees and migrants. Various types of organised environmental crime take place at sea or use the oceans as a transport route. The Government is calling for a comprehensive approach that considers environmental crime together with other forms of organised crime, such as fisheries crime.

The impacts of climate change on the oceans may exacerbate global and regional security threats. Rising sea levels and changes in the distribution of important fish stocks are factors that could worsen the security situation in fragile countries and regions.

Priority areas for Norway

Norwegian foreign policy must be designed to support the further development of sustainable ocean-based industries and to promote good solutions and action to combat the serious environmental threats facing the world's oceans. It is in Norway's interests to support efforts to promote sustainable growth in the blue economy in developing countries.

The world needs countries that are willing to take the lead in the work to protect the oceans and ensure that resources are used sustainably. The Government wants Norway to be at the forefront of international efforts to promote sustainable use and value creation, to ensure that we have clean and healthy oceans and to support the blue economy in developing countries.

Sustainable use and value creation

Its extensive, resource-rich sea areas mean that Norway is well-placed to benefit from the anticipated global growth in the blue economy. The Government has high ambitions when it comes to value creation in Norwegian ocean-based industries, as described in its ocean strategy, which was

presented in February 2017. Promoting responsible use of marine resources and blue growth could also be a way of ensuring progress towards several of the other SDGs.

The traditional Norwegian ocean-based industries – the oil and gas sector, the maritime industry and the seafood industry – are highly internationalised. The oil and gas sector stands out in terms of its contribution to GDP, export value and the number of people it employs. Given the expected increase in energy demand, the sector will continue to play an important role for many years to come. The International Energy Agency is an important arena for promoting Norwegian energy policy views and interests.

Maritime transport is vital for world trade and access to global markets, and a key factor for achieving sustainable development. Norway is the tenth largest shipping nation in the world in terms of tonnage, and the world's sixth largest in terms of value. The Government is promoting the implementation of, and seeking to generate support for, global shipping rules, the development of more environmentally friendly shipping, measures to combat piracy, maritime security, and implementation of the mandatory Polar Code for ships operating in polar waters.

The Norwegian seafood industry has grown considerably in recent years. The Government is working towards sustainable management of living marine resources, based on the best based scientific evidence and an ecosystem approach. Aquaculture is now the largest industry in the Norwegian seafood sector, and the export value of aquaculture products exceeds that of exports from capture fisheries. Norway cooperates closely with neighbouring countries on the management and harvesting of many of our most important fish stocks. Although fish stocks in Norwegian sea areas are harvested at sustainable levels, the situation on a global scale is far less positive. According to FAO, around 31 % of the world's commercially important fish stocks are overfished. For many years, Norway has been heavily engaged in international cooperation to promote sustainable fisheries management. The Government is calling for higher priority to be given to fisheries and aquaculture in efforts to improve global food security, and for FAO to be the main arena for policy development relating to global food security, nutrition and the right to food.

Many different ocean-based industries could potentially make an important contribution to value creation in Norway and in other countries. These include offshore renewable energy and seabed mining, which could be important in the long term. The Norwegian aquaculture sector is carrying out extensive research on species that could in time be used to increase production. Kelp cultivation is one area that appears to have significant economic potential, and the rich marine biodiversity could be used as a basis for developing new products in a number of areas. The Government will therefore promote sustainable growth in new and emerging ocean-based industries.

Increasing market access and eliminating trade barriers are important tasks in Norwegian foreign and trade policy, and these are clear priorities for the Government. Ocean-based industries are a key priority for Norway in the WTO, in trade cooperation with EU/EEA countries and in bilateral free trade agreements negotiated under the auspices of the European Free Trade Association (EFTA). The Government is pursuing a proactive trade policy that safeguards Norway's interests. The Ministry of Foreign Affairs, the Ministry of Trade, Industry and Fisheries and other relevant ministries promote Norway's trade policy priorities in the international arena.

Supporting the Norwegian business sector abroad is a priority for the Ministry of Foreign Affairs. Norway's diplomatic and consular missions act as door openers and network-builders. They have knowledge of local conditions and market opportunities and access to networks and the authorities in their host countries. The Government will promote crosssectoral cooperation under Team Norway to promote the ocean economy as a whole in areas where this can enhance the effectiveness of our efforts.

Clean and healthy oceans

Value creation based on the use of marine resources is dependent on the maintenance of good environmental status and on species and habitat diversity in the seas and oceans. The Government will continue to raise awareness of this internationally, and will play an active role in efforts to find good solutions.

Marine litter is a growing international problem. Plastics and other waste have negative impacts on biodiversity and sustainable development. Norway will participate actively in international efforts to combat marine litter and microplastics. The Government will launch a development programme with the aim of reducing marine waste and improving waste management in developing countries. Releases of chemicals, oil, sewage and heavy metals also pose a threat to

the marine environment. The Government will continue to take a broad approach in its efforts to prevent pollution from both land-based and offshore activities.

Climate change is having negative impacts on the marine environment and is making the oceans warmer and more acidic. This also poses a threat to food security. Sea levels are rising as a result of global warming, and this is threatening small island states, low-lying countries and coastal communities. The most important step we can take to limit the negative impacts of climate change on the oceans is to reduce global CO_2 emissions. The adoption of the Paris Agreement was therefore also important for the oceans as well as other ecosystems. The Government will maintain its extensive international engagement in the area of climate change. In 2017, the Government will allocate over NOK 5 billion to climate-related measures through the development assistance budget. Small island developing states (SIDS) have extensive sea areas and maritime interests. The Government will strengthen cooperation on climate issues with SIDS that are particularly vulnerable to climate change. 'Blue' forests, such as mangroves, are important because they absorb and store CO_2. The Government will continue to highlight the importance of blue forests internationally and support blue forest initiatives in selected partner countries in the Global South.

Area-based management measures such as setting aside marine protected areas are important tools in the work to promote conservation and sustainable use of marine biodiversity. In the Government's view, it is important to ensure that the extent of such areas and the management measures introduced are based on the best possible scientific information, are in line with the purpose of protection and can be combined with sustainable use of the areas. The Government will seek to promote understanding of this internationally, with a view to ensuring that the international community makes the best possible use of resources and implements targeted measures. This is also important for developing countries and their efforts to bring about sustainable development of the blue economy.

The blue economy in developing countries

Many of Norway's partner countries have substantial marine resources and considerable potential to further develop blue industries. It is in Norway's interest that developing countries manage the oceans sustainably. The Government will allocate a larger proportion of the aid budget to the development of expertise on integrated sustainable management of marine resources, food security and business development. The Oil for Development programme and the Fish for Development programme are important tools in this area.

For several years, Norway has provided assistance to a number of African countries to enable them to better safeguard their interests in connection with the determination of the outer limits of their respective continental shelves. The Government will take part in a follow-up project in the countries concerned.

Norway's model of integrated marine management plans is of interest to many developing countries. There is a pressing need to establish and strengthen management regimes that promote the potential for business development and sustainable use of marine resources. The Government will strengthen efforts to develop cross-sectoral regional seas programmes for developing countries in cooperation with UNEP and FAO.

Oil and gas production is an important source of income for many developing countries, and if managed responsibly, the oil and gas industry can make a significant contribution to economic and social development. Norway shares its expertise in this area through the Oil for Development programme, which aims to enable developing countries to manage their petroleum resources in a way that contributes to lasting poverty reduction and takes environmental concerns properly into account. The Government will continue its cooperation with partner countries on the four main components of the Oil for Development programme: resource management, environmental management (including climate change considerations), safety management (including oil pollution preparedness and response and operational safety) and financial management.

The Fish for Development programme was launched in 2015 to enhance the impact of aid initiatives relating to the sustainable use of living marine resources. Under the programme, Norway provides capacitybuilding support to the authorities in partner countries, and assistance for the development of effective legislation, and monitoring, inspection and enforcement systems. It also provides support for education and business development. The Government intends to increase its allocation to the Fish for Development programme to meet the demand for knowledge and management experience relating to marine resources and the oceans.

For more than 40 years, Norway has been supporting the Nansen Programme in cooperation with FAO. The official naming ceremony for the third in a line of research vessels called Dr Fridtjof Nansen, the worlds most advanced research vessel, took place in March 2017. A new phase of the Nansen Programme was launched at the same time. The new vessel will make it possible to carry out more extensive marine research and promote ecosystem-based fisheries management in developing countries.

Small-scale fisheries are the most common type of fisheries, and are an important source of employment, food security and income in developing countries. It is estimated that about 90 % of all people employed in capture fisheries work in the small-scale fisheries sector. In view of the valuable contribution this sector makes to food security and poverty reduction, the Government will continue to provide support for sustainable small-scale fisheries.

The Government will use a greater proportion of development aid to build up expertise on business development in the marine and maritime sectors. Knowledge about marine ecosystems, a sound legal framework and management regime, and security for private investments are all needed to develop an effective and responsible fisheries management system.

Two of the greatest threats to sustainable fisheries are illegal, unreported and unregulated (IUU) fishing and fisheries crime. In many countries, there is a pressing need to establish and strengthen management regimes that can limit losses arising from these illegal activities. The Government will intensify its efforts to combat IUU fishing and maintain Norway's substantial support for efforts to combat fisheries crime.

Part I
Ocean interests

3 Norwegian ocean interests in an international context

Norwegian ocean interests are related to value creation, the environment, climate change and sustainable use of resources, both nationally and globally. The Brundtland Commission's report of 1987 put forth important ideas about securing these interests. The report's main message is that sustainable development serves the needs of people alive today without destroying the ability of future generations to meet their needs. Sustainable development rests on three pillars: economic development, social development and environmental protection. To ensure sustainable development, all three have to be maintained. Sustainability has become a guiding principle in a number of areas related to natural resource use.

The added pressure on marine resources expected in the coming decades may present difficult trade-offs and choices. Long-term integrated management of the environment and resources is crucial for value creation and human activity.

3.1 The potential of the oceans

The opportunities associated with exploiting marine resources are substantial. According to the Organisation for Economic Co-operation and Development (OECD), many ocean-based industries have the potential to outperform world economic growth in the years through 2030, and the value-added contribution of these industries could double.[1] In these calculations, the organisation assumes a continuation of current trends and conditions. Especially strong growth is expected in industries such as offshore wind power, aquaculture, fishing and fish processing as well as shipbuilding, port activities and ship repair. The OECD also presents two alternative development paths, called the 'sustainable scenario' and the 'unsustainable scenario'. Importantly, the value added in the sustainable scenario exceeds the value added that would be produced by a continuation of current trends and conditions. In the second alternative scenario, value added would be reduced, primarily due to increased environmental destruction and a weakened resource base.

It is in the interest of Norway and the international community to work for trends consistent with a sustainable scenario, simultaneously accommodating economic growth and preserving a sound ocean environment. Such a development trend could help the world achieve Sustainable Development Goal 14 as well as other sustainability goals.

The three traditional ocean-based industries – oil and gas, maritime and seafood – account for a significant share of Norwegian value creation. The total value created in these industries in 2014 was estimated at NOK 760 billion, or 37 % of the entire business community's value creation that year.[2] Ocean-based industries account moreover for about two-thirds of the value of Norwegian exports. What these industries have in common is their growth in close interaction with scientific research and knowledge-based public administration and their presence in many places around the world. That bodes well for Norway in promoting its interests, sharing knowledge and contributing to global development in accordance with the UN's sustainability goals.

Norway's use of the ocean and its resources is wide-ranging. The ocean provides valuable natural resources and is a crucial means of passage, a supplier of food and ecosystem services, and an important source of identity. It plays a key role in the world's climate system. Most of the ways in which humans use marine resources have environmental impacts, and in some cases there is a potential for serious impacts on ecosystems, habitats and species. Globally, the combined pressure exerted on oceans has significantly weakened the resource base and the potential for value creation.

[1] *The Ocean Economy in 2030*, a report published by OECD on April 27, 2016. Using 2010 as a baseline, the organisation's calculations indicate that the value added contribution from ocean industries could double through 2030 to more than USD 3 trillion.

[2] Menon Economics (2016). Menon's accounting and enterprise database contains complete accounting figures for all enterprises that are required to report to the Register of Business Enterprises. Public sector not included.

Environmental and resource management must therefore improve internationally if the oceans are to be exploited to their full potential. In the decades after World War II Norway, like other countries, learned the hard way about such problems as overfishing and industrial pollution of fjords. Although our ability and our capacity to manage the ocean sustainably have improved, there are still environmental challenges that need solving.

Our extensive use of the ocean and its resources creates a responsibility to manage it in a long-term and responsible way. Norway has for many decades based its use of the ocean on the sustainability principle. Important tools for Norway in this respect are its integrated management plans for marine areas, with ecosystem considerations a concern throughout. They reflect Norway's ability and willingness to manage its marine areas in a sustainable manner, and have helped make Norway a driving force among nations for comprehensive, ecosystem-based management. Sharing experience and knowledge gained from its system of integrated marine management plans is one important way in which Norway can contribute to international marine management. The system's cross-sectoral approach is a particularly important feature. Work on the management plans brings together all relevant parts of the public administration, and the measures advanced cover all sectors active in Norwegian waters.

Sustainable management requirements and regulations that take climate and the environment into account are also set forth in applicable Norwegian sectoral legislation. Ocean-based industries today are managed and regulated largely by sector. It is important to obtain a state of healthy coexistence among the various marine and coastal industries, some of which may have overlapping and competing interests relating to resource exploitation and utilisation.

Norway's resource management system is effective and prudent, and the ecological status in Norwegian marine areas is generally good. Norway's application of sound management on the domestic front is essential to ensuring that we can continue using the ocean and harvesting the riches along our coastline and in areas close to Norway in the years to come. It produces valuable expertise that we can use internationally to press for the sort of development that promotes growth by conserving the marine environment.

3.2 Forces shaping international ocean policy

Ocean resources hold the promise of future economic and social development opportunities for many countries. The many parties, needs and priorities involved make the oceans an arena for multifaceted international cooperation by a profusion of actors. The oceans join states and people all over the world, highlighting the global community's shared responsibility for and interest in ensuring that they are sustainably used and kept clean and healthy for future generations.

International political developments in recent years demonstrate that the world is more unpredictable and unstable than just a few years back. The world order created after World War II has come under pressure. We live at a time of emerging and partly competing political centres, of shifting economic power from west to east, and to some degree to south, and of increasing influence by emerging powers. In the coming decades most population growth will take place in developing

Box 3.1 The Government's ocean strategy

Ocean-based industries are a significant source of value creation and employment in Norway. They will continue to be an underpinning of Norway's general welfare and to play a key role in the country's future. It was in that light that Prime Minister Solberg presented the Government's ocean strategy on 21 February 2017. The strategy's main objective is to facilitate as much sustainable value creation and employment as possible in the ocean-based industries. To achieve this goal the Government will follow three tracks. It will help foster good framework conditions by maintaining and enhancing ocean-based industrial regulation in an efficient, predictable and knowledge-based manner; it will encourage the development of knowledge and technology in the ocean-based industries through research, innovation, education and expertise; and it will strengthen the international competitiveness of Norwegian ocean-based industries by assisting with market access, internationalisation and promotion. Divided among the three tracks, the strategy specifies 95 measures and follow-up points to be pursued.

countries, especially in Africa and Asia, while the populations of Europe and North America stand still. Global developments will certainly affect international cooperation on ocean affairs as well as Norway's freedom to act on its interests.

The envisaged future of complexity and uncertainty extends to the many non-state actors that exercise influence over marine issues, such as multinational companies and international environmental organisations. As Norway advances its ocean interests internationally, the foreign policy instruments employed must be designed to account for this multifaceted picture.

Sound ocean management and environmental protection are more important than ever. Threats to the marine environment include pressures caused by human activity such as overfishing, pollution, global warming and loss of biodiversity. The international picture as regards the balance between protection and economic exploitation of resources is not clear-cut.

Some countries, including those that tend to set the agenda, are focusing primarily on the economic potential the ocean represents. Given global trends such as population growth and resource needs, this is understandable. In some cases, however, an impression may be forming that environmental considerations are being assigned relatively little weight, whether consciously or unconsciously. In the long term, with the oceans expected to come under increasing pressure and legitimate concerns raised about our environment and our climate, this perspective may represent a challenge for Norway.

For the Government, it is vital to promote the sustainable use of marine resources and the knowledge that sustainable use and conservation need not be antithetical. Sustainable use requires us to know about the threats and the environmental state of marine areas, and to use this knowledge to develop sound policies and take effective management measures. These principles inform Norway's positions as it works on relevant environmental conventions and participates in international discussions on responsible marine use and protection.

3.3 Need for knowledge

With technological development and research, the secrets of the sea are gradually being revealed. As a result it will be possible over time to exploit existing marine resources to a larger extent or in new ways, and for new resources to become available for human use. There is a major global need for more ocean knowledge and more sharing of experience and expertise. Enormous areas of the seabed have yet to be explored or properly mapped, and coastal area ecosystems are not fully understood. More must also be learned about the effects of various types of human activity on marine life and about the future impacts of climate change on the environment and society. Acquiring knowledge takes considerable resources and capacity, so it is natural to collaborate. The ocean is a highly productive arena for collaborative international research, and Norway contributes actively.

Norway has a long tradition of marine research, and the expertise amassed over the decades has contributed to sustainable management and value creation. The ocean is one of six focus areas specified in the white paper *Long-term plan for research and higher education 2015–2024* (Meld. St. 7 (2014–2015)).

Norway is a world leader in several areas of marine research, and cooperates extensively in the field with international researchers. Continued use of Norwegian scientific communities and international cooperation to accumulate knowledge and expertise are a high priority.

More cooperation on knowledge and expertise between the ocean-based industries and a more multidisciplinary approach will be important aspects of ocean science in future. The Research Council of Norway funds ocean science through petroleum, maritime and seafood industry programmes as well as the council's general schemes. Ocean-based research and innovation will provide the knowledge and expertise needed to handle major challenges related to food and energy supply, the environment and the bioeconomy. The council's ocean-focused portfolio came to almost NOK 1.5 billion in 2015. The targeted programme portfolio was about NOK 800 million, an increase of almost NOK 120 million from the previous year (Research Council of Norway Annual Report 2015 (2016)).

3.4 International ocean policy arenas

The ocean embodies a complex set of present and future challenges across a wide range of human activities and needs. National interests vie in the international arena. Overall, however, ocean issues are characterised by extensive cooperation.

The Government works actively in multilateral, regional and bilateral arenas when Norwe-

Box 3.2 International cooperation on marine research in ICES

The International Council for the Exploration of the Sea (ICES) is an independent scientific organisation that provides advice on managing marine resources and the marine environment of the North-East Atlantic. ICES was formed in 1902 and currently has 20 member states on both sides of the North Atlantic. The council's secretariat is located in Copenhagen. Norway has participated from the start. ICES works to advance scientific understanding of marine ecosystems. The aim is to advise governmental authorities on the basis of the best available information so that they can make scientifically sound choices about the sustainable use of marine environments and ecosystems. ICES has a network of more than 4 000 researchers from over 350 marine research institutes. Its scientific work is governed by the organisation's Science Committee. The Advisory Committee (ACOM) each year provides advice on catches for the most important North-East Atlantic fish stocks. The advice is based on data and scientific analysis from a number of expert groups.

gian interests need promoting. Ensuring productive interaction between these arenas is necessary. Good multilateral cooperation by well-functioning institutions is of great importance for managing present and future challenges, and for realising the potential of ocean-based resources in a sustainable fashion. The system of international institutions that has emerged is itself a determining factor in how the global community governs and manages the world's oceans. It forms part of the prism through which Norwegian ocean interests are viewed, and the institutions are important arenas for promoting Norwegian interests and positions. They can also be important partners in addressing particular issues. As a significant actor in a wide range of ocean affairs, Norway is well positioned to influence how such institutions are designed and what their priorities are. Often such influence will be most effective when exercised in cooperation with countries that share Norway's interests.

Some of the problems to be faced are global in nature and require global responses. Many environmental and marine management issues, however, are best resolved through cooperation between the countries in closet proximity to the problems. Some of the institutions of greatest importance to Norway as regards marine environmental management and value creation are to be found in our own vicinity. For Norway, regionality is an important principle in international maritime cooperation.

Bilateral cooperation is of great importance. All states have their own special characteristics that guide them in deciding which interests to advance. They are influenced by such factors as the degree to which they are dependent on ocean-based resources, the national institutions charged with setting priorities, the quality of ocean policy coordination and other domestic policy considerations. There are nearly 150 coastal states, with varying levels of dependency on the oceans. To achieve support for our views it is important to know the policy positions of other countries and actively pursue Norwegian interests.

It is important to devise policy instruments and capabilities in a way that achieves the best combined effect. In many cases it will be natural to emphasise cooperation with like-minded countries – those whose approaches to key maritime issues are the same as or similar to Norway's. However, in pursuit of a healthy marine environment and sustainable use, it is vital to interact with a wide range of countries, including those that are, or may become, significant ocean resource users and those whose priorities differ from Norway's.

For many developing countries, lack of capacity and weak or underdeveloped institutions seriously impede the job of realising national priorities. These countries often face major challenges in managing marine resources and are particularly vulnerable to the effects of climate change. At the same time, many of these countries have the potential to grow markedly in the blue economy and therefore seek knowledge, expertise and experience from countries such as Norway.

Ocean policy is a priority area for influential countries in all parts of the world and provides Norway with important, long-term opportunities for cooperation with other countries. Bilateral maritime cooperation on business, trade, knowledge and the environment is therefore of great importance.

The Government will

– launch dialogues on ocean affairs with relevant countries with a view to sharing experience

Box 3.3 Our Ocean conferences

The Our Ocean conferences highlight the increased topicality of ocean affairs in recent years. The first conference took place in June 2014 following an initiative by former US Secretary of State John Kerry. The main topics are sustainable fisheries, ocean acidification and other climate-related impacts on oceans, marine protected areas (MPAs) and combatting marine pollution. The EU will host the conference in 2017, Indonesia in 2018. In 2019, Norway will be the host country for this important annual ocean conference.

and expertise and cooperating on measures to promote clean and healthy oceans, sustainable use of marine resources and growth in the blue economy. Dialogue may extend beyond representatives of the relevant authorities to participants from academia, business and civil society.

3.5 Norway as a responsible polar seas nation

Norway's ocean interests in the Arctic and Antarctic are related to the utilisation of resources and to managing this in a way that ensures good ecological status and safeguards valuable biodiversity and the basis for future use. Experience and knowledge from both the Arctic and the Antarctic give Norway a solid basis for contributing to many arenas and viewing global marine issues in context.

3.5.1 Norwegian ocean interests in the Arctic

The Arctic is Norway's most important foreign policy priority. In the spring of 2017 the Government is to present an updated Arctic strategy. In the strategy, Arctic policy will be considered in the context of ocean policy.

Large expanses of Norwegian sea areas are located north of the Arctic Circle. Many of these are areas of high biological production, providing the basis for important fisheries. The cod of the Barents Sea and the areas off the Lofoten archipelago constitute one of the world's most important commercial fisheries. Species that previously were not found in the Barents Sea, like king crab and snow crab, are providing new business opportunities. The aquaculture industry is well established in the north, and if we resolve the industry's environmental challenges the potential for additional growth along the northern Norwegian coast is considered good. The Arctic seas are also important habitats for marine mammals such as seals and whales, and some of the world largest seabird populations are found there.

In addition to traditional ocean-based industries such as fishing and maritime transport, there have been petroleum operations in the Barents Sea since 1979. Both oil and gas have been produced there since 2016. In the 23rd licensing round, 10 new production licenses were awarded, including three in the newly opened Barents Sea South-East area, off eastern Finnmark county. It is estimated that about half of the undiscovered petroleum resources on the Norwegian continental shelf are in the Barents Sea. Norwegian sea areas in the north are expected to play an important role in the future development of oil and gas resources.

Norwegian waters in the Arctic are now undergoing major changes as a result of global warming. Globally, 2016 was the warmest year on record, and climate change in the Arctic is occurring faster than elsewhere. According to some estimates, the North Pole may be ice-free in summer towards the end of this century. In its latest report the UN's Intergovernmental Panel on Climate Change (IPCC) concluded that the risk of major change occurring to Arctic ecosystems is very high in the long term. Climate change will reduce the habitats of many species found in the Arctic today. Several of these, such as the polar bear and the ringed seal, are dependent on sea ice and may eventually disappear from large parts of the Arctic. Svalbard is one of the areas where this is expected to occur soonest; see the white paper *Svalbard* (Meld. St. 32 (2015–2016)).

Warmer seawater, meanwhile, may increase fisheries productivity in the north and shift fish population ranges northward. How the cumulative changes will affect the fisheries is uncertain. The uncertainty is compounded by the fact that ocean acidification occurs fastest in polar waters.

The knowledge required to predict changes is of great importance to the planning of Arctic activities and management measures, but also to understanding the global risk associated with these changes. It is in Norway's interest to cooperate with other Arctic countries on such knowledge.

Greater expanses of open ocean will mean easier access to ocean-based resources and new opportunities for ship traffic. Newly traversable waters also mean a larger area of operations for Norwegian authorities, including the Coast Guard.

The negative impacts of human activity could pose a threat to the unique Arctic marine environment. Difficult climate and weather conditions and long distances represent additional challenges. Norway has jurisdiction over major marine areas in the north and has a special responsibility as a flag, coastal and port state to facilitate safe and environmentally friendly shipping in vulnerable Arctic regions. Accommodating increased activity, including resource utilisation, requires a well-developed system of monitoring, information gathering, information exchange, contingency planning and search and rescue services. A number of different agencies and policy instruments contribute to these capabilities. An example is BarentsWatch, a comprehensive monitoring and information system for Norwegian marine areas.

Norway is using substantial resources to build up knowledge about the seabed. Mapping by the MAREANO programme expands what we know about the extent of the habitat types and species that exist in our marine areas, and about the pressures on them as a result of human activity. This knowledge provides a basis for better management. The programme will be discussed in a forthcoming white paper on updating the Norwegian Sea management plan.

Norwegian ocean management is knowledge-based, so when economic and other human activity at sea moves northward, more must be learned. To meet this need, Norway expends considerable resources on ocean-related Arctic research every year. Funds are channelled through universities, research institutes and other actors. The Ministry of Foreign Affairs coordinates the Government's Arctic efforts and administers the Arctic 2030 grant scheme, which provides support for a number of projects related to marine research, climate, search and rescue, shipping routes, logistics, safety and oil pollution protection. The Government wants to raise awareness about marine issues in the north. In 2017 new grants specifically related to the ocean are to be announced.

Also in 2017, the Government will be supporting the collaborative 'Nansen Legacy' project, which involves several Norwegian universities and research institutes. The project will contribute to increased scientific understanding of the central and northern parts of the Barents Sea. Other important initiatives are the FRAM Centre in Tromsø, which is now being expanded, the development of Svalbard as a platform for Arctic climate and environmental research, and the construction of the new ice-class research vessel *Kronprins Haakon*, which is to be launched in early 2018.

In Norway, there are strong and well-established clusters of experts specialising in marine and Arctic matters. The Government thinks these clusters of expertise could be better coordinated and promoted, so it intends to work with academia, public administrative bodies and the business community to determine the best way of releasing this potential, including the possible establishment of a centre of expertise for ocean and Arctic issues in Tromsø. Such coordination and promotion must build on existing pillars and structures for addressing Arctic issues, where the subject of the ocean has gained in prominence. In addition to enhancing coordination and promotion, a centre of expertise could stir debate and call attention to aspects of national and global development that affect Norwegian interests and Norway's manoeuvring room as a coastal and marine state.

The Government will

– consider establishing a centre of expertise for ocean and Arctic issues in Tromsø.

3.5.2 Norwegian ocean interests in the Antarctic and South Atlantic

Norwegian ocean interests in the Antarctic date back to the 1890s and succeeding decades, and were based on research and whaling. Southern Ocean whaling accounted for a significant part of the Norwegian whale harvest in the decades before and after World War II. Antarctic waters are among the most inhospitable on earth, in terms of both climate and weather, but the diversity of ocean life is varied and rich. Today, Norwegian interests in these areas are related to conservation of the unique marine ecosystems, research and responsible harvesting of living marine resources, such as krill and toothfish.

For more than 50 years, the parties to the Antarctic Treaty have managed an enormous continent surrounded by a rich marine area through peaceful cooperation across geopolitical dividing lines. The overall objectives of Norway's Antarctic

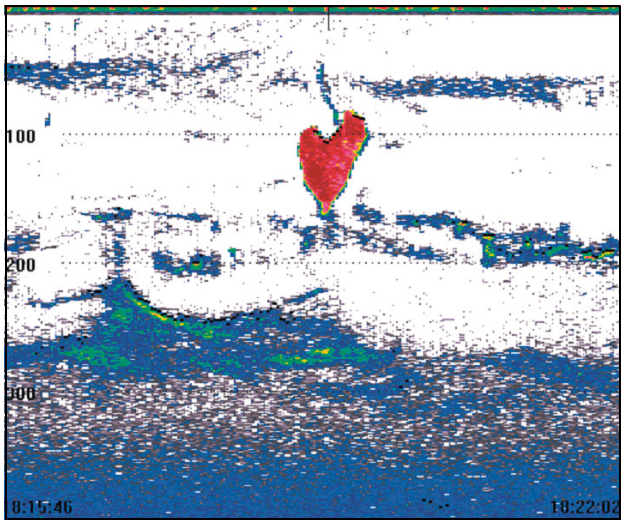

Figure 3.1 'Heart attack'.

Norway advocates a knowledge-based approach to conservation and sustainable use in Antarctic waters. The red heart shape is a krill swarm under attack by a seal or penguin (the vertical blue line near the top of the 'heart'). The image was made with sonar aboard the research vessel *James Clark Ross* during a joint Norwegian-British mission. The image belongs to Norway's Institute of Marine Research and the British Antarctic Survey.

policy, priorities and ocean interests appear in the white paper *Norwegian Interests and Policy in the Antarctic* (Meld. St. 32 (2014–2015)). According to this white paper, Norway is to be at the forefront of ecosystem-based management, which safeguards biodiversity and provides a basis for sustainable resource exploitation.

Norway has two areas in the Antarctic: Peter I Øy and Dronning Maud Land. As a claimant country, Norway has a special interest in helping ensure Antarctic waters are managed on a sound scientific basis. Norway plays an active role in international cooperation on marine issues. Norwegian priorities are advanced through work related to the Antarctic Treaty, including the Environmental Protocol and the Convention on the Conservation of Antarctic Marine Living Resources (the CAMLR Convention).

Bouvetøya is located in the South Atlantic, but north of the Antarctic Treaty area. The island is considered one of the most remote in the world. Bouvetøya and the territorial waters around it are protected as a natural reserve. A white paper on Norwegian interests and policy relating to Bouvetøya (Meld. St. 33 (2014–2015)) provides the policy framework for the island and surrounding marine areas. The Government will attend to Norway's rights and duties as a coastal state and responsible resource manager around Bouvetøya by safeguarding the natural reserve's environmental assets and facilitating information gathering and additional research and mapping of the resources in the ocean, including the continental shelf. An economic zone has not been established around the island. In 2009, Norway submitted documentation to the UN Commission on the Limits of the Continental Shelf regarding the extent of the continental shelf beyond 200 nautical miles.

Part II
Overall international framework

4 Framework for Norway's ocean interests

To promote its ocean interests, Norway is dependent on the existing international framework, in particular the UN Convention on the Law of the Sea. This is of crucial importance because it provides the world with a predictable legal system governing the rights and obligations of states with regard to use of the ocean and conservation of marine resources. The convention forestalls conflict and promotes predictability by clarifying which rights are applicable.

At the same time, the global community has a need to develop practical forms of cooperation and functional arenas for working together and solving challenges, whether these involve standardisation, management issues, combatting environmental threats or other matters. A number of international institutions have been created to address the various problem areas.

Norwegian ocean interests also have security and sovereignty dimensions. Security challenges at sea are complex, varying greatly from region to region. As the world's population grows, so will the need for ocean resources.

We can expect an increase in ocean cargo and passenger traffic. The consistent exercise of authority in accordance with international law is a key to peaceful cooperation. Yet there are serious international security challenges at sea, such as piracy, environmental crime and the smuggling of weapons, drugs and human beings. While these problems have little connection to Norwegian marine areas, they do affect Norwegian ocean interests, whether indirectly or directly. It is also the case that destruction of the marine life support system in vulnerable coastal areas can exacerbate threats to stability and peace, with possible consequences for Norway.

4.1 UN Convention on the Law of the Sea – the 'constitution of the oceans'

The United Nations Convention on the Law of the Sea provides the international framework for all activities at sea. It amounts to a common set of rules, providing predictability and stability. It is therefore a core Norwegian interest to help strengthen and further develop the Law of the Sea. Clear rules and stable framework conditions are necessary for peaceful cooperation between countries, economic development and business activity, and sustainable environmental management.

The law of the sea has been developed over centuries to reconcile the interests of all countries, both in neighbouring areas and in more distant seas. Security and resource utilisation are of special importance in a country's neighbouring areas, while shipping and harvesting are important in distant oceans as well. Previously, states exercised sovereignty in the waters closest to their coastlines more or less as they did on land. Further out the freedom of the high seas applied, and all states had equal rights to harvest living marine resources and engage in maritime transport. After World War II a number of states wanted greater control over their own resources, leading to among other things the UN's first Law of the Sea conference, in 1958. It resulted in four conventions concerning, respectively, territorial waters, the continental shelf, the high seas and fishing. This led to a new conference, and ultimately to the UN Convention on the Law of the Sea of 1982. The convention established a historic compromise between coastal state interests and the freedom of the seas by giving the coastal states rights to the resources on their own continental shelf and in zones extending 200 nautical miles offshore, while entitling other states to free passage in the same areas.

The Law of the Sea provides a framework for national rights, freedom of action and duties at sea. The Convention on the Law of the Sea has been ratified by 168 parties, but enjoys almost universal support due to its balancing of diverse concerns, interests, rights and duties. For no country does the convention provide full acknowledgement of individual national interests, but the vast majority of countries see the convention, and the balancing of interests it stands for, as serving their interests overall.

The convention largely reflects customary international law as it has evolved from its emphasis on freedom of the seas to a greater focus on coastal state administration. The broad support it enjoys has also had the effect of quickly conferring customary international law status on new legal concepts introduced as a consequence of the convention's adoption, such as the right of coastal states to institute economic zones.

4.1.1 Coastal states and the ocean

The Convention on the Law of the Sea clarifies which states own which resources and which usage rights they have in different geographical areas. It gives the coastal states special rights and duties. The Convention on the Law of the Sea divides the ocean into maritime zones. Territorial waters are those closest to the coast.

4.1.1.1 Territorial waters: internal waters and territorial sea

In the territorial waters, the coastal state has full sovereignty and essentially the same authority as on land. Territorial waters consist of internal waters and territorial sea. The internal waters are made up of fjords, bays and small marine areas inside the baseline.[1] Baselines form the outer boundary of internal waters and are the starting point for calculating the territorial sea and outer jurisdictional areas.

In internal waters the coastal state has full sovereignty; other states may engage in activity there only to the extent that the coastal state accepts or permits it. An example of such activity is the arrival of foreign ships at Norwegian ports. Likewise in the territorial sea, extending 12 nautical miles[2] from the baseline, the coastal state enjoys full sovereignty, except that foreign ships are entitled to innocent passage. In the contiguous zone extending 12 nautical miles seaward from the outer limit of the territorial sea, coastal states no longer have full sovereignty, but are permitted to inspect foreign ships suspected of violating the coastal state's customs, health or immigration regulations.

4.1.1.2 Economic zone

In the exclusive economic zone, which extends to 200 nautical miles from the baseline, the coastal state has sovereign rights to make use of all resources and ensure they are not overexploited. In this way the fishing interests of coastal states are well protected under the Law of the Sea. Economic zone rights also include the authority to implement measures for marine environmental protection and conservation. These rights are combined and balanced with freedom of the seas, which entitles other states to free passage. For example, Norway may decline to allow other states to fish in Norway's economic zone, but as a general rule it may not impose ship traffic restrictions beyond those adopted by the International Maritime Organization (IMO), a UN agency.

4.1.1.3 Continental shelf

The continental shelf is the extension of land masses into the sea. Coastal states are automatically assumed to have a continental shelf extending 200 nautical miles from the baseline if not curtailed by another country's continental shelf. The continental shelf of many coastal states reach beyond 200 nautical miles. In such cases the coastal state must document the extent of the shelf to the Commission on the Limits of the Continental Shelf (CLCS)[3] in New York. The commission issues recommendations which then entitle the coastal state to establish the outer limits of its continental shelf on the basis of the recommendation.

Under the Law of the Sea, all coastal states have sovereign rights to natural resources on the continental shelf. They are thus entitled to explore for and extract minerals and other resources present on and in the subsoil, including sedentary species such as the snow crab. In this context the implication of a coastal state's sovereign rights is that no one can explore or extract such natural resources without the express consent of the coastal state.

The seabed area beyond national continental shelves is called the Area. There, all states have equal rights to activity and exploitation. The Area and the mineral resources there are defined as the common heritage of mankind and are managed by

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1 Norway's internal waters are all the waters within its baselines as drawn in accordance with Part II of the Convention on the Law of the Sea. Baselines are the starting point for the mapping of zones and shelves. See also the Act of 27 June 2003 relating to Norway's territorial waters and contiguous zone.

2 1 nautical mile = 1.852 km.

3 The Commission on the Limits of the Continental Shelf (CLCS) meets at UN Headquarters in New York.

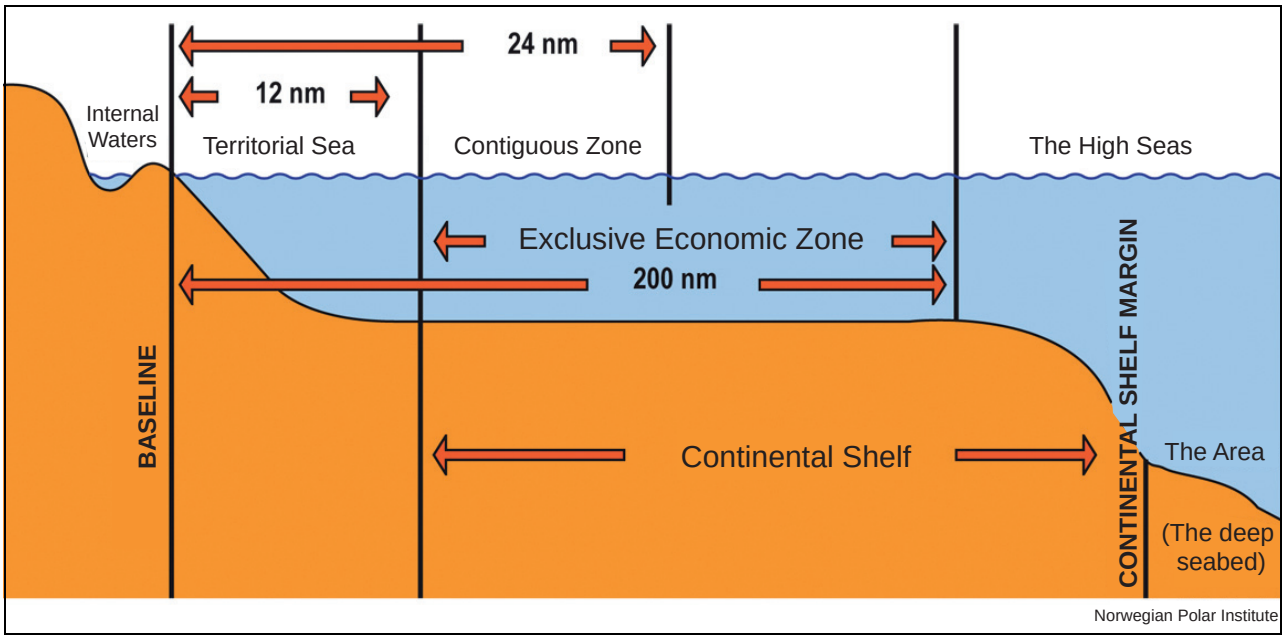

Figure 4.1 Illustration showing the maritime jurisdictional areas of coastal states.

the International Seabed Authority, located in Jamaica.[4]

4.1.1.4 The high seas, international waters

On the high seas – that is, areas outside national jurisdiction – all states have the freedom to engage in such activities as shipping, research and fishing. No state may place any part of the high seas under its jurisdiction, but all states may allow their citizens and vessels to engage in activities there pursuant to national laws and regulations. For example, allowing Norwegian fishing vessels to fish on the high seas and prosecuting them criminally if there is reason to do so are matters for Norway to decide.

On the high seas, states are obliged to cooperate on such issues as fisheries resource management and marine environmental protection. Norway fulfils its duty to cooperate by working in the IMO and regional organisations.

Where a continental shelf extends beyond 200 nautical miles, the outer shelf area is in international waters. This is the case in the central Arctic Ocean, where virtually all of the seabed may prove to be national continental shelf. There, as usual, the coastal state has sovereign rights to exploit the shelf's natural resources, while the water column above is governed by rules linked to the freedom of the high seas. This creates a number of problematic issues that require balancing the coastal state's rights to sustainably exploit its continental shelf resources against the rights of other states to exercise the freedom of the seas.

4.1.2 Duty to protect, right to use

The Convention on the Law of the Sea combines the right to use the ocean and exploit its resources with a duty to protect the marine environment. Such use must be sustainable. That is, the use of marine resources shall serve the needs of today's generation without reducing the ability of future generations to meet their needs. This principle, as expressed in the law, applies to each use in isolation but logically must also apply to the sum of all uses. Marine management must therefore take into account the entirety of a situation. Different uses, different pressures and different species, habitats and ecosystems must be viewed in context.

The integrated management plans for Norwegian marine areas have been established so that different activities can be considered in relation to each other in context. Internationally, Norway advocates such an integrated approach in key forums the United Nations, the Arctic Council and in its bilateral cooperation with Russia.

[4] The Agreement of 28 July 1994 on the implementation of Part XI of the UN Convention on the Law of the Sea of 10 December 1982 provides special rules on implementing rules for the Area. The agreement became binding on Norway on 24 July 1996; see Proposition No. 37 (1995–1996) to the Storting.

4.1.3 Regional application of the Law of the Sea

While management of national zones and continental shelves under the Law of the Sea is the responsibility of coastal states, their right to use and exploit resources outside national jurisdiction is combined with a duty to cooperate on management. Such cooperation may be carried out in different configurations and at different levels. The shipping industry is distinctly global, and is managed appropriately in the IMO. The same can be said for mining activities in areas outside national jurisdiction, which are managed by the International Seabed Authority.

In the case of fisheries, regional conditions and special characteristics have more prominence. The Convention on the Law of the Sea and the UN Straddling Fish Stocks Agreement[5] emphasise bilateral and regional schemes for the management of fisheries in international waters.

The UN Straddling Fish Stocks Agreement came into force in 2001. It provides detailed global rules for fisheries management outside economic zones. It also contains resource management principles, such as the precautionary approach. The agreement has lead to the creation of new regional fisheries organisations, including outside southern Africa. It has also brought about revitalisation and modernisation of existing organisations. In our region, two important forms of cooperation are exemplified by the North East Atlantic Fisheries Commission (NEAFC) and the Joint Norwegian-Russian Fisheries Commission.[6]

Suitable management of the marine environment requires local experience and knowledge. It is important to work together through regional cooperation mechanisms such as the UN Environment Programme's Regional Seas Programme, the OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic, and the Arctic Council. For fisheries and environmental management in Antarctic waters, the most important cooperation mechanism is the Commission for the Conservation of Antarctic Living Marine Resources (CCAMLR).

In Norway's view, the region's coastal states, by virtue of their knowledge and long-term utilisation of nearby waters, are particularly well suited to cooperating on and selecting measures for effective natural resource management and ecosystem protection. In accordance with the Law of the Sea Norway will therefore continue to work for regional organisations and mechanisms to be the first-line option in marine resource management and protection.

4.1.4 Law of the Sea and Norway's neighbouring areas

In order to have predictability and stability, international law and associated legal rules must be respected by all states. In Norway's general vicinity there are good examples of ways countries cooperate to comply with the Law of the Sea.

4.1.4.1 Ilulissat Declaration

In 2008 the five coastal states of the central Arctic Ocean – Norway, Russia, the United States, Canada and Denmark/Greenland – signed the Ilulissat Declaration. The countries declared the Law of the Sea to be the legal framework for future Arctic cooperation and affirmed they had a special responsibility for sustainable management of marine areas. They also committed to developing management schemes for the Arctic consistent with the Law of the Sea and to resolving any disagreement about overlapping demands in an orderly manner, in accordance with the Law of the Sea.

4.1.4.2 Central Arctic Ocean declaration

In 2015, the same coastal states signed a declaration on preventing unregulated high seas fishing in the central Arctic Ocean. The declaration was prompted by a sharp reduction of ice cover in recent years. The changing ice conditions have raised the question of whether fish stocks in the marginal Arctic seas, such as the Barents and the Bering, might migrate into the central Arctic Ocean basin and provide a basis for fishing there. The declaration concerning the central Arctic Ocean gave an important boost to the precautionary approach in Arctic research and management while strengthening the global effort to limit unregulated fishing.

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[5] Agreement of 4 December 1995 on implementing provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 on the conservation and management of straddling fish stocks and highly migratory fish stocks. It came into force for Norway on 11 December 2001; see Proposition No. 43 (1995–1996) to the Storting.

[6] The Joint Norwegian-Russian Fisheries Commission was established pursuant to an agreement, dated 11 April 1975, on fisheries industry cooperation between Norway and the Soviet Union. The agreement has been continued with Russia.

Pursuant to the declaration coastal states will not allow their vessels to fish in the high seas portion of the central Arctic Ocean unless a management regime has been established.[7] The coastal states say in the declaration that commercial fishing in the high seas portion of the central Arctic Ocean is not likely to occur in the near future. However, the precautionary approach calls for the implementation of interim measures to deter unregulated fishing in future. Attempts are now under way to extend and strengthen the measures outlined in the declaration in negotiations for a new agreement that will also include countries and organisations such as the EU, Iceland, Japan, China and South Korea that are engaged in high seas fishing.

4.1.4.3 Arctic sea areas

The economic zone covers the area between 12 and 200 nautical miles outside the baseline. Where there is less than 400 nautical miles to another state's baseline, the zone is bounded by a delimitation line agreed between the states. Norway has established three zones extending 200 nautical miles. An economic zone around the Norwegian mainland was created with effect from 1 January 1977.

Around Svalbard, Norway has established a fisheries protection zone that entered into force on 15 June 1977. The zone is bounded by Norway's economic zone and agreed delimitation lines between the zone and the economic zones of Greenland and Russia. The primary purpose of establishing the fisheries protection zone was to gain control of, and limit, fishing in the area in order to conserve the resources and avoid an unregulated fishing situation. To achieve this purpose it was deemed sufficient to regulate fisheries using non-discriminatory provisions for Norwegian and foreign fishing vessels.

Norway established a fisheries zone around Jan Mayen with effect from 29 May 1980. The delimited zone borders the waters of Greenland and Iceland. The fisheries zone provides full management authority over fishing pursuant to the Law of the Sea.

All coastal states around the central Arctic Ocean follow the rules of the Convention on the Law of the Sea in determining the extent of their continental shelves beyond 200 nautical miles. In 2006 Norway submitted documentation on the extent of the Norwegian continental shelf in the Barents Sea, the Norwegian Sea and the central Arctic Ocean. The CLCS's 2009 recommendation was by and large in line with the Norwegian submission. It is believed that the other four coastal states of the central Arctic Ocean also have continental shelves extending beyond 200 nautical miles. Denmark submitted documentation for the Greenlandic shelf in the central Arctic Ocean in 2014 while Russia supplemented its original 2001 submission with extensive additional information in 2015. In 2013 Canada provided documentation for some areas and announced that it would come back later with information on the Canadian continental shelf in the central Arctic Ocean. The United States is not a party to the Convention on the Law of the Sea, but is preparing documentation on the extent of its continental shelf. Virtually the entire seabed of the central Arctic Ocean may prove to be composed of national continental shelf, leaving perhaps only a very small international seabed area there.

Where zones and continental shelves overlap, states must negotiate maritime delimitation agreements. For Norway's petroleum industry it was important to have clear continental shelf delimitation agreements with Britain and Denmark as far back as 1965. Norway has since entered into agreements with Iceland on the areas around Jan Mayen, with Denmark on the areas between Greenland and Jan Mayen (following a judgment in the International Court of Justice in The Hague) and with the United Kingdom on maritime delimitation towards the Faroe Islands. After extensive negotiations, Norway and Russia signed an agreement on 15 September 2010 that fixed the maritime delimitation between the two states' zones and continental shelves in the Barents Sea and the central Arctic Ocean.

In September 2006, Norway, Iceland and Denmark signed a negotiation protocol on the procedure for delimiting the continental shelf in the southern part of the 'Banana Hole', a high seas area in the Norwegian Sea. Since then the CLCS has made recommendations on the delineation of the three states' continental shelf areas there. Final negotiations between the three countries have begun on maritime delimitation and other matters.

Documentation on the extent of the Norwegian shelf off Bouvetøya in the South Atlantic was submitted to the CLCS in 2009. The commission is presently processing the submission. At the time of its Bouvetøya submission, Norway also

[7] As early as 2007, Norway introduced a general ban on Norwegian-flag vessels fishing in areas where no management regime exists.

provided documentation for the continental shelf off Dronning Maud Land. In light of Article IV of the Antarctic Treaty and considerations related to Antarctic cooperation, Norway asked the commission not to process for this part of the submission for the time being.

4.1.5 Court for dispute resolution

The International Court of Justice in The Hague has played an important role in resolving maritime legal disputes between states, and in the course of it extensive practice it has helped clarify the legal status and develop important aspects of the Law of the Sea. Among its contributions, the court has adjudicated a number of maritime delimitation cases between states. Norway has been a party in two cases before the court in The Hague, both involving Law of the Sea matters. The first was the so-called Fisheries Case between Norway and the United Kingdom, in 1951; the second, involving Norway and Denmark, concerned maritime delimitation between Greenland and Jan Mayen. Judgment was issued in 1993.

The Convention on the Law of the Sea also established the International Tribunal for the Law of the Sea (ITLOS), in Hamburg, as a mechanism for resolving disputes over the convention's interpretation or application. It is part of a set of alternative dispute-resolution mechanisms that states can choose from. The Convention on the Law of the Sea also allows parties to choose arbitration or a special arbitration tribunal as a dispute-settlement mechanism.

4.1.6 Future demands on international marine management

Given environmental challenges, climate change, increased activity and greater pressure on the oceans of the world, more will be demanded from international cooperation if we are to use the oceans sustainably and protect them in the future. The Convention on the Law of the Sea's rules on environmental management and exploiting marine genetic resources in areas outside national jurisdiction are general in nature, providing little detail in comparison with the detailed fisheries management regulations contained in the UN Straddling Fish Stocks Agreement.

The emergence of the Law of the Sea shows the ability of the international community to develop suitable regulations as needs arise. Ongoing efforts in the UN to craft a new biological diversity agreement to apply outside areas of national jurisdiction are an example of how the Law of the Sea is being developed to regulate in response to new needs. In 2015 the UN General Assembly appointed a committee to prepare elements of a new agreement on biodiversity in marine areas outside national jurisdiction by the end of 2017.[8] The agreement will then be finalised in negotiations during a special conference. The agreement will deal with some of the key issues addressed in the Convention on Biological Diversity, such as regulation of access to marine genetic resources, sharing the benefits of their use, impact assessments, use of area-based management measures like marine protection areas, capacity building and technology transfer. The world community thus has an opportunity to develop a new agreement promoting integrated, science-based marine management systems and strengthening the international legal framework for the protection and sustainable use of international marine areas. Norway will contribute actively to making this happen.

For Norway it is important that any new agreement respect the rules and principles of the Convention on the Law of the Sea and be incorporated into the established Law of the Sea framework so as not to undermine existing agreements and bodies. That means the agreement must stipulate global rules to be implemented primarily through regional environmental management mechanisms in cooperation with regional fisheries management organisations, the IMO, the International Seabed Authority and other relevant bodies. Such an approach is practical and effective, inasmuch as the existing regional and sectoral structures already possess the necessary knowledge, experience and tools.

A new agreement must retain the focus on balancing marine environmental conservation with sustainable use of marine resources. It must ensure that area-based conservation measures are designed to fulfil their purpose as effectively as possible while facilitating sustainable use when this is compatible with the conservation goal. It is also important to respect the rights and special status of coastal states, especially with regard to international marine areas located above national continental shelves beyond the 200-nautical-mile point.

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[8] Resolution 69/292 adopted in the UN General Assembly on 19 June 2015.

4.2 International ocean cooperation

International organisations and cooperation mechanisms have been established to regulate activities at sea. Important work is being done at the global level, for example in UN forums. Over time, a number of organisations and cooperative methods have emerged with specific mandates within their areas of responsibility.

Norway is active in global, regional and bilateral forums concerned with international ocean governance and management. Norway is also party to a number of international agreements with relevance to oceans and the marine environment.

4.2.1 Need for cooperation on marine issues

A characteristic of many problems in important fields, like the environment – where plastic waste, long-range transport of pollutants, climate change and ocean acidification are major concerns – is that one nation alone cannot solve them. Ocean currents and winds can carry pollution and waste far from their place of origin. Negative impacts of human activity at one place can affect ecosystems and humans elsewhere. Emissions of CO_2 and other greenhouse gases affect climate around the globe, regardless of where they are released. To solve problems we need good cooperation mechanisms at both global and regional levels.

Many living sea organisms migrate over long distances. For a variety of fish species, seabirds and marine mammals, such behaviour is part of the natural lifecycle. For countries intending to collaborate on resource management, however, it can be a major challenge. The Intergovernmental Panel on Climate Change (IPCC) points out that climate change may lead to significant shifts in the ranges of marine species, possibly causing existing management challenges to grow more complicated.

Box 4.1 Sea of hope. Marine genetic resources and work towards a new agreement on biodiversity outside national jurisdiction

Genetic material from living organisms provides us with important medicinal active ingredients. A search for genetic material, for example, led us to cyclosporine, which was found in a fungus on the Hardangervidda plateau in 1969 by a representative of a foreign pharmaceutical company. This fungus, it was discovered, had an immunosuppressive effect, and a drug was developed, cyclosporine, which keeps transplanted organs from being rejected. Lack of regulation in the area resulted in proceeds from the sale of this drug going to the pharmaceutical company instead of to society as a whole.

Most active ingredients in medicines come from land-based life. Organisms at sea are catalogued to a much lesser extent than those on land. Researchers at the University of Tromsø have found that sea urchin 'blood' contains bactericidal substances. Extensive use of antibiotics has caused a variety of antibiotic-resistant microorganisms to evolve. The world therefore depends on the continual development of new drugs. It may turn out that part of the solution is in the ocean. In addition to their use in producing medicines, genetic resources can be used to develop cosmetics and ingredients for foodstuffs and animal feed. In Norway, the Sea Resources Act regulates access to marine genetic material. The Nature Diversity Act regulates the extraction and utilisation of genetic material in Norway as well as the import and use of genetic resources from other countries. Norwegian legislation on genetic material is important globally because it includes provisions bolstering legislation in countries that are genetic resource suppliers. Anyone who obtains genetic material in another country must document, when it is imported into or used in Norway, that it was acquired in accordance with the rules of the country in question. Genetic resources from areas beyond national jurisdiction have the potential of being sources of important products, such as new medicines, that the world will need in the years to come. For Norway it is important that the new agreement on biological diversity outside national jurisdiction allows marine genetic resources to be explored and exploited for purposes of innovation and value creation while ensuring that the benefits from such exploitation are shared with developing countries – for example, through access to tests and research data and participation by developing countries in research missions, research projects and commercial product development.

A further challenge is the monitoring and control of undesirable activity. Illegal fishing in international waters is an example of an activity that is hard to stamp out. Efforts by individual countries are often insufficient.

Although existing institutions generally work well, it is important to consider whether the current system of ocean governance and management is well suited to the challenges. Moreover, the challenges we face will change over time. Although different marine activities are often interrelated and exert influence on one other, they are presently regulated largely by sector. Coordination between international bodies is often somewhat ad hoc. Strengthened coordination and cooperation may result in better tools to handle shared challenges, making it easier to achieve Sustainable Development Goal 14.

4.2.2 Key Institutions

Institutions focused on different ocean-related issues have been created as the need for international cooperation has materialised. The Convention on the Law of the Sea imposes on states a general duty to cooperate on resource protection and use and biological diversity. A brief presentation follows on the most important organisations and other important actors and venues through which Norway operates. Many of these will also be mentioned in subsequent chapters.

4.2.2.1 UN and the General Assembly

The UN is the most important forum for developing international norms, and to a large extent it determines the overall framework for ocean-based activities. Several important conventions relevant to the ocean and marine issues have been adopted in connection with the UN and UN institutions, including in particular the General Assembly. The UN is also the arena for approving important declarations and setting forth large-scale policy goals, such as the Sustainable Development Goals of 2015. To advance Norwegian ocean interests it is important to maintain a clear presence in ocean-related arenas, and Norway is an active participant in key UN processes.

The UN plays a central role in the international Law of the Sea regime. Within the General Assembly framework binding rules are developed and negotiated in the form of new instruments, such as conventions, and non-binding rules, such as resolutions. Examples of the latter are annual fisheries and Law of the Sea resolutions, which are of great importance to Norway. Norway is actively involved in General Assembly debates and in the preceding informal negotiations, where the Norwegian delegations consist of representatives from the involved ministries.

4.2.2.2 Other UN bodies

Several specialised UN bodies have a normative function, with tasks related to monitoring, environmental protection, management, information gathering and other topics.

In fisheries and aquaculture a key role is played by the UN Food and Agriculture Organization (FAO). FAO focuses on global food security and is an important arena in the forging of international conventions, such as the Port State Measures Agreement, and norms and guidelines related to fisheries and aquaculture. The work done in FAO to strengthen sustainable global management of fisheries resources is important for Norwegian ocean interests. Norway has had a long and close partnership with the organisation.

The Committee on World Food Security is the central UN political platform on food security and nutrition. The committee serves as an intergovernmental forum within the UN system to review and follow up world food security guidelines. It has an independent expert panel that publishes reports containing scientific analysis and advice.

The Intergovernmental Oceanographic Commission (IOC) of the UN Educational, Scientific, Cultural Organization (UNESCO) is the UN body for ocean science, ocean observation, ocean information and data exchange and the development of services such as tsunami warning systems. The commission strengthens international cooperation and coordinates programmes on research, services and knowledge-exchange relating to marine and coastal areas and resources; it also provides support for management, sustainable development, marine environmental protection and decision-making processes in member countries.

The International Maritime Organization (IMO) is the specialised UN body for regulating shipping. The main purpose is to promote maritime safety and environmental protection. The organisation issues global requirements for ships, ship operations and crews, including ship design and equipment, navigation, communications, seafarer competence and emissions to sea and air. The IMO also facilitates trade and works to prevent piracy and terrorist activities at sea and in port.

The UN Environment Programme (UNEP) is the UN's leading body on environmental matters. In recent years, marine environmental issues have been gaining attention. UNEP's mandate includes assessing and monitoring the state of the world's environment, highlighting environmental challenges that require global attention, developing environmental agreements and conventions, and contributing to member state knowledge and expertise regarding environmental management and sustainable development. The UN Environment Assembly (UNEA) is the programme's highest body and adopts resolutions to be pursued by UNEP and the member states. The third assembly will take place in December 2017, focusing on pollution.

The UN Development Programme (UNDP) is the UN's global network for development, with a broad thematic focus. Through its global ocean governance programme, UNDP is working in partnership with other international actors to ensure that developing countries benefit from marine resources in a sustainable way that facilitates the countries' development goals.

The number of UN agencies working on marine issues in one form or another has created a need for some coordination of the various activities. This is being attempted through the UN Oceans inter-agency coordination mechanism.

4.2.2.3 Other multilateral and regional organisations

Norway provides financial support for and plays an active role in several other multilateral organisations whose mandates relate to ocean affairs, management and marine resources.

The Global Environment Facility (GEF) supports measures to help improve the global environment. As a financing mechanism for the global environmental conventions, GEF is well positioned to view environmental problems in their entirety. In the realm of the oceans, seas and marine resources, GEF has financed the creation of cooperative regional ecosystem and fisheries management organisations in developing countries.

The World Bank provides development assistance, loans and professional expertise to develop-

Box 4.2 UN resolutions can have major practical impact: UN measures against harmful bottom gear

Figure 4.2 UN General Assembly.

Photo: Basil D. Soufi (Creative Commons license).

Implementation of the Convention on the Law of the Sea and the UN Straddling Fish Stocks Agreement is closely monitored and followed up, including through two annual resolutions that are debated and adopted in the General Assembly. The resolutions express political consensus by the states on application of the Law of the Sea in specific matters of ocean management with regard to the environment, maritime security, fisheries, continental shelf issues etc. Consensus on measures to protect vulnerable seabed habitats from damage by certain types of fishing gear, such as bottom trawls, has been important to global marine management. Since 2004 the General Assembly has developed detailed provisions regarding area closure and fishing methods to prevent bottom fishing from damaging coral and other vulnerable seabed habitats. Norway was among the driving forces in designing the provisions, which were later implemented in regional fisheries management organisations such as the North East Atlantic Fisheries Commission and in Norwegian regulations. Their implementation is regularly evaluated in special sessions where states, relevant organisations and civil society all take part. It is a good example of UN resolutions having major practical impact by leading to effective national and regional implementation of globally formulated objectives.

ing countries and middle-income countries and is a key player in international development. The bank's focus is wide, and includes support for marine resource management and coastal areas, sustainable fishing and aquaculture, protective measures, combatting marine pollution and information gathering.

The International Whaling Commission (IWC) is the main global arena for issues having to do with whales. Part of the IWC's mandate is to establish regulations ensuring conservation, development and optimal utilisation of whale resources on the basis of scientific data. In recent decades the commission has been dominated by conservation interests, with the result that it is not in fact fulfilling its mandate. The commission's Scientific Committee, in which Norway plays an active role, has maintained an important role as a knowledge arena for whaling issues. On whaling issues Norway has consistently based its argumentation on scientific data and the principle of sustainable harvesting.

At regional level, a number of bodies with fisheries and marine environmental mandates have been established. Most important for Norway is the North East Atlantic Fisheries Commission (NEAFC), which for countries in this region is the central cooperation arena for fisheries issues, and the OSPAR Commission, which is the key forum in the region for marine environmental management and pollution protection cooperation.

The Northwest Atlantic Fisheries Organization (NAFO) manages fisheries resources in the western Atlantic Ocean. Norway is one of the organisation's 12 member countries and has quota rights to some species in delineated areas. Norway also participates in the SEAFO regional fisheries management organisation in the South-East Atlantic.

Norway is a member of the International Commission for the Conservation of Atlantic Tunas (ICCAT), which manages a number of tuna and tuna-like species, including the Atlantic bluefin tuna, an important commercial species internationally for which Norway has a quota. Improved management within the ICCAT framework has returned this species to a level where it can also be fished in Norwegian waters.

In the Arctic, the Arctic Council plays a leading role in environmental monitoring, information gathering and conservation of the oceans, seas and marine ecosystems. The council is an important arena for Arctic environmental issues, increasingly including issues related to Arctic marine areas. On behalf of its members the council accumulates important knowledge on climate change, pollution and pressures and impacts on Arctic species and ecosystems. Ocean safety and security, oil pollution preparedness and response and search and rescue are other important topics. Norway is actively involved in this work.

With regard to the Antarctic, Norway cooperates with numerous other countries in the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR).

A number of other regional cooperative organisations have the ocean as one of their priority topics, including the African Union (AU) and the Association of Southeast Asian Nations (ASEAN). Norway agreed to partner with both of those organisations in 2015. The Government will prioritise the blue economy in these partnerships. The Latin American trade block Pacific Alliance, the Caribbean Community (CARICOM) and the Alliance of Small Island States (AOSIS) are among other bodies with oceans, fisheries and maritime issues on their agendas.

4.2.2.4 The European Union and the sea

The EU is an important political and economic actor and a partner with Norway in many ocean-related areas. The majority of Norway's maritime industry exports go to EU countries. The relationship between Norway and the EU is close and we cooperate at many levels – thematic, institutional and political. There are many areas of common interest, though there are also issues where Norway's priorities and the EU's priorities are not identical.

The EU's importance to Norway is evident from the various types of legal provisions that become applicable in Norway through the EEA Agreement. Some of these are relevant to ocean affairs, including shipping-related requirements and environmental regulations. Food safety regulations and the veterinary aspects of fishing and aquaculture are also subject to the EEA Agreement. Aquaculture policy and fisheries resource management, however, are not part of it. Trade in fish and fish products is regulated by a separate protocol in the EEA Agreement and by bilateral agreements. Norway does not enjoy free market access for fish and fish products to the EU. Market access issues are discussed in more detail in Part III.

Other maritime regulations that fall outside the scope of the EEA Agreement include the EU Marine Strategy Framework Directive and the Safety of Offshore Oil and Gas Operations Direc-

tive, both of which apply by and large to marine areas between national baselines and the outer limits of national jurisdiction.

Through the EEA Grants, Norway contributes to social and economic equalisation for the EU's least prosperous countries. This support also strengthens cooperation between Norway and the recipient countries. Some of the funds are channelled to projects and institutional cooperation related to oceans, seas and marine resources, including the environment and knowledge acquisition and partly within the EU marine strategy framework and the EU Water Framework Directive. In May 2016, a new EEA Grants agreement was signed with the EU for the 2014–2021 period.

Norway participates in EU research efforts, and there is broad-based research and innovation cooperation with the EU on issues relating to the oceans, seas and marine resources. Many Norwegian research clusters work closely with partner institutions in EU countries, and the union's programmes are an important funding source for Norwegian marine research. Norway is a member of Copernicus, the large European satellite-based earth observation and public security programme. Norway participates in the Horizon 2020 framework programme and is actively working to influence its design to give ocean-based issues a prominent position. JPI Oceans is a long-term coordinating and integrating platform involving 21 member countries and covering all the sea basins of Europe, supplementing efforts pursued through the EU and Horizon 2020. Norway heads the Brussels-based secretariat, which works among other things to expand the common European effort to combat ocean pollution, including the problem of plastics and microplastics (see Box).

Box 4.3 JPI Oceans

Norway plays an active role in the Joint Programming Initiative Healthy and Productive Seas and Oceans (JPI Oceans), a European research collaboration whose goal is to contribute to ocean health and productivity. This is done by developing shared strategies to facilitate sustainable growth and better coordinating the research funding that is channelled through various countries to marine and maritime research.

JPI Oceans has defined 10 strategic areas and three crossover issues related to policy development, expertise and infrastructure. Through JPI Oceans, several joint projects have been initiated, including for the purpose of standardising measurement systems and mapping the ecological effects of microplastics, seabed mining and dumped munitions. There are also projects for more efficient use of infrastructure, marine observations and marine technologies, in cooperation with the EU's Horizon 2020 framework programme.

JPI Oceans has established cooperation with two other JPIs, whose focuses are food security and health, so seafood can be included in the research and policy development on food security and nutrition. The central mission of JPI Oceans is to strengthen knowledge and policy development in order to better integrate and coordinate ocean management. Its emphasis is therefore to increase knowledge exchange, the development of common standards and observation systems, and cooperation on infrastructure.

4.2.2.4.1 Key EU priorities on oceans, seas and marine resources

The ocean sector is thought to have great potential to spur growth and innovation in European countries. In 2012, the EU presented its first blue growth strategy with the aim of supporting sustainable growth in the marine and maritime sectors. In 2014, the strategy was augmented to better release the potential for innovation.

As a share of the EU's economy, the seafood sector is modest, but regionally it is of great importance. Overfishing has been a long-standing problem. A reform package adopted in 2014 provided the EU with new policy instruments intended to make fisheries management more sustainable. The EU's Common Fisheries Policy outlines the union's priorities in international fisheries negotiations, and thus affects Norway. It is uncertain how the UK's exit from the EU will affect the union's priorities in fisheries negotiations to which Norway is a party.

EU aquaculture production has developed modestly since 2000. The ambition is to encourage growth in the sector in the years to come through reforms to the Common Fisheries Policy and work with strategic guidelines.

Norway and the EU have many common interests in marine issues. In November 2016, the European Commission presented a broad initia-

tive on ocean-related governance and management.[9] The initiative, which addresses both European and global issues, points to a potential for improvement in the international institutional framework, the importance of the environment and sustainable marine management, and the need for more knowledge and data about the oceans. Actions were proposed with regard to improving maritime security; combatting illegal, unregulated and unreported fishing; protecting marine ecosystems; reducing marine litter, including plastics and microplastics; and investing in marine research and innovation.

The EU has presented an action plan on circular economy and announced that new legislation is expected in the second half of 2017. An important objective for new marine environmental legislation will be to divert waste away from dumping sites and thereby reduce the amount that ends up as marine litter.

The EU has agreed to host the annual international Our Ocean conference in Malta in October 2017. It is yet another expression of the union's ambition to play an active role in global maritime issues. The EU and its member countries participate in a number of other international marine-related arenas of significance for Norway, including the UN General Assembly, the UN Environment Programme, the Arctic Council, the North East Atlantic Fisheries Commission and the OSPAR Commission. The Government attaches great importance to close and constructive cooperation with the EU on marine issues and wishes to develop this cooperation further.

4.3 Safe seas

The maritime dimension of security policy has gained importance in recent years. For Norway, it is crucial to pursue a security policy that safeguards our interests at sea. Elements include the Law of the Sea, enforcement of sovereignty, exercise of authority, freedom of movement and security, defence and alliance policy.

The Norwegian Armed Forces, through the Navy and Coast Guard, is the primary agent of authority in Norwegian areas of interest by virtue of its daily presence in key areas and its readiness to address security-threatening incidents and conflicts. The Navy participates in exercises and operations at home and abroad with allies. This helps ensure security at sea. Throughout the year, the Coast Guard is present to safeguard Norwegian interests, exercise authority on behalf of a number of agencies and carry out important tasks in cooperation with other countries.

Security challenges at sea are complex and vary considerably from region to region. As world population expands, the need for maritime transport and ocean resources will increase, giving rise to opportunities and challenges. Agreements on maritime delimitation and respect for the Law of the Sea are the keys to peaceful cooperation. Unsettled jurisdictional issues are potential sources of conflict.

Other security challenges at sea include piracy, smuggling of weapons and drugs, smuggling of human beings and environmental crime. Although in Norwegian marine areas such problems are limited in scale, they do affect Norwegian interests, whether directly or indirectly. Climate change may pose a security risk by impairing human livelihoods due to – for example – a rise in sea level or changes in the ranges of important fish stocks and other living resources.

4.3.1 The Arctic

Since the end of the Cold War, the interests of the Arctic states have by and large coincided in the north. Tensions have been low and cooperation successful. The five coastal states bordering the Arctic Ocean agree that the UN Convention on the Law of the Sea provides the legal framework for activity in the Arctic Ocean. The agreement Norway and Russia signed in 2010 on maritime delimitation and cooperation in the Barents Sea and the central Arctic Ocean exemplifies how settling jurisdictional issues is in the shared interest of the parties involved and can provide large benefits in a number of areas. Norway and Russia cooperate bilaterally on key Arctic issues such as search and rescue, oil pollution preparedness, nuclear safety, environmental protection, fisheries management and people-to-people relations. The Government wants to maintain contact and constructive cooperation on these issues. This will be mutually beneficial and will help to keep tensions low and provide predictability.

Conflicts elsewhere in the world have had little impact in the Arctic, but it cannot be ruled out that increased tension elsewhere in the world could have a spillover effect. Russian presence and training activity in the region have increased over time, especially in the maritime realm. Strategically and

[9] Joint Communication on 'International ocean governance: An Agenda for the future of the ocean', issued 10 November 2016.

militarily, the region is very important to Russia, and Norway pays close attention to developments in the region.

Norway is a strong advocate within NATO for addressing the maritime dimension and maintaining good situational awareness in the High North. Norway contributes significantly to the alliance's standing maritime capabilities, especially in northern Europe, and is a driving force in the modernisation of NATO's maritime strategy. Getting member states to commit sufficient resources to standing maritime groups and maritime operations has been a challenge, but there is now agreement that member states will contribute more to the naval forces. It is very important that the standing maritime groups not become tied down in ongoing operations, but remain available for collective defence and crisis management. During the NATO Summit in Warsaw, in July 2016, it was agreed to continue strengthening the alliance's maritime strategy and to continuously assess security in the marine areas that fall within the alliance's scope of responsibility.

In recent years, NATO has been involved in a number of maritime operations, including terrorism preparedness in the Mediterranean, piracy suppression around the Horn of Africa and situational awareness in the southern Mediterranean.

4.3.2 Baltic Sea region

The importance of the Baltic Sea region to security policy has risen lately due to its strategic position in the frontier area with Russia. What is now considered the normal state of affairs in the region is tenser and more unpredictable than it was in the two previous decades.

The Nordic countries face common regional challenges, both in the north and in the Baltic Sea. Although Finland and Sweden are not NATO members, they would be very important in dealing with a potential security crisis in the region. It is therefore important that the Nordic countries remain in close dialogue over developments in the region. Norway is also well served by NATO exchanging information and cooperating closely with Finland and Sweden on developments in the Baltic area.

4.3.3 The European Union and maritime security

The EU's maritime security strategy, dating from 2014, aims to ensure that marine areas are open to economic development, free trade, transport, energy production and tourism, and that good environmental status is maintained. Security challenges related to marine areas and maritime boundaries are to be addressed, it is emphasised, in accordance with the Law of the Sea.

Figure 4.3 KV Senja on a mission.

Photo: Norwegian Coast Guard.

Maritime security, including the monitoring of marine areas important to EU member states, is another a key objective in the implementation of the EU's new global security strategy.

Closer cooperation on maritime security is a key element of the July 2016 Joint Declaration of strategic partnership between the EU and NATO and of the Implementation Plan approved in December 2016 at EU and NATO ministerial meetings. There, both organisations committed to strengthening operational cooperation at sea, including with regard to migration. Close cooperation between NATO and the EU on maritime security is positive for Norway.

4.3.3.1 Migration by sea

The ocean is a widely used means of passage for cross-border migration. For several years, Europe has experienced an extraordinary influx of refugees and migrants. Most of these come across the Mediterranean Sea. Migration by sea is closely intertwined with human smuggling and is a serious challenge.

The human smuggling is linked to Europe's asylum system. There are few channels for submitting an application for protection without having contact with human smugglers somewhere during the process. According to Europol, 90 % of the more than 1 million refugees and migrants who entered Europe in 2015 used smuggling services during all or part of the journey.

Maritime operations in the Mediterranean have been important in controlling the Schengen Area's external borders, combatting the smuggling of human beings and managing refugee and migration flows.

In October 2016 an expanded mandate for the European Union's external border protection agency, Frontex, entered into force. A European border and coast guard was thus established, with more numerous and more extensive tasks than before. The main purpose of the expanded mandate is to strengthen control over the external EU and Schengen Area borders. The member state authorities responsible for border control, including coast guard border control tasks, are included in the expanded mandate. National border authorities will continue to have the main responsibility for external border control.

A large portion of the external EU and Schengen borders are at sea. Frontex assists nation states with maritime border control. Since the summer of 2015, Norway has contributed two ships to Frontex's border control and rescue activities in the Mediterranean: the vessel *Siem Pilot*, based in Italian territorial waters for Operation Triton, and the Norwegian Society for Sea Rescue's vessel *Peter Henry von Koss*, based in Greek territorial waters for Operation Poseidon. The Norwegian vessels help in securing improved control over the maritime boundaries of the EU and Schengen Area.

The EU's naval force in the Mediterranean Sea, EU NAVFOR MED, has had its operating area expanded. The operation is now helping enforce the UN arms embargo on Libya, and it includes training the Libyan coast guard and navy with a view to halting weapons smuggling and human smuggling in Libyan waters.

4.3.4 Piracy

For Norway, as a shipping nation, security for all forms of maritime transport is important. Piracy is an obstacle to international trade and weakens Norwegian economic activity. It poses a danger to the life and health of seafarers. Piracy is also destabilising for the countries where criminal activity of this sort is based.

The areas most vulnerable to piracy today are the Gulf of Guinea off West Africa, the western Indian Ocean and Southeast Asia. Growth in merchandise trade and the world's increasing dependence on international trade amplify the consequences of piracy.

The fight against piracy ties up naval resources that increasingly are in demand for other missions. Some developing countries have little or no means of exercising authority in their marine areas. Lack of relevant legislation may be a further challenge. Reference is made to the anti-piracy measures specified in the white paper *Global security challenges in Norway's foreign policy* (Meld. St. 37 (2014–2015)). The Government will continue its broad-based approach to combatting this problem.

4.3.5 Environmental crime and the sea

Environmental crime finances organised crime, which in some cases may fuel terrorism and armed conflict. Environmental crime also causes states to lose large amounts of tax revenue and access to natural resources, and may contribute to poverty. The sea is the main transport route for such crime. Environmental crime includes illegal trade in such goods as timber, minerals, cultural heritage articles and fish, as well as trade in and dumping of chemicals and hazardous waste. Inter-

pol has asserted that illegal activities occur in conjunction with the trading of quotas such as fishing quotas, hunting quotas and climate quotas.

A major challenge in combatting environmental crime is lack of capacity and lack of information exchange between the police, Coast Guard and supervisory authorities. This reduces the ability to supervise and investigate the entire value chain. An important part of the value chain is enforcement at sea, where most of reloading onto transport vessels takes place for products like timber and illegal fish. If maritime enforcement is to be as cost-effective as possible, multiagency cooperation and sharing of information are important.

The Government is working to achieve an integrated approach in which environmental crime is viewed in the context of other forms of organised crime, since the same actors and the same transport routes and vessels are often involved in different types of crime. The Government is emphasising capacity building for prosecutors, courts, police and supervisory authorities. Norway provides funds to combat environmental crime through the United Nations Office on Drugs and Crime (UNODC), Interpol and the UN Environment Programme.

The UN Environment Programme and the UN General Assembly are among the bodies that have adopted decisions on illegal trade of flora and fauna, including illegal sales of timber and endangered species. Norway is actively involved in work under the Convention on International Trade in Endangered Species (CITES) and the UN Convention Against Transnational Organised Crime, and the Government is seeking to promote a broader approach to environmental crime that encompasses fisheries crime.

The measures specified in the white paper *Global security challenges in Norway's foreign policy* (Meld. St. 37 (2014–2015)) guide Norway's efforts to fight environmental crime. The white paper states that Norway is open to the development of new legally and politically binding instruments to counter new forms of serious cross-border organised crime.

4.3.6 Climate change, the sea and safety

Climate change has been on the security policy agenda for several years. Global warming leads to sea level rise, extreme weather, flooding, drought and heat waves. These undermine food security, economic progress and social stability in vulnerable areas, especially in tropical and subtropical zones.

The effects of climate change on the oceans may exacerbate regional and global security challenges, with possible major implications for Norway and Norwegian interests. The most obvious example is sea level rise, which in the long term, and in combination with more extreme weather and more frequent storm surges, poses a serious threat to many densely populated low-lying coastal areas where many of the world's largest cities and most important agricultural areas are located. But shifts in the ranges of important fish stocks and diminished catch potential at low latitudes – possibly compromising food security – could aggravate the security situation in vulnerable countries and regions, with possible consequences for Europe and Norway.

Particularly vulnerable, according to the Intergovernmental Panel on Climate Change, is Southeast Asia, including small island states. But parts of Africa, North America and Australia could also be hard hit. The panel's most recent report highlights the risk that a rising sea level, storm surges and flooding represents for life, health and livelihoods in low-lying coastal areas and small island states. The same applies to diminished catch potential and destruction of coral reefs in tropical areas, partly due to ocean acidification.

Sea level rise in the large and densely populated deltas of Asia and Africa could trigger waves of migration and intensify conflicts, possibly with serious security implications. One example is Bangladesh, where by 2025, according to the country's own scientists, 17 % of land area may be flooded. In addition to more frequent floods, such areas also face increasing levels of erosion and saltwater intrusion into rivers and groundwater.

Vulnerable states under pressure from resource shortages, population growth, poverty and, in many cases, poor governance, are also those most affected by climate change. The threat increases with the degree of climate change, but can be limited through climate adaptation and measures that mitigate the damage from climate change and strengthen the ability of countries and communities to handle the change.

Part III
Priority areas for Norway

5 Sustainable use and value creation

The blue economy is crucial to Norwegian living standards, social welfare and the access we have to products and services from all over the world. However, the relative importance of the various ocean-based industries will vary over time. Oil and gas resources will continue to play an important role for decades, but will eventually give out. Renewable resources like fish can be harvested forever if we manage them in an integrated and sustainable manner. New industries will emerge in Norway and internationally.

Norway has large, rich marine areas that are a good starting point for participating in the expected global growth of the blue economy that the OECD points to in its 2016 report. The Government has high ambitions for value creation in the ocean-based industries, as indicated in its ocean strategy of 21 February 2017 and previous management documents.

Value creation is maximised by using the oceans in a sustainable manner. That means maintaining a sound environment. Doing so is important in a national perspective, but it is also a fundamental aspect of Norway's international involvement. Sustainable use of marine resources and value creation at sea help in achieving Sustainable Development Goal 14, but also the other sustainability goals, such as Goal 2 on eradication of hunger, Goal 7 on energy, Goal 8 on decent work and economic growth, Goal 9 on innovation and infrastructure, and Goal 12 on sustainable consumption and production.

5.1 Oil and gas sector

Among Norway's ocean-based industries, the petroleum sector holds a special position. It is the country's largest industry as measured in value creation, export value and employment. In 2014, the industry's total value creation amounted to NOK 668 billion.[1] Norwegian oil is a global commodity sold to countries around the world. The most important export markets for natural gas are in the EU, where Norwegian gas accounts for more than 20 % of demand. In 2015 Norway was the eighth-largest exporter of crude oil in the world and the third-largest exporter of natural gas.

While traditionally the industry has been centred in the North Sea and the Norwegian Sea, in recent years exploration and production in the Barents Sea have drawn increased interest. The first gas field in the Barents, Snøhvit, entered into production in 2007, and the first oil field, Goliat, in 2016. The supply industry serving the oil and gas sector is highly advanced and internationally competitive.

The Government's ambition is for Norwegian petroleum enterprises to be world leaders in health, safety and environment (HSE). Work has begun on a new HSE white paper which will include a broad review of HSE conditions in the industry and an assessment of supervisory activity and regulations.

Norway's management of petroleum activity is exercised within a sound framework, with due regard for the external environment. An extensive set of policy instruments helps ensure that the various actors consider the environment and the climate in all phases of activity, from exploration to development, operation and completion. The authorities and oil companies work together in research, technology development and education and training.

With population and income per capita rising, the world needs ever more energy. Future demand for oil and gas, however, is influenced by a number of factors, including economic growth, technological development and climate policy.

The International Energy Agency (IEA) has drawn up three scenarios for future energy demand (World Energy Outlook 2016). In the IEA scenarios, aggregate oil and gas demand will increase towards 2030. New resources will have to be developed to make up for falling output from existing oil and gas fields. Climate policy and the development of low- and zero-emission technologies in the energy, transport and other sectors

[1] Menon Economics (2016).

could have a major impact on fossil fuel use and demand in the long term.

Oil and gas production on the Norwegian continental shelf is expected to remain relatively stable in the next few years. The industry is expected to remain a mainstay of the Norwegian economy for many years, not only directly but also indirectly, through the Government Pension Fund Global. At year-end 2016, the fund's value was approximately NOK 7 500 billion.

The oil and gas industry and the related supply industry are both globalised and derive increasing shares of their revenue from investments in other countries and regions. The Government Pension Fund Global invests as a general principle only in other countries, not in Norway. An important aspect of Norwegian foreign policy is to promote Norwegian energy interests to governments and other actors in the countries of operation, in a way consistent with Norwegian petroleum policy and UN Sustainable Development Goals. Sound, transparent and predictable investment conditions are in the interests of the energy industry and other ocean-based industries. These are important topics in the continuing work of Norway's missions abroad as they interact with relevant national authorities. Such efforts, both on behalf of ocean-based industries and more generally, were significantly stepped up starting in autumn 2013.

Norway's international energy interests were identified in the white paper *Interests, Responsibilities and Opportunities – The main features of Norwegian foreign policy* (Meld. St. 15 (2008–2009)), which received broad support in the Storting.

5.1.1 International cooperation in the oil and gas sector

The Government promotes Norwegian energy industry interests through its participation in international organisations. That is the case for free trade and open markets in general, which are pursued in the WTO in particular, and for energy interests pursued in multilateral institutions that are more specifically focused on energy.

The International Energy Agency is the cooperative organisation of OECD countries in energy affairs. The agency's goal is to increase supply security for member countries and to promote more sustainable energy use. The IEA plays an increasingly important role in analysing global energy trends and their implications for future demand for and consumption of different energy sources. Dialogue has been established with several non-member countries, and an association process has begun, with Norwegian support, to increase cooperation with key countries outside the OECD area, such as China.

The IEA is a key organisation in international energy and climate policy and an important body through which to assert Norwegian energy policy views and interests. By means of its analyses and reports the organisation is an agenda-setter, both internationally and in Norway, for global energy and climate discussions. The IEA's analyses are highly regarded and constitute part of the common knowledge base that informs the outlook for petroleum resource extraction. The organisation issues forecasts, for example, on future global oil and gas production. The IEA also analyses the development of renewable energy sources, including offshore wind.

Another energy organisation that Norway participates in, and helped initiate, is the International Energy Forum (IEF). The IEF's main tasks are strengthening dialogue between consumer and producer countries and providing data transparency in energy markets (oil/gas) by working for uniform international reporting of statistics. The organisation currently has about 75 member countries, including all of the OPEC countries[2] and Russia as well as major consuming countries like India and China. The IEA and OPEC also participate in the organisation. The organisation is an important meeting place for consumers and producers, where all types of energy issues may be raised, including those related to offshore petroleum activities and petroleum transport.

International cooperation also extends to matters of security. A significant part of petroleum activity takes place near or across maritime delimitation lines, or across the delimitation lines between national continental shelves. This creates a need for close cooperation and information exchange between the authorities in the different countries with regard to regulations, regulation enforcement and lessons learned in the wake of incidents. To facilitate integrated follow-up measures across maritime delimitation lines, Norway has entered into agreements with a number of countries. Cooperative forums have also been established, such as the North Sea Offshore Authorities Forum (NSOAF) and the International Regulators Forum (IRF). A forum for governmental cooperation on Arctic petroleum activities (the Arctic Offshore Regulators Forum) was establis-

[2] Iraq, Iran, Kuwait, Saudi Arabia, Venezuela, Qatar, United Arab Emirates, Algeria, Indonesia, Libya, Nigeria and Ecuador.

hed in spring 2015 under the auspices of the Arctic Council.

In the North-East Atlantic, the OSPAR Commission is an important forum for developing joint rules and measures to reduce pollution from offshore oil and gas activities.

5.2 Maritime industry

Maritime transport is vital to world trade and global market access, and is thus a key factor for achieving sustainable development.

Shipowners, shipyards and maritime equipment and service providers make up the Norwegian maritime industry, which in 2014 generated NOK 183 billion in value.[3] Products and services for the petroleum industry and maritime transport are the main sectors. Norway's maritime industry is highly international in reach, with ships, drilling rigs and other advanced equipment in service worldwide. With the exception of the petroleum industry itself, it is the industry that contributes most to Norwegian export revenues. Norway is the world's tenth-largest shipping nation when ranked by tonnage, and the sixth-largest by value. Shipping alone represents more than half of value creation in the maritime industry. The Norwegian shipping fleet is modern and specialised in technologically advanced, capital-intensive segments.

Our maritime industry is a leader in terms of quality, expertise and the development and use of environmental technology, and is a supplier of advanced technology for complex operations. The EU countries, the United States, Brazil, Russia, China, Japan, South Korea and Singapore are among the most important export markets for Norwegian maritime companies. According to the OECD, maritime transport and shipbuilding are among the sectors that can expect significant global growth as a result of increased world trade through 2030.

The Government's maritime strategy *Maritime Opportunities – Blue Growth for a Green Future*, which was issued in May 2015, contains initiatives and policy instruments of particular relevance to continued development and value creation in this industry.

5.2.1 International cooperation in shipping

Norway is a leading shipping nation, and as one of our most globalised industries the shipping industry seeks a level playing field across the world. Under the UN Convention on the Law of the Sea, rules governing this industry are to be formulated by international bodies. The most important of these is the International Maritime Organization (IMO), with about 55 conventions adopted to date and an extensive regulatory framework. The Government's goal is for Norway to be a driving force for safe and environmentally friendly shipping, and the IMO is an important arena in which to achieve this.

Among the most important conventions is the International Convention for the Safety of Life at Sea (SOLAS), which establishes a set of minimum standards for ship construction and equipment, meteorological services, search and rescue and the handling of hazardous goods. Others include the International Convention for the Prevention of Pollution from Ships (MARPOL), the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) and the International Convention on Control and Treatment of Ships' Ballast Water and Sediment. All of these conventions have been ratified by Norway. It is worrying that the IMO Convention for the Safe and Environmentally Sound Recycling of Ships (the Hong Kong Convention) has not come into force nearly 20 years after Norway placed the issue on the IMO's agenda.

Safe shipping is essential to the lives and health of crews and passengers, as well as to pollution prevention. The Government has ambitious environmental objectives for the maritime industry. In its white paper *New emission commitment for 2030 – towards joint fulfilment with the EU* (Meld. St. 13 (2014–2015)), the Government identified environmentally friendly shipping as a priority area.

Although maritime transport is generally energy efficient and climate friendly, there is also growing recognition that energy-efficient and environmentally friendly ships will fare better in future market competition. In recent years, shipping has become subject to a stricter international regime, with rules limiting emissions to air and water. The Government is a global advocate of more environmentally friendly shipping.

Like other industries, shipping will have to undergo radical change to meet climate challenges. Such change will be demanding, but at the same time it represents a large global opportunity for Norway's maritime industry. Developing and innovating new environmentally friendly technologies can reduce emissions cost-effectively while having major ripple effects in the form of increa-

[3] Menon Economics (2016).

Figure 5.1 The Norwegian fleet is modern and specialised in technologically advanced, capital-intensive segments. Pictured is an LPG tanker, designed for transporting liquefied petroleum gas.

Photo: Solvang ASA.

sed export opportunities, value creation and jobs. More efficient ships and additional use of new technologies, liquefied natural gas and battery operation should make it possible to reduce emissions while fulfilling the transport needs of global trade. The development of green shipping can be an important part of a green shift nationally and internationally.

Piracy, organised crime, migration and corruption are all risk factors for international shipping. It is important to contain the security challenges by means of good ship design, ship security, cooperation with naval forces and good access to threat information.

Norway has a long tradition of cross-sectoral cooperation across government and industry to safeguard Norwegian-controlled ships in foreign traffic. The Norwegian Shipowners' Association receives an annual grant to maintain cooperation between its industry and public sector bodies such as the Armed Forces, embassies and relevant ministries. This gives an idea of the resources that can be drawn on if an incident arises, as well as the effective information sharing involved in making sailing plans.

An important task for the diplomatic and consular missions is to assist the shipping industry in the event of an ordinary ship accident, problems at port, piracy or suspicions of terror-related cargo transport. This applies primarily to Norwegian-registered ships and Norwegian citizens.

The Government will

- continue to promote the implementation of, and seek to generate support for, global shipping rules
- strengthen dialogue with leading countries on ways for the shipping industry to contribute further to environmentally friendly transport at the global level
- work on long-term measures to help keep pirates from Somalia from resuming their attacks on shipping in the Gulf of Aden and the Wes-

tern Indian Ocean, and to support countries in West Africa so that the region itself is able to hinder piracy
- establish maritime security cooperation with appropriate maritime shipping nations in the Association of Southeast Asian Nations (ASEAN) to promote free and safe maritime traffic through waters of strategic economic importance in the Strait of Malacca and adjacent Southeast Asian waters
- continue providing environment-oriented assistance within the framework of the International Maritime Organization's support to developing countries, especially for shipbreaking

5.2.2 Shipping in the north

Norway has long shipping traditions in the Arctic, and the Government seeks to further enhance our position as a leading responsible maritime actor in the north. More than 80 % of shipping in the Arctic takes place in Norwegian areas. We therefore have a special responsibility to facilitate safe and environmentally friendly ship traffic and to ensure good situational awareness and a firm presence.

In recent years we have seen the first commercial cargo transit passages between Europe and Asia through the Northern Sea Route along the Arctic coast of Russia (part of the Northeast Passage). The number of sailings is still limited, but if climate change continues at the present pace and Russia facilitates increased traffic, the route may become commercially important at some point in the future.

Initially, increased ship traffic in the northern marine areas is expected to consist primarily of vessels transporting goods to and from destinations within the region and providing services linked to petroleum production. As new maritime opportunities open up, knowledge acquisition will be important. The Centre for High North Logistics (CHNL) was established in Kirkenes in 2008 and has since served as an important knowledge hub about new transport opportunities in the north.

Norway has played an active part in the development of global rules for shipping in polar waters. The Norwegian Maritime Authority led efforts to develop the Polar Code in the International Maritime Organization. The Polar Code is a key to ensuring that shipping in polar waters is conducted sustainably and contains stricter safety and environmental requirements. The code entered into force on 1 January 2017. The search and rescue agreement between the Arctic states (see Box) also enhances shipping safety in the north. Other important projects are SARiNOR (Search and Rescue in the High North) and MARPART (Maritime Preparedness and International Partnership in the High North).

Existing satellite communications systems that serve the marine areas north of 75° N latitude are limited in performance and capacity. Search and rescue operators, among others, may find the situation challenging. The Government is performing a conceptual study to assess the need

Box 5.1 International cooperation on Arctic search and rescue

The Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic, signed in 2011 by the member states of the Arctic Council, entered into force on 19 January 2013. Increased activity and traffic in the Arctic are what led to the need for greater cooperation by the countries responsible for search and rescue in Arctic waters. The agreement divides the Arctic into appropriate search and rescue regions, establishes national points of contact and cooperation mechanisms, and facilitates information sharing and mutual aid and assistance. The Joint Rescue Coordination Centre Northern Norway is the Norwegian operational contact point. Exercises based on the agreement have been conducted, most recently in 2016 off the coast of Alaska, where the training scenario was mass rescue from a cruise ship.

The Arctic Council's Emergency Prevention, Preparedness and Response (EPPR) working group is responsible for accident prevention, preparedness and response planning in the Arctic. The EPPR working group facilitates implementation of the Arctic search and rescue agreement by focusing on such matters as increased cooperation, information exchange and experience sharing from exercises and incidents. In 2015, an expert group on search and rescue was established under the EPPR. It is led by the Joint Rescue Coordination Centre Northern Norway. The EPPR also has a responsibility for implementing the agreement on Arctic oil pollution.

and potential for a satellite-based communications system in the Arctic.

The Government will

- work nationally and internationally to ensure effective implementation of the Polar Code
- work to safeguard the environment, maritime security and emergency preparedness in northern marine areas by strengthening cooperation within the International Maritime Organization and the Arctic Council and with other countries, including a consideration of continued follow-up of the SARiNOR 1 and 2 and MARPART projects
- assess the need and potential for a satellite-based communications system that will enhance performance and capacity for communications in northern marine areas

5.3 Seafood industry

Norway has a seafood industry of considerable scale, and in recent decades it has been heavily engaged in international cooperation on sustainable fisheries management. The concern is to simultaneously pursue national interests and assume a global responsibility for the international community's use of the sea. Norway is dependent on robust international cooperation to share in the resources, generate value and contribute meaningfully to global food security, whether in our own vicinity or in other marine areas where Norwegian operations are conducted. International cooperation on the sustainable use of living marine resources touches on central Norwegian foreign policy interests.

In Norway, the marine resource act is an important tool for managing fisheries soundly and meeting our international obligations, including the protection of biodiversity. The act includes principles requiring public administration to regularly assess whether a fishery is sound or action must be taken. The assessments emphasise an ecosystem-based approach, and measures imposed must be consistent with the precautionary principle.

The Norwegian seafood industry has seen strong growth in recent years, both in terms of value creation and export revenues. In 2014, value created in the industry amounted to NOK 41 billion.[4] Norwegian seafood is exported to approximately 140 countries. In 2016, we exported seafood valued at NOK 91.6 billion, which was a new record and 23 % more than in 2015.[5] Fisheries account for an important part of the wealth Norway derives from the sea, with cod in the Barents Sea representing the single fish stock of greatest value.

Figure 5.2 Catches landed by Norway's fishing fleet generate large annual revenues.

Photo: Institute of Marine Research.

The greatest value is generated by the aquaculture industry. The industry, which dates back to the 1970s, has grown significantly and in 2006 its export value surpassed that of the fisheries. Norwegian aquaculture is dominated by Atlantic salmon, and in 2016 about 1 million tonnes of it were exported to markets all over the world, most importantly to countries in the EU and the United States. Norway produces more than half of the world's farmed salmon and is now the largest sea-based aquaculture producer in the world. The Government has ambitions for continued growth in the aquaculture industry.

Today's level of salmon production would not have been possible without attending to crucial factors like the environment and fish health. But

4 Menon Economics (2016).

5 Norwegian Seafood Council.

as with most forms of economic activity at sea, aquaculture does have environmental impacts. Current problems include area use conflicts in coastal zones, water quality in areas of intensive aquaculture, contagious diseases (including parasites such as salmon lice), fish escapes and the use of medicine and chemicals. Environmental protection is a prerequisite for further growth.

Knowledge-based management is at the core of Norwegian policy for the seafood industry, whether the product is wild or farmed. A clean, healthy ocean in a sound environmental state provides fresh, nutritious fish attractive to customers in Norway and abroad and profitable for the seafood industry.

5.3.1 International fisheries and aquaculture

Sustainable Development Goal 2 states that by 2030 the world shall eradicate hunger and ensure access to safe and nutritious food for all people. For the world community this will be a massive and important undertaking in the coming years. Sustainable Development Goal 14 will play an important role in the process.

The UN Committee on World Food Security has stated that seafood, with its high content of high-quality proteins, omega-3 fatty acids and other important nutrients, plays an important but underemphasised role in food security and nutrition. The Government is working to raise awareness of seafood's role in food security and nutrition. Funds have been allocated in 2017 to enable Norway to share knowledge in this area with other countries.

Food production affects the environment. A third of all food produced is never eaten. Reduced food waste would make more food available to the world's growing population and reduce pressure on the environment. At Norway's initiative, the Food and Agriculture Organization of the UN (FAO) is now developing guidelines to reduce food waste throughout the fish value chain. The Government is contributing funding for this work.

Per capita consumption of fish protein has increased in recent years, due to the growth in aquaculture and lower fish prices. People worldwide are now eating more farmed fish than wild fish. According to FAO, global consumption of animal protein from seafood accounted for 17 % of total animal protein consumed in 2013. The potential for seafood to play a greater role in food production is therefore high. And since wild-caught fish do not need fresh water, fertilisers, pesticides or medicines, the environmental effects of catching wild fish are low compared to other animal-based food production, assuming that marine resources and marine and coastal areas are managed in a sustainable manner.

Although the situation for fish stocks harvested in Norwegian areas is good, the situation for fisheries worldwide is somewhat different. Developments are worrying, with the proportion of stocks harvested at a biologically sustainable level decreasing, according to FAO, from 90 % in 1974 to 68.6 % in 2013. That negative trend means some 31 % of the world's commercial fish stocks are now overfished. The stocks that are not fully utilised amount to 10.5 %. According to a February 2017 World Bank report, the fisheries sector globally could earn an additional USD 83 billion annually by fishing less, but better.[6] By reducing global fishing, overfished stocks would again become sustainable. The weight of the catch would then increase, along with its value and the price of fish sold. According to the report, this would improve food security and increase revenues for developing countries.

A 2014 FAO study estimated that global aquaculture production would grow by 58 % by 2022. This could make a significant contribution to global food security. It is essential that future aquaculture growth occur within an environmentally sustainable framework. But there are also some environmental benefits to ocean-based aquaculture. Research suggests that farmed fish have a relatively small climate footprint compared to other protein sources.[7] Increased aquaculture production could ease pressure on commercially important stocks in the ocean.

5.3.2 Norway's neighbouring areas

The length of our coastline and the extent of our marine areas, which border on a number of other coastal states as well as international waters, highlight the importance of effective regional cooperation on sustainable management of living marine resources. Norway has played a key role in developing the organisations and forums that have emerged, and that are important in advancing Norwegian policies and ocean interests. Active Norwegian participation is a major element of our foreign economic policy and an important

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6 *The Sunken Billions Revisited*, World Bank, 2017.

7 'Carbon footprint and energy use of Norwegian seafood products', report by SINTEF Fisheries and Aquaculture, December 2009.

Figure 5.3 The Norwegian aquaculture industry has grown significantly since the 1970s. Norway is the world's largest producer of sea-farmed fish. The picture shows cages used in the production of salmon.
Photo: Norwegian Seafood Council.

pillar in our bilateral relations with a number of neighbouring countries.

Norway has actively contributed to the development and design of regional fisheries management organisations, not only in our vicinity but also in other parts of the world.

5.3.2.1 Fisheries management cooperation in the North-East Atlantic

Norway is actively involved in the North-East Atlantic Fisheries Commission (NEAFC), one of the oldest regional fisheries organisations and one that is very important to Norway. Its overall objective is to combine long-term conservation with the best possible exploitation of fisheries resources in the North-East Atlantic. The members are Denmark (on behalf of the Faroe Islands and Greenland), the EU, Iceland, Norway and Russia. Important tasks include the development of high-quality control schemes and ecosystem-based fish stock management. NEAFC also sets quotas for certain deep-sea stocks in its area of regulatory jurisdiction and coordinates fishing regulations for stocks that migrate between coastal state economic zones and international waters.

Protection of vulnerable marine habitats is an important issue, and protective measures have been introduced against harmful bottom fishing in several international marine areas in the organisation's jurisdictional area. NEAFC has begun cooperating with the OSPAR Commission, which has the task of protecting and preserving the North-East Atlantic marine environment. NEAFC was the first regional fisheries management organisation to establish rules for port state control, which is an effective means of combatting illegal fishing.

5.3.2.2 Fisheries negotiations and agreements

Up to 90 % of the fish resources from which Norway harvests are shared with other countries. The management and distribution of these resources are subject to annual international fisheries negotiations. The fisheries agreements signed must ensure that the harvesting of stocks will occur within a sustainable framework. They are therefore based on independent scientific quota advice, and contain binding provisions on quota distribution, management measures and supervisory cooperation. Catches landed by Norwegian fishing crews as a direct result of the international fisheries

negotiations have a significant economic impact annually. Additional value is generated from processing.

There are three overall objectives for Norway's participation in the various negotiation processes:

- to promote sustainable management of living marine resources, based on the best available science and an ecosystem-based approach
- to secure for Norway a fair share of quotas allocated for jointly regulated stocks
- to ensure satisfactory inspection and enforcement in the management regimes in which Norway participates

5.3.2.3 Bilateral fisheries agreements and coastal agreements

Norway concludes annual bilateral agreements with Russia, the EU, the Faroe Islands, Iceland and Greenland. The agreements with Russia and the EU are the most extensive, and concern cooperation in the management of important shared stocks.

Of special importance, measured in both volume and value, are the Lofoten and Barents Sea cod stocks. The total allowable catch (TAC) for 2017, set by the Joint Norwegian-Russian Fisheries Commission on the basis of scientific advice, is 890 000 tonnes. This is about the same as in previous two years, and high by historical standards. The status of cod in the Barents Sea contrasts starkly with other cod stocks in the North Atlantic. Norwegian-Russian fisheries management cooperation dates back decades and is an internationally recognised example of sustainable management and good international cooperation.

The annual bilateral agreement with the EU covers fish stocks in the North Sea. The UK's exit from the EU will have consequences for this agreement, as it will for coastal state agreements to which the EU and Norway are parties. The Government attaches importance to productive dialogue with the UK and the EU on these issues.

In addition to TAC and quota allocations for the relevant stocks, the bilateral agreements Norway concludes cover management and inspection measures and provisions governing quota exchange and access to one another's economic zones. The agreement with Russia also includes provisions relating to research cooperation on living marine resources in the Barents Sea ecosystem.

Norway also signs coastal state agreements on TAC and quota allocation for pelagic stocks that may migrate between economic zones and between economic zones and international waters. The most important pelagic stocks harvested by Norwegian fishing crews are mackerel, Norwegian spring-spawning herring and blue whiting.

5.3.3 The Antarctic and other regions

Some of the marine areas around Antarctica are rich in biological production. Krill, an important crustacean species, thrive there, and today's Norwegian fisheries interests are focused primarily on the harvesting of krill and toothfish. In the relatively simple Antarctic marine food chain, krill is a key species and the most important food for many other animals, including fish, squid, penguins, seals and whales.

Management of living marine resources in these waters has been assigned to the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). The commission currently has 24 member states. It employs an ecosystem-based approach to managing krill and other species, with conservation that also includes sustainable use of the resources while maintaining ecosystem integrity. Emphasis is placed on ensuring that the catch does not harm food availability for species that are dependent on the species being harvested. CCAMLR contributes importantly to the development of international marine environmental policy and works actively to combat illegal, unreported and unregulated fishing.

In recent years more than half of the krill harvest in the CCAMLR area has been attributable to Norwegian vessels. Norwegian authorities issue the same sustainable management requirements in these marine areas as in other marine areas where Norwegian actors harvest resources.

Research activity is an important prerequisite for resource utilisation. The Institute of Marine Research and the Norwegian Polar Institute participate in creating a scientific basis for fisheries regulation and issues pertaining to marine protected areas. In 2017 the Government will submit plans to the Storting for a research mission to the Antarctic.

5.3.4 Fisheries management in FAO

FAO does important work to strengthen sustainable global management of fisheries resources. Norway contributes on a fixed basis to FAO's bud-

Box 5.2 Joint Norwegian-Russian Fisheries Commission

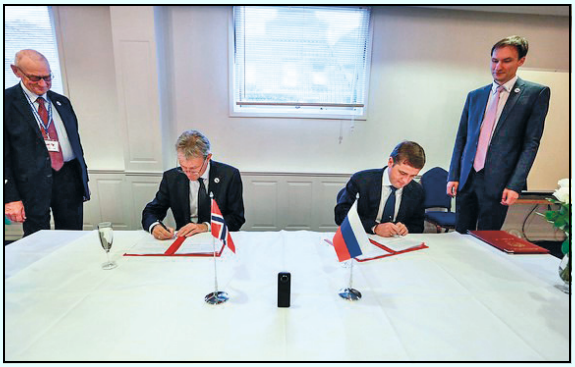

Figure 5.4 The Norwegian-Russian agreement on 2017 quotas for cod and other important stocks in the Barents Sea was signed on 20 October 2016. The agreement marked 40 years of good fisheries cooperation with Russia.

Photo: Ministry of Trade, Industry and Fisheries.

Marine research cooperation between Norway and Russia dates back to the early 1900s and was institutionalised in the 1950s. Since 1976, Norway and Russia (until 1991 the Soviet Union) have collaborated in the Joint Norwegian-Russian Fisheries Commission to manage the most important fish stocks in the Barents Sea. Today the applicable species are the Northeast Arctic cod, Northeast Arctic haddock, capelin, Greenland halibut and beaked redfish.

A key task is to facilitate the best possible management of the shared stocks. First and foremost this means rational harvesting of the cod stock. At the annual commission meeting, the parties stipulate the TAC and share quotas between Norway, Russia and third countries. The parties also agree on fishing access to one another's zones and exchange quotas within shared stocks and national stocks, and they strive for harmonisation of technical regulations and agree to cooperate on supervisory controls. The total quotas set by Norway and Russia are based on catch level recommendations prepared by the International Council for the Exploration of the Sea (ICES), where both Norwegian and Russian scientists are represented. Quota setting is based on uniform, long-term harvesting rules.

Combatting illegal, unreported and unregulated fishing (IUU fishing) in the Barents Sea has been an important issue, and there has been significant progress. From 2002 to 2005, some 100 000 tonnes of cod a year were fished illegally putting heavy pressure on the stock, and having serious impacts on the fishing industry and coastal communities that are dependent on fishing. From 2005 to 2009, overfishing was greatly reduced as a result of active efforts by the Norwegian and Russian authorities, and in recent years no significant illegal overfishing in the Barents Sea has been detected.

In the 1990s the commission's work expanded into new subject areas, with the establishment, for example, of the Permanent Committee for management and control issues in the fisheries sector (1993). Through this collaboration, a number of specific measures have been implemented to improve resource control both at sea and on land.

Inspection and enforcement of fisheries legislation is at the heart of sound resource management, with Coast Guard inspections of fishing vessels playing a key role. For several years the Coast Guard has worked purposefully to strengthen its investigative expertise. As a result, a considerable number of cases involving fishing regulation violations by foreign vessels are now handled by 'slow arrest'. This means the vessel in question sails towards port accompanied by the Coast Guard while an attempt is made to settle the matter at sea. If the case is resolved at sea, there is no need to take the vessel to a Norwegian port.

The struggle against overfishing in conjunction with joint management strategies and resource control cooperation is a major reason Barents Sea fish stocks are now in very good condition by global standards. The way is thus smoothed for lucrative fishing by Norwegian and Russian fishing crews.

get and work programme, as well as to special funds for particular initiatives. The Government is calling for higher priority to be given to fisheries and aquaculture in efforts to improve global food security, and for FAO to be the main arena for policy development relating to global food security, nutrition and the right to food. The UN

Committee on World Food Security is another important arena for such work.

FAO has drawn up several sets of guidelines relating to fishing and marine resources. Norway has provided support, including both professional expertise and financial resources, in developing some of these. Examples of action plans and guidelines include the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing; the International Guidelines on By-Catch Management and Reduction of Discards; the Technical Guidelines on Aquaculture Certification; and the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication.

Norway supports FAO's efforts to develop international guidelines for catch certificates that will make fisheries products more traceable. The work is expected to be completed in 2017. If buyers, distributors and consumers demand that fish products have a sustainable origin, sustainable fishing will eventually become a competitive advantage. Market pressure from conscientious consumers could contribute significantly to the development of sustainable fisheries and aquaculture. Norway also supports cooperation between FAO and the Convention on Biological Diversity (CBD); FAO has contributed its expertise to various CBD working groups on marine issues.

One of the most extensive nodes of cooperation between Norway and FAO is the Nansen Programme, which is discussed in more detail under 'Fish for development'.

The Government will

- support regional cooperation on management of shared fisheries resources in accordance with the UN Convention on the Law of the Sea, the UN Straddling Fish Stocks Agreement and relevant guidelines prepared by the UN Food and Agriculture Organization
- maintain and strengthen cooperation with the Food and Agriculture Organization on sustainable marine resource management

5.3.5 Good working conditions in international fisheries

The International Labour Organization (ILO), the UN body specialising in working life, was created to improve living conditions, working conditions and worker opportunities worldwide. The ILO is responsible for establishing and overseeing international labour standards. Internationally, the fisheries sector is among the sectors where work-related deaths are most common. Another serious problem of considerable scale is forced labour and human trafficking, in which poor people are victimised by organised criminals involved in illegal, unregulated and unreported fishing and fisheries. In November 2015, Norway and the ILO arranged an international experts' meeting on labour exploitation in the fisheries industry. The meeting concluded with a recommendation to employ a broad, multidisciplinary approach to the problem.

In June 2007, with Norwegian support, the ILO adopted Convention No. 188, on working conditions in the fisheries sector, at its 96th International Labour Conference. Important objectives include an improved work environment for fisheries sector workers, safety and health at sea, and treatment ashore for sick and injured fishing crew members. Norway ratified the convention in 2015 and it will enter force in the autumn of 2017.

The Government will

- work to combat forced labour and human trafficking in the global fisheries industry and to encourage additional countries to ratify the International Labour Organization's Convention No. 188, on working conditions in the fisheries sector
- continue promoting human rights-based development in fisheries and pursuing equal rights for men and women working in the fisheries industries

5.4 Emerging ocean-based industries

A wide variety of industries make up the blue economy, and all make important contributions to employment and general welfare at regional or national level in Norway and other countries. Some of the industries are small but have long traditions and the potential to become important in time. There is also an expectation that all-new ocean industries will arise in the future. The Government will do what it can to facilitate sustainable growth in these industries.

Offshore renewable energy sources include offshore wind, tidal power, wave power and ocean thermal energy conversion (which exploits temperature differences). Other sources of energy are salinity gradient power (which exploits the energy potential of fresh water mixing with salt water) and marine biomass (seaweed and marine waste

used for energy purposes). Norway's marine-based renewable energy industry has been active internationally for many years. Internationally, renewable energy growth is significant. Given Norway's long experience in developing offshore oil and gas technology, Norwegian suppliers are well positioned to contribute to ocean-based wind power development. In certain niche markets Norwegian companies have established themselves as significant sub-contractors. For the other energy sources mentioned above, research has been carried out over several decades both in Norway and abroad to commercialise the opportunities that exist, but they are not yet profitable enough to gain wider application.

Tourism has a long history in Norway. Coastal and ocean-related tourism includes cruise ship travel and diverse types of nature-based and adventure tourism. In recent years the sector has seen steady growth, and the potential for further growth is thought to be considerable.

Exploitation of seabed minerals may become an important industry. So far, the volume of such resources has not been documented, but there is reason to assume that the potential is significant, including on the Norwegian continental shelf. Any commercial extraction of mineral deposits is some time away, and will require the development of technology and regulations as well as studies of the environmental impacts. Internationally, the sector is still nascent. The Government will propose a new act on mineral activities on the Norwegian continental shelf. Under the new act, responsibility for mineral activities on the shelf will rest with the Ministry of Petroleum and Energy.

Extensive research is under way on the farming of new species, both in Norway and other countries. Over time large-scale production of fish species other than salmon and rainbow trout will likely be possible along the Norwegian coast. Another promising aquaculture sector is that of macroalgae, which includes a variety of seaweed species. Seaweed has been harvested commercially in Norway for more than 50 years and is used in the food industry, in medicine and as a protein-rich animal feed. There is likely potential in the commercial harvesting of additional species, while cultivation in separate or combined aquaculture facilities represents further untapped potential for Norway.

The Government's strategy on the bioeconomy, *Familiar resources – undreamt of possibilities*, presented in November 2016, includes measures relevant to farming and cultivation in the marine environment. The bioeconomy opens up new opportunities for exploiting renewable marine resources, and further growth is expected in such fields as the exploitation of new species and residual raw materials. There is reason to believe that the rich marine biodiversity could be used as a basis for developing new products in a number of areas, from pharmaceuticals to process industries, food, animal feed and cosmetics.

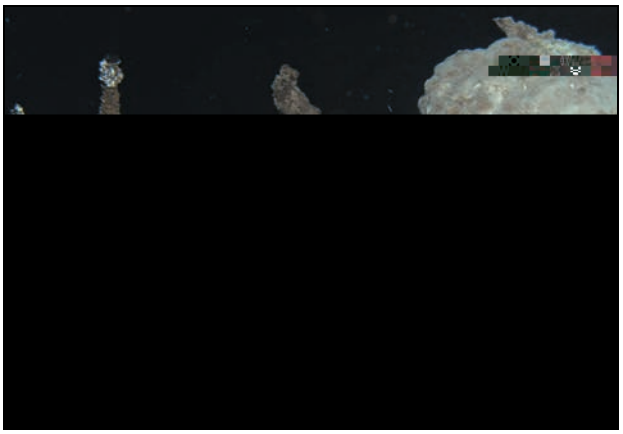

Figure 5.5 Exploitation of seabed minerals may become an important industry in the long term. Pictured are hydrothermal vents in the Soria Moria field, between Jan Mayen and Bjørnøya.

Photo: K.G. Jebsen Centre for Deep Sea Research, University of Bergen.

5.5 Good international trade arrangements for ocean-based industries

As a small, open economy, Norway benefits greatly from the division of labour inherent in international trade. Foreign trade accounts for a large part of the Norwegian economy and Norway could not have achieved today's level of prosperity without it. For the ocean-based industries, open markets also mean access to technology and high-quality intermediate goods without having to surmount costly and time-consuming trade barriers.

The industries of the blue economy play a key role. The economic potential they represent cannot be realised without good international trade arrangements for the goods and services they generate. Improving market access and lowering trade barriers are important objectives in Norwegian foreign and trade policy, and the Government attaches great importance to them.

Three arenas of cooperation are of particular importance. These are the World Trade Organiza-

tion (WTO), trade collaboration with the EU through the European Economic Area (EEA) and the bilateral free trade agreements negotiated with other member countries of the European Free Trade Association (EFTA). Many of the market-access challenges confronting ocean-based industries are shared, but some apply only to particular industries. The Ministry of Foreign Affairs, the Ministry of Trade, Industry and Fisheries and other relevant ministries work to safeguard Norwegian trade policy priorities in the international arena.

The Government is pursuing a proactive trade policy that safeguards Norwegian interests, as set out in *Globalisation and Trade: Trade policy challenges and opportunities for Norway* (Meld. St. 29 (2014–2015)). This white paper emphasises the importance of obtaining increased market access and improved predictability for Norwegian companies in the export of goods, services and investments globally, whether through the WTO, in negotiations with the EU or in new free trade agreements, and all while ensuring the ability to impose regulations that are necessary for achieving legitimate national objectives.

The Government's priorities and ambitions in working to achieve good international market and framework conditions for Norway's ocean-based industries are expressed in more detail in the Government's ocean strategy, issued on 21 February 2017.

5.5.1 Challenges in the world trade system

Open, inclusive and rule-based international trade policy cooperation is strongly in Norway's interest. Accordingly, the primary aim of our trade policy is to maintain and strengthen the multilateral trading system. Negotiations on the further development of WTO rules are difficult, however, and the trading system has gained a new dimension as major economies negotiate to achieve 'mega-regional' agreements. For several years the United States has been negotiating with the EU through the Transatlantic Trade and Investment Partnership (TTIP), while an agreement between the United States, Japan and other countries of the Pacific region, the Trans-Pacific Partnership (TPP), has been negotiated. However, developments to date have been far from straightforward. The TTIP negotiations have revealed major internal disagreements within the EU and have been put on hold by the American and European sides alike. There is also uncertainty as to whether TPP will be implemented and, if it is, by which countries, now that the United States has withdrawn. The new US administration is signalling positions that create uncertainty about the future of mega-regional agreements.

Development of other regional agreements – in Asia, for example – is continuing, however. The Government will closely monitor developments in existing and new trade policy initiatives that do not involve Norway and will continually assess measures to protect and promote Norwegian interests.

5.5.2 WTO

To promote Norwegian ocean interests the Government will make use of the WTO's regular functions as well as negotiations on market access and regulations wherever possible. The WTO environmental goods negotiations, which involve 44 member states, including the United States, China and the EU, are focused on obtaining full tariff elimination for goods that may contribute to improving the environment and counteracting climate change.

For the ocean, the agreement could have both direct and indirect positive effects. It will make a positive contribution to climate challenges by making important environmental technologies more easily available at a lower price. Examples of important items under negotiation that would have a beneficial effect on the marine environment are ballast water treatment systems and oil spill equipment.

Shipping services and energy-related services, especially those related to the offshore industry, represent key parts of the Norwegian international service industry.

Energy-related services assist the oil, gas and electricity sectors, including all upstream and downstream activities. Such services are occasionally vulnerable to significant government interference under framework conditions that can affect competitive opportunities for Norwegian industries. Negotiations on removing restrictions and creating obligations in such activities as international shipping, shipping-related services and port facility access and usage have not yet produced results. The current situation poses a risk of arbitrariness and distortion of competition to the detriment of Norwegian shipping interests.

The Government strongly supports efforts aimed at obtaining a multilateral agreement creating an open, non-discriminatory international shipping services regime, and at achieving broad liberalisation in energy-related services. This is a

key Norwegian trade policy interest, pursued in all available forums. For example, in negotiations among 50 or so countries on the international Trade in Services Agreement (TISA), Norway has assumed a leadership role in seeking the most ambitious results possible with regard to shipping services and energy-related services.

The importance of combatting harmful fisheries subsidies in the WTO has gained new impetus with UN Sustainable Development Goal 14.6. Many developing countries, including least developed countries, which are vulnerable to unsustainable fishing conducted by fishing vessels from other countries as well, are among the advocates of a multilateral agreement consistent with the sustainability goals. There is hope, therefore, of a result being achieved at the WTO Ministerial Conference in December 2017. Given the possibility that an agreement covering all WTO countries may prove impossible to obtain, a parallel process is being pursued to achieve an agreement that initially would include the most ambitious countries on the issue, including Norway.

5.5.3 EEA, the internal market and market access

The EU is Norway's most important trading partner, and Norway is integrated into the EU's internal market, including its internal energy market, by means of the European Economic Area (EEA) Agreement. A well-functioning internal market is important for Norwegian value creation. EEA cooperation ensures treaty-based market access in the internal market and also makes it possible to discuss and initiate deeper cooperation with EU countries on ocean and maritime issues.

The EU is our most important seafood market. Trade in seafood between Norway and the EU is regulated by several agreements: Fiskeribrevet of 1973 (an addendum to the free trade agreement), Protocol 9 of the EEA Agreement (which provides a preferential duty for whitefish) and a number of bilateral agreements with approximately 50 tariff-free quotas ('compensation agreements'). The Norwegian fisheries industry can also use WTO quotas and the EU's own import quotas that can provide tariff-free status to a number of fish products exported to EU countries. In July 2015, Norway and the EU came to agreement on market access for seafood, and the new quotas were opened on 1 September 2016. In this agreement, several market access improvements were achieved in comparison with previous negotiations. The goal is free trade for all seafood, and the Government will continue to work to achieve even better market access to the EU.

The UK's exit from the EU will also have an impact on Norwegian trade policy interests. The Government will pay close attention to this process.

5.5.4 EFTA free trade agreements

Norway enters into free trade agreements to ensure market access and more predictable conditions for Norwegian companies. A key principle is to ensure that the framework conditions for Norwegian companies doing business in foreign markets are at least as good as those that apply to competitors from other countries, especially in the EU. The Government prioritises free trade agreements with countries where an agreement can make the greatest contribution to increased overall trade and value creation. Emphasis is also placed – when prioritising countries for possible new agreements – on foreign and development policy considerations. The Government's position is that such agreements should not limit Norway's freedom of action in crucial policy areas, and that they should contribute to the overall objective of sustainable development for Norway and the world. Norway is currently negotiating EFTA free trade agreements with a number of countries, including India, Indonesia, Vietnam, Malaysia and Ecuador. Resumption of bilateral negotiations with China is a high priority. Ocean-based industries are among Norway's main priorities in free trade agreement negotiations.

The Government will

- work to ensure that the WTO Environmental Goods Agreement is concluded as soon as possible, preferably in 2017, and then be revised regularly to include new environmental technologies of value to the marine environment and marine management, and work to have more countries accede to the agreement
- work to achieve non-discriminatory, improved and predictable market access for maritime and offshore-related services in the WTO, in the international Trade in Services Agreement (TISA) and in other agreements affecting trade in services
- work for a multilateral agreement to be negotiated at the WTO Ministerial Conference in December 2017 that prohibits subsidies for illegal, unregulated and unreported fishing as well as the most harmful subsidies linked to overfis-

hing and overcapacity in the fisheries sector. In parallel, the Government will also work towards a plurilateral agreement with a narrower group of ambitious WTO members
- work to achieve even better market access to the EU for seafood
- work to sign free trade agreements that secure for Norwegian industries, including ocean-based industries, market access and predictable framework conditions in markets outside the EEA

5.5.5 Diplomatic and consular missions and ocean-based industries

Providing support to the business community is priority of the Ministry of Foreign Affairs and the Norwegian Foreign Service. This is the case for all the missions, although needs will vary from country to country and region to region. For some missions, especially in certain East Asian and Southeast Asian countries, working with Norwegian ocean-based industries and clusters is a matter of particular importance. In these countries, the blue economy looms large in the missions' contact with local authorities.

Norway's diplomatic and consular missions act as door openers and network-builders. They have knowledge of local conditions, market opportunities and access to specialist communities and the authorities. Their knowledge helps Norwegian companies make the soundest possible decisions about business activities and partners. The missions cooperate closely with other actors in the Norwegian support network, including Innovation Norway, the Norwegian Seafood Council and Norwegian Energy Partners.

The missions coordinate events and promotional activities and create meeting places through Team Norway, which is an informal network of actors relevant to the business community. An important function is to assist and implement business programmes during state visits, official visits and other visits involving business delegations. The missions are also able to explain the host country's legal provisions and local rules as well as any special conditions of note; they ensure, moreover, that companies make contact with the appropriate authorities in cases requiring public approval, and they provide follow-up assistance. They can provide consular assistance on visa issues, among other matters, as well as advice regarding corporate social responsibility and the biggest challenges facing companies in the host country with regard to environmental matters, corruption and employee and human rights.

The Government will

- in cooperation with the business community and ocean-oriented clusters, strengthen cross-sectoral cooperation under Team Norway to promote the ocean economy as a whole in areas where this can enhance the effectiveness of our efforts

6 Clean and healthy oceans

Greenhouse gas emissions and pollution are affecting the oceans in ways we do not fully understand. The world's oceans are becoming increasingly acidified, warmer and more polluted; sea levels are rising, and the amount of waste at sea, such as plastic, is growing. These environmental pressures have impacts on marine life. Ecosystems are being changed or harmed, and biodiversity is under threat. The consequences of these problems will depend on how the international community deals with them. The OECD has identified environmental problems as one of the main threats to realising growth opportunities in the blue economy.

We share ecosystems and vital marine resources with other countries, so bilateral and regional cooperation is crucial to sound environmental management. In many fields, cooperating globally is the most effective way forward, as exemplified by efforts to reduce CO_2 emissions.

6.1 Marine biodiversity conservation

Biodiversity is the foundation for human life on earth. The diversity of species and habitats provides us with access to everything from food and medicines to raw materials and positive experiences. Many industries, including ocean-based industries, are dependent on natural resources. Safeguarding and ensuring the sustainable use of marine ecosystems, so they continue to function well, is a vital factor in facilitating value creation and food security and maintaining marine environmental assets. It is also important in preventing poverty and serious effects of climate change.

Increased consumption of natural resources has allowed increased food production and higher living standards for many. At the same time, the increasing use of land areas and natural resources is placing considerable pressure on natural environments. Some of the world's ecosystems are under such pressure that they no longer provide the ecosystem services or maintain the natural processes on which humans depend. The main pressures on marine biodiversity are climate change, invasive alien species, overexploitation of resources, poor management and pollution.

Climate change will pose major challenges to biodiversity in the Arctic. The UN Intergovernmental Panel on Climate Change (IPCC) concludes that there is an extremely high risk of major long-term changes occurring in Arctic marine ecosystems. Climate change will alter species distribution and ecosystems that depend on sea ice, and will compromise the habitats of many ice-dependent species. The Barents Sea is among the areas where this is expected to occur fastest. Climate change may also make ice-dependent species and ecosystems more vulnerable to human activity and other pressures. Norway is working closely with the other Arctic states to assess the status of biodiversity and follow up with measures through the Arctic Council. Two central elements in this effort are the council's working groups for Protection of the Arctic Marine Environment (PAME) and Conservation of Arctic Flora and Fauna (CAFF). Norway has led the work of preparing a marine biodiversity status report and a monitoring plan to be presented at the Arctic Council's ministerial meeting in spring 2017.

The Convention on Biological Diversity is an important policy instrument and legal framework for the conservation and sustainable use of natural resources. It helps protect marine life by such means as identifying ecologically and biologically significant areas and environmental challenges like noise, pollution and litter, including plastics and microplastics. Norway participates actively in convention-related follow-up and implementation work. Several of the targets under Sustainable Development Goal 14 are based on the Aichi Biodiversity Targets from 2010 under the Convention on Biological Diversity. National fulfilment of convention obligations requires, among other things, developing more specific objectives for the state of the environment and the use of policy instruments in maintaining and improving marine ecosystem conditions.

Other conventions are also important to the international efforts to conserve marine biodiversity. The fundamental principle of the Convention

Figure 6.1 Camouflage

Coral reefs, coral forests and sponges are sessile animals that form habitats and hiding places for many invertebrate animals and fish. They are therefore important for biodiversity in the oceans. Coral reefs around the world are threatened by ocean acidification and warmer waters caused by global climate change.

Photo: Institute of Marine Research.

on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is to protect animals and plants that are threatened with extinction as a result of international trade. The main objective of the Bonn Convention is the conservation of migratory species of wild animals that regularly cross national boundaries. The objective of the Convention on Wetlands is the conservation and sustainable use of wetlands, both freshwater and marine areas.

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) is a key knowledge provider on biodiversity and policy development at global level, and can be regarded as a parallel body to the IPCC.

It has been decided to conduct a global assessment of biodiversity and ecosystem services under the IPBES, due for completion in 2019. The assessment will also include marine biodiversity and marine ecosystem services.

The final work programme for the IPBES's second period (2019–2022) has not yet been decided, but will most likely include a report on alien terrestrial and aquatic species, and identify concrete measures for how to manage them. Dealing with invasive alien species is also one of the targets under the Sustainable Development Goals that have been identified as a particular challenge for Norway.

Norway's NOK 432 million in support to the Global Environment Facility (GEF) from 2014 to 2018 represents a significant contribution to the only funding mechanism with a mandate to undertake initiatives in all global environmental areas. Since GEF supports initiatives addressing climate change, biodiversity, the ozone layer, environmentally hazardous substances, desertification, deforestation, and marine and water issues, resources can be viewed in a broad context and used more effectively. About 11 % of GEF's total budget is allocated to initiatives related to marine and water issues.

The Government will

- continue to actively participate in the UN's efforts to strengthen the maritime legal framework for the conservation and sustainable use of ocean resources
- contribute actively to further development of marine efforts under the Convention on Biolo-

gical Diversity and to strengthened implementation of the convention
- continue contributing support to improve knowledge on marine biodiversity and to improve coordination and cost efficiency in sea mapping processes. Priority will be given to the IPBES as a cross-disciplinary knowledge platform
- continue helping to improve knowledge on the state of regional biodiversity and to work on initiatives aimed at conserving marine biodiversity in both northern and southern marine areas through the Arctic Council, the OSPAR Commission, the Northeast Atlantic Fisheries Commission (NEAFC) and the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)

6.2 Marine pollution

Under UN Sustainable Development Goal 14.1, the international community has committed itself to preventing and significantly reducing marine pollution of all kinds by 2025, particularly from land-based activities.

Marine and coastal ecosystems are affected by human activity at sea, on land and along the coast. Pressures range from fisheries, aquaculture, shipping and oil and gas production to runoff of nutrients and other pollutants from onshore industry, agriculture and waste water treatment, and marine litter and microplastics. The impacts are greatest in coastal regions near industrial areas and large cities. Ecosystems are also affected by long-range transport of pollution in the atmosphere and with ocean currents. The influx of pollutants combined with overharvesting of marine resources puts significant pressure on biodiversity in many places around the world, and may also pose a threat to food security.

Discharges from land-based industry have caused considerable damage to marine environments in many areas. This damage has largely been caused by environmentally hazardous substances such as heavy metals and by organic substances such as polycyclic aromatic hydrocarbons and other persistent substances. Much has been done in recent years to reduce and eliminate discharges of the most hazardous substances by means of national and regional regulation and global conventions. Shipping has a broad range of environmental impacts on both water and air, and continuous effort is needed to minimise them. Environmental monitoring findings that show the spread of environmentally hazardous substances and the impacts on health and the environment are important in winning support for international regulatory measures.

In some marine areas, such as the North-East Atlantic, measures have led to considerable reductions in land-based industry discharges and lower concentrations of some environmentally hazardous substances. There is not much pollution in Norway's open marine areas, but there are problems in some coastal areas, particularly in port sediments and outside industrial areas, as a result of previous discharges. Norway monitors the levels of undesirable substances in seafood to ensure that it is safe for consumption. Data generated from the monitoring programme are openly available through the seafood database of the National Institute of Nutrition and Seafood Research (NIFES).

The state of the Arctic environment is also generally good, though some areas exhibit high levels of certain environmentally hazardous substances as a result of the long-range transport of pollutants. Environmental issues are a central element of cooperation in the Arctic Council, and a working group has been established with a mandate to protect the Arctic marine environment (the Protection of the Arctic Marine Environment working group, or PAME). Other working groups have been appointed to work on pollution (Arctic Contaminants Action Program, ACAP), on biodiversity (Conservation of Arctic Flora and Fauna, or CAFF), and on prevention and preparedness in connection with incidents of acute pollution (the Emergency Prevention, Preparedness and Response working group, or EPPR). The Arctic Council expects that in future more demands will be placed on Arctic marine environmental management, and has initiated a process to further develop and strengthen its marine cooperation activities.

Marine environmental cooperation with Russia is given high priority in Norway's environmental protection cooperation with Russia. The objective is to safeguard the purity and bounty of the Barents Sea by contributing to a management plan on the Russian side of the Barents whose principles reflect those of Norway's management plan. Coordinated environmental monitoring and shared environmental knowledge are important elements of this cooperation.

The pollution situation in certain parts of the world is a serious problem. Industrial production and the resultant releases of waste and pollution have increased particularly in eastern Asia and in

countries bordering the South Atlantic and the Indian oceans. There is a risk of such problems growing due to the population growth expected in coming decades. Although methods and technology to avoid or reduce emissions do exist, they have not been implemented universally. Capacity development, more environmentally friendly production and treatment technologies, better methods of preventing, collecting and managing waste, and more environmentally friendly consumption behaviour are all needed.

Global partnerships on marine litter, wastewater and nutrients have been established to facilitate voluntary cooperation under the United Nations Environment Programme's (UNEP) global action plan to protect the marine environment from land-based activities.[1]

6.2.1 Key environmental conventions relating to marine pollution

A key tool for combatting marine pollution nationally and internationally is the range of conventions signed in recent decades. The Government is working towards fully implementing these conventions.

The London Convention is a global agreement established in 1972 with the objective of protecting the marine environment and implementing practical measures to combat marine pollution created by human activity. This includes the discharge of environmentally hazardous industrial waste and dumping of waste and other materials from vessels and aircraft. The convention will eventually be replaced by the 1996 London Protocol, which entered into force in 2007. The protocol places heavy emphasis on the precautionary principle and includes more stringent environmental requirements than the convention.

The UN body on shipping, the International Maritime Organization (IMO), has adopted several conventions aimed at protecting the marine environment against oil and chemical emissions, waste from ships and the spread of invasive alien species. Important conventions include: the International Convention for the Prevention of Pollution from Ships; the International Convention on Oil Pollution Preparedness, Response and Cooperation; the International Convention on the Control of Harmful Anti-fouling Systems on Ships; the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships; and the International Convention for the Control and Management of Ships' Ballast Water and Sediments. All these conventions have been ratified by Norway, and the ballast water convention will enter into force in September 2017, partly as a result of Norwegian support provided through the IMO.

Since 2102 Norway has worked with the IMO to assist Indonesia, Malaysia, Cambodia, Vietnam, Thailand and the Philippines in implementing and ratifying key environmental conventions.

The 2001 Stockholm Convention on Persistent Organic Pollutants (POPs) is an important treaty that regulates or prohibits the use of a number of hazardous substances that resist degradation, bioaccumulate along food chains and are transported across long distances through air and ocean currents. Norway ratified the convention in 2002.

The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention) regulates international cooperation to protect the marine environment in the North-East Atlantic. OSPAR runs a joint assessment and monitoring programme in which environmental assessments are prepared for a number of themes and pressures as a basis for developing appropriate measures.

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal regulates transport of such waste across borders. The parties to the convention are also committed to the environmentally sound management and disposal of hazardous waste. Norway ratified the convention in 1990.

The Government will

- continue its international efforts to reduce marine pollution. This includes working towards regulating more chemicals under the Stockholm Convention. Many of the environmentally hazardous substances covered by the convention are relevant in a marine context. In cooperation with UNEP, Norway will work towards implementing the convention
- increase the use of satellite-based monitoring as a policy instrument for gathering knowledge on marine pollution, and promote effective enforcement of measures to prevent environmental crime
- help ensure that marine pollution remains a key priority for the working groups in the Arctic Council and to ensure that the OSPAR Commission implements measures based on

[1] Global Programme of Action for the Protection of the Marine Environment from Land-based Activities.

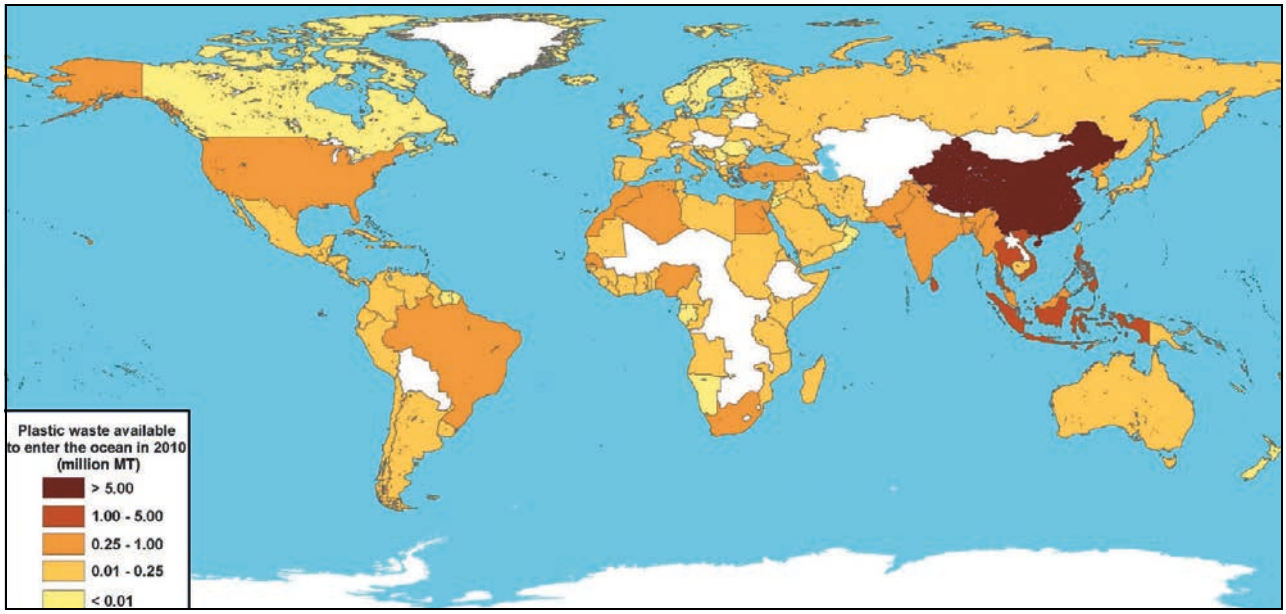

Figure 6.2 Map showing where plastic waste management problems are greatest, with risk of plastic ending up in the oceans. Countries marked in white are not included in the source data. Data from 2010.

Source: 'Plastic waste inputs from land into the ocean', Jenna R. Jambeck, Roland Geyer, Chris Wilcox, Theodore R. Siegler, Miriam Perryman, Anthony Andrady, Ramani Narayan, Kara Lavender Law, *Science*, 13 February 2015.

threats identified in the OSPAR Commission's environmental status reports
- continue cooperation with the IMO in providing support to developing countries to ratify and implement important international environmental conventions aimed at preventing marine pollution, including the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships

6.3 Marine litter and microplastics

Inputs of waste and microplastics to the marine environment are growing rapidly. Plastics pose a special problem because they break down very slowly. Marine litter and microplastics have negative impacts on marine ecosystems, biodiversity and sustainable development. Fisheries, the tourist industry, vessel traffic and other uses of the oceans and coasts are also affected. A report prepared for the World Economic Forum estimated that the oceans in 2050 will contain more plastic than fish (by weight) if extensive measures are not implemented to combat the problem.[2] This estimate is tentative, but there is broad global agreement about the seriousness of the problem. Under UN Sustainable Development Goal 14, pertaining to the oceans, the UN member states have agreed to prevent and significantly reduce marine litter by 2025.

Marine litter originates in many different activities, and consists of many different types. Plastics account for the largest portion of all marine litter. Plastics are also potentially more harmful than cardboard, paper, wood, metal and other materials. More than half of the plastic waste that ends up in the sea is thought to originate in a few Southeast Asian countries.

Plastic waste is spread by ocean currents. Some of the plastic is whirled together by ocean currents and carried to areas with higher concentrations of plastics and microplastics, forming solid belts of plastic waste. However, the highest concentrations are found along shorelines. The plastic we can see accounts for only part of the problem. It is estimated that 15 % of marine waste floats on the surface, 15 % accumulates on shorelines, and that as much as 70 % sinks and remains on the seabed. Some marine waste is carried down by the currents to deep crevices on the seabed, where it accumulates and remains, perhaps forever.

In 2017 Norwegian researchers made the first finding of a Cuvier's beaked whale on the Norwegian coast. The whale was dying. It turned out that its stomach was full of plastic, including 30 plastic

[2] World Economic Forum (2016), *The New Plastics Economy: Rethinking the future of plastics.*

bags, a two-metre-long piece of plastic sheeting, and many small plastic items. This is one of many vivid examples of how plastic is threatening marine life. Plastics may also threaten our own food security, both because they threaten marine species used as food and may therefore reduce food supplies, and because they jeopardise food safety, since chemicals can be passed along the food chain from animals to humans. More knowledge is needed about this issue.

6.3.1 Microplastics

When plastic degrades, microplastics and nanoplastics are formed. Microplastics also end up in the oceans because they are used as ingredients in products. In Norway, tyre wear is the largest source of microplastics from land-based activities. Other sources are artificial grass playing fields, paint, ship and leisure craft maintenance, and synthetic textiles.

Today, microplastics are found in all marine areas, from sea surfaces to seabed sediments. In the Arctic, microplastics have been found frozen inside sea ice. These tiny particles are ingested by marine organisms. In addition to possibly harming the organisms, they can contribute to the spread of hazardous substances that have been added to the plastic or that have bonded with it. They can also spread alien organisms such as pathogenic bacteria. Researchers have detected microplastics in a wide range of animals, from the tiniest plankton to fish and whales. This also applies to species we eat whole, such as oysters, anchovies and mussels. Research is being conducted on the effects of microplastics on fish, animals and humans. The smallest particles – nanoplastics – are of particular concern.

No agreements or policy instruments currently exist that deal with measures to reduce marine litter or the spread of microplastics. The Government will follow up the work of the United Nations Environment Assembly (UNEA) in this area and will contribute to strengthening international framework conditions for combatting this problem.

6.3.2 Broad international efforts to reduce marine litter and microplastics

The extent of the problem shows that priority must be given to efforts to reduce marine litter and microplastics. The Government will intensify its efforts and take a broad approach to the problem. In this white paper the Government proposes measures for how Norway should work internationally to combat marine litter and microplastics in the oceans. National measures that focus on the marine environment and maritime sources will be closely reviewed in the white paper on the updated management plan for the Norwegian Sea to be presented to the Storting in spring 2017. National measures to reduce inputs and levels of plastics and microplastics in the marine environment, and Norway's priorities in respect of the EU in this context, will be reviewed in the white paper currently being drafted on waste management policy and the circular economy.

The Government will seek to strengthen international cooperation and measures, and to make them goal-oriented and resource-efficient. The most effective way of reducing plastic and microplastic inputs to the oceans is to establish systems of sound waste management and waste volume reduction. Development of a circular economy will also play an important long-term role in reducing marine litter. The existing marine litter also needs to be cleaned up, particularly in areas where plastics threaten animal life, vulnerable natural environments, human health and quality of life, fisheries, and other potentially sustainable uses, such as tourism. This must be done in ways as cost-effective and as environmentally friendly as possible.

Box 6.1 Circular economy

In a circular economy, waste is regarded first and foremost as raw material for new production processes. This brings about a reduction in the amount of new resources used, more efficiency, more reuse and repair, and recycling of whatever waste remains. Another important result is the development of profitable industries based on more environmentally friendly products and on waste reuse and recycling. Along with partners from Denmark, England, Ireland and Scotland, Norway participates in the Circular Ocean project to establish an arena for a circular economy linked to marine waste. The aim is to transform one of the biggest challenges in our marine areas into a resource for companies and local communities along the coastline. The project is funded by the EU's Interreg Europe programme, which promotes social and economic integration across national boundaries.

To combat marine litter and microplastics, Norway will work nationally, regionally and globally in a variety of international ocean and environmental forums. This must be done in cooperation with other countries, key multilateral actors, the private sector, research communities and civil society. It is important that the international community give priority to those parts of the world where the problems are greatest.

In recent years the Government has taken the initiative to put marine litter and microplastics high on the international agenda. At UNEA Norway has submitted resolutions backed by Indonesia, Chile, Australia and Monaco that have won broad support and stirred additional international engagement. These resolutions target all actors, including UN organisations, regional marine environment conventions, national authorities, business and industry and civil society, and recommend forms of cooperation and measures for prevention and clean-up. The resolutions emphasise cooperation on regional waste treatment plans and on support to countries and regions that need financial assistance in developing and implementing such plans.

Based on a resolution put forward by Norway, more than 170 member states in UNEA agreed in May 2016 to carry out a global study of international and regional waste management strategies and legislation. The study will identify the need for measures to strengthen coordination and for a global, legally binding agreement to combat marine litter and microplastics. At UNEA in December 2017, the Government will follow up the study with a resolution on the way forward.

Another key cooperative arena Norway will prioritise going forward is the Global Partnership on Marine Litter (GPML). The GPML was launched at the initiative of 64 countries and the EU during the United Nations Conference on Sustainable Development in Rio in 2012. It is an open, voluntary partnership that gathers international organisations, governments, business and industry, academia, NGOs and others. The partnership covers concrete projects and measures for combatting marine litter. Priority is given to reducing inputs from land-based and ocean-based sources and to cleaning up waste that has accumulated along coastlines and in the oceans. Several UN bodies participate in the partnership, and UNEP serves as secretariat. Norway has for several years contributed funds for measures under this partnership through its UNEP support. Examples of GPML activities are information sharing, support for regional action plans against marine litter, technology demonstration projects and public-private partnerships to initiate campaigns and carry out actions. The Government will now use this partnership more actively, in part to generate even greater participation by private industry and civil society in international cooperation projects.

In its general vicinity, Norway cooperates through OSPAR and the Nordic Council of Ministers, among other bodies, to improve knowledge and methods of reducing marine litter and microplastics. Norway will seek to further strengthen these efforts through its presidency of the Nordic Council of Ministers in 2017 and other means. Norway also addresses this topic in the Arctic Council, and will consider options for broader cooperation on it with observers and with business and industry via the Arctic Economic Council.

As part of its follow-up of the OSPAR Convention's action plan against marine litter in the North-East Atlantic, Norway is carrying out the *Fishing for Litter* project. This project is a pilot scheme aimed at removing marine litter. Participating fishing vessels gather in the marine litter caught in their nets while fishing. The litter is delivered at port for sorting, registration and treatment. Any waste suitable for recycling is delivered to Norsk Fiskeriretur. The project expands what is known about the various types of marine litter and about materials recycling. The experience gained will also go towards developing proposals for a permanent scheme to ensure that fishing crews and others who retrieve litter from the sea can deliver it to port at no extra cost, and that as much as possible of the plastic litter is recycled.

Another key cooperative arena for Norway is the Food and Agriculture Organization of the United Nations (FAO), where Norway has helped put reduction of fishing gear loss onto the agenda and into the work being done under the UN resolution on sustainable fisheries. Lost fishing gear sometimes remains in the sea and continues catching fish, a phenomenon often referred to as 'ghost fishing'. Lost gear also contributes to the amount of plastic litter. Norway has long experience in reducing marine litter from fisheries, and Norwegian expertise in this area is in demand. FAO's Committee on Fisheries held an expert consultation on marking of fishing gear to facilitate retrieval and avoid ghost fishing. Under the marine resources act, Norwegian fisheries are required to search for lost gear and report losses to the Norwegian Coast Guard if gear is not retrieved. Similar rules also apply in many of the regional fis-

Figure 6.3 Vast amounts of waste are being dumped in oceans and along coastlines. Objects made of plastic, rubber and other poorly degradable materials can remain in the marine environment for hundreds of years and harm animals and humans. Pictured is a beach in Svalbard.

Photo: Peter Prokosch/www.grida.no.

heries management organisations of which Norway is a member. The Directorate of Fisheries conducts annual operations to retrieve lost fishing gear in priority areas along the Norwegian coastline. Since the clean-ups began in the early 1980s, some 20 000 nets (almost 600 km) and large amounts of other fishing gear have been retrieved.

6.3.3 Development programme to combat marine litter and microplastics

A rough estimate suggests that 80 % of global marine waste originates on land, and that the primary sources are countries undergoing rapid economic growth and with deficient waste management systems. It is in Norway's interest to help reduce litter originating in these countries. Many developing countries lack the capacity and incentive mechanisms needed to overcome the waste problem. Consideration may be given to supporting waste treatment measures through performance-based financing. This would encourage countries to take responsibility for their own waste management processes and to employ local resources. Norway could help in the development of appropriate infrastructure by sharing its knowledge and technology. It would be useful, for example, to develop incentive schemes that motivate actors to achieve concrete results. Norwegian experience suggests that this could help change consumer behaviour, which in turn would help reduce the amount of waste in the oceans and make companies and governments accountable. The Government will launch a new aid programme for reducing marine litter and microplastics.

The Government will

- be proactive in UNEA and press for implementation, coordination and further development of international legislation to prevent marine litter and microplastics, including that originating in land-based sources
- use the UN system and other relevant arenas, such as the Our Ocean conferences, to encourage the international community to pursue effective measures against marine litter and microplastics and focus attention on areas where discharges and other problems are greatest
- launch a development programme to combat marine litter and microplastics, which will include waste reduction, better waste management and other measures to reduce marine litter
- support the Interpol Pollution Crime Working Group in its efforts to combat the illegal dumping of plastics and other waste in the oceans
- form strategic partnerships with key European countries and other states that give high priority to combatting marine litter and microplastics, and seek to engage business and industry, civil society and other key actors in international projects through the Global Partnership on Marine Litter
- work internationally to reduce the loss of fishing gear and avoid ghost fishing, in part by encouraging countries to introduce relevant regulations and carry out clean-up operations
- ensure that Norway actively contributes to international research into the sources and impacts of marine litter and microplastics, and into cost-efficient countermeasures, and that it helps improve understanding of what plastic pollution means for oceans, ecosystems, food security and food safety
- actively pursue efforts with the EU to combat marine litter and microplastics, and to intensify efforts in regional forums such as OSPAR, NEAFC, the Nordic Council of Ministers and the Arctic Council
- consider how measures to combat marine litter, including greener production processes and products, can be strengthened in the environmental cooperation with countries that receive EEA funds

6.4 Climate change

The most important action that can be taken to limit the negative impacts of climate change on the oceans is to reduce global CO_2 emissions levels. It is crucial to obtain broad support for, and implementation of, the Paris Agreement, which contains provisions on emissions cuts, climate adaptation and support to developing countries to adapt to a low-carbon economy.

Since the Industrial Revolution, greenhouse gas emissions have risen at an increasing rate as a result of population growth and fossil fuel-driven economic growth. Higher concentrations of CO_2 and other greenhouse gases in the atmosphere cause the earth to absorb more heat from the sun. More than 90 % of the extra heat the earth has absorbed is stored in the oceans. The result is warmer ocean water, particularly near the surface. The extent of sea ice in the Arctic has steadily declined, particularly in the summertime. Since 1900, global sea level has risen on average by 0.19 metres. This is because seawater expands when heated and because glaciers on land are melting and flowing into the ocean.

According to the IPCC, the risk of serious impacts increases rapidly with a global temperature increase of one or two degrees. Global warming of more than three degrees increases that risk further, due in particular to the higher risk of rapid and irreversible sea level rise resulting from the melting of glaciers in Greenland and Antarctica. The risk associated with climate change is unevenly distributed and generally higher for poor people and societies in developing countries. Low-lying coastal and island states are expected to be heavily affected. Although adaptation in some cases can reduce the risk, high emissions levels will oftentimes make adaptation difficult, not least at low latitudes, where the impacts will be greatest and the capacity to make necessary adaptations is limited in many areas.

Another risk is the destruction of coral reefs because tropical marine waters become too warm for the corals and other organisms in the reef communities. This leads to incidents of high mortality, coral bleaching and reductions in biodiversity and catch potential.

6.4.1 Ocean acidification

Under Sustainable Development Goal 14.3, the international community has agreed to minimise and address the impacts of ocean acidification, for

example through enhanced scientific cooperation at all levels.

The oceans have so far absorbed about 30 % of the CO_2 emissions generated by human activity. The rate of ocean acidification we have witnessed since the Industrial Revolution is likely the fastest in the earth's history.

Unless greenhouse gas emissions are significantly reduced, ocean acidification will represent a significant risk for marine ecosystems, particularly for coral reefs and polar ecosystems.

Simulations carried out by the Bjerknes Centre for Climate Research in Bergen show that around the year 2080, Røstrevet, the largest known cold-water coral reef in the world, will be exposed to water containing so much CO_2 that it could dissolve calcium carbonate. The impacts of ocean acidification may be extensive in the Arctic, where species of calcifying plankton – which represent a vital source of nutrition in food chains – will be harmed. The extent of the impacts of ocean acidification will depend on the extent of greenhouse gas emissions and other factors.

The Government will

– continue its funding of research into the extent and effects of ocean acidification, including in the Arctic. This will strengthen the efforts of the IPCC and the IPBES to increase global knowledge about ocean acidification and improve the basis for decision-making under international conventions

6.4.2 Paris Agreement

Ever since climate negotiations began in 1990, the world has been aware of the need to manage and limit greenhouse gas emissions from all countries that generate them in significant quantities. Through changing administrations, Norway has always strived for ambitious international agreements in the climate area. The Paris Agreement represents a turning point in international climate cooperation. All parties agree that everyone should contribute. A key to ensuring more universal participation is the agreement's 'bottom-up' structure, with climate contributions established at national level forming the foundation of the

Figure 6.4 There are concerns about how global warming increases the risk of rapid and irreversible sea level rise resulting from the melting of glaciers in Greenland and Antarctica.

Photo: Ann Kristin Balto, Norwegian Polar Institute.

agreement. This allows scope for a more flexible approach than in previous agreements.

Norway was an early ratifier of the agreement, whose central aim is to keep the average rise in global temperature below 2 degrees and to limit the temperature rise to 1.5 degrees. The parties to the agreement have submitted nationally determined contributions to the agreement. The combined contributions submitted so far are not enough to reach the agreement's long-term goal, and it is estimated that we face a temperature rise of between 2.7 and 3.5 degrees by 2100. Although these estimates are highly tentative, they provide important information for estimating the potential impact on the oceans.

Every five years, starting in 2023, the parties will assess implementation of the agreement and the collective progress achieved. This global review is intended to guide the parties as they update and improve their measures under the agreement.

6.4.3 Climate and food security

As the global temperature rises, so does the threat to food security in vulnerable areas. According to the UN, all aspects of food security could be affected by climate change. Food security has to do with how much food is available in a society and the extent to which people have access to it. A sufficient supply of safe and nutritional food is vital. Global warming will constitute a major risk to global and regional food security, and that risk grows with rising temperatures. The larger the climate change, the more complicated the mitigating measures needed to adapt to it. The greatest risk is at low latitudes.

According to the IPCC, the distribution of primary production and catch potential could change significantly. Climate change and ocean acidification add to and compound the existing threats to food security from overfishing, pollution, inadequate coastal zone management and other pressures. The biggest risk to food security is the prospect of reduced catch potential at low latitudes, but there is reason to believe aquaculture can offset part of the loss. Seafood from northern latitudes – both wild and farmed fish – may prove vital to global food security. There is considerable uncertainty about the future impacts on regional and global catch potential, particularly in regard to the combined effects of warmer oceans, ocean acidification and other pressures.

In coastal zones, a rising sea level may threaten food production from agriculture, fishing and aquaculture. Countries with marine and coastal areas and many island states, where food production may be adversely affected by sea temperature rise and ocean acidification, are also often vulnerable to sea level rise and other impacts of climate change that threaten agriculture. Measures that may help enhance food security in vulnerable countries and regions should therefore reflect a long-term perspective, with oceans, coastlines and land considered in relation to each other.

The Government will

– seek to incorporate climate change, sea level rise and ocean acidification considerations into the work of relevant international institutions, including the FAO's efforts to promote sustainable management of global marine resources.

6.4.4 Extensive Norwegian engagement in climate change issues

In 2017 the Government will allocate more than NOK 5 billion to climate-related measures through the development assistance budget. Norway's International Climate and Forest Initiative is Norway's largest climate-related initiative, and makes an important contribution to the REDD+ programme on reducing emissions from deforestation and forest degradation. In 2015, Brazil and Guyana's efforts brought about reductions in CO_2 emissions totalling more than 40 million tonnes. This initiative helps boost the struggle against deforestation in a number of tropical forests, and a growing number of countries are expected to be able to report, and receive payment for, verified emissions reductions in the coming years. In addition, Norway contributes to climate measures through financial support to a number of development banks[3] and international funds, including the Green Climate Fund.

Norway has continued providing support for renewable energy in developing countries and has increased its capital infusion to the Norwegian Investment Fund for Developing Countries (Norfund) in order to shift attention towards private clean energy investments. Norway also supports the secretariat of the United Nations Framework Convention on Climate Change as well as climate technology projects, projects for clean cookstoves,

[3] The most important channels are: the Green Climate Fund, the World Bank, the Asian Development Bank, the African Development Bank, the Inter-American Development Bank, the Global Environment Facility and UNEP.

the phasing out of fossil subsidies, research and development in innovative climate financing, prevention and adaptation for climate-related disasters, climate and weather services in developing countries, and climate-resilient agriculture. Additionally, Norway provides support for climate and environmental measures in European countries included in the EEA funding schemes.

The Government will

- strengthen cooperation on climate issues with small island states that are particularly vulnerable to climate change
- take the initiative to strengthen multilateral dialogue with Asian countries on effective, green shipping in the Asia-Europe Meeting (ASEM) and with the Association of Southeast Asian Nations (ASEAN) with the aim of steering global and local shipping in a more climate-friendly direction
- work to establish a closer connection between climate science communities and communities that assess security threats, with a view to broadening the approach to assessing long-term threats

Box 6.2 AOSIS

The Alliance of Small Island States (AOSIS) encompasses 39 UN member states.[1] Small island states – in UN contexts often referred to as small island developing states (SIDS) – are gaining prominence in both the UN and other international forums that deal with issues of sustainable development, climate, and oceans and maritime resources. The SIDS have extensive marine areas and maritime interests, and are among the developing countries most heavily affected by climate change and ocean acidification. The Government is seeking closer cooperation with AOSIS/SIDS with a view to building partnerships based on mutual interests, including marine, climate and other areas related to sustainable development. An agreement signed by the Nordic countries and the Caribbean Community (CARICOM) in 2016 and which is now being followed up in respect of fisheries management, among other areas, is important in this work.

[1] AOSIS member states: Antigua and Barbuda, Bahamas, Barbados, Belize, Cape Verde, Comoros, Cook Islands, Cuba, , Dominica, Dominican Republic, Federated States of Micronesia, Fiji, Grenada, Guinea-Bissau, Guyana, Haiti, Jamaica, Kiribati, Maldives, , Marshall Islands, Mauritius, Nauru, Niue, Palau, Papua New Guinea, Samoa, Singapore, Seychelles, São Tomé and Príncipe, Solomon Islands, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Timor-Leste, Tonga, Trinidad and Tobago, Tuvalu and Vanuatu. AOSIS observers: American Samoa, Guam, Netherlands Antilles, US Virgin Islands and Puerto Rico.

6.5 The blue forest

Like forests and plants on land, forest and plants in the ocean are particularly valuable in a climate context because they absorb and store CO_2. More than half of all uptake of CO_2 occurs in the oceans. 'Blue' forests such as mangrove, seaweed and salt marshes play a vital role in this regard. Norway helps draw international attention to the importance of blue forests and supports cooperating partners in national and international blue forest networks.

The importance of blue forests for the uptake of atmospheric carbon has been highlighted by the IPCC. A study of all national measures published in connection with the COP21 conference in Paris in 2016 showed that many countries include blue forests in their measures under the Paris Agreement. They include Haiti, Somalia, Myanmar and Tanzania, which are Norwegian partner countries in development policy.

In tropical regions blue forests are estimated to account for more than 50 % of all carbon storage in seabed sediments, even though they cover only 0.5 % of the seabed. This is up to five times more per areal unit than what tropical rain forests store. In the context of climate change adaptation, tropical blue forests are also important for protecting against coastal erosion, storms, floods and tsunamis. They also represent a source of income for parts of the coastal population by providing a source of food, medicines and building materials. For example, mangroves are important for the reproduction of local fish species and thereby also important for local food security in coastal states in tropical regions.

Norway supports blue forest ecosystem projects in order to improve management and involve local coastal communities in fighting poverty by promoting sustainable use. The Norwegian Blue Forests Network[4] receives support to strengthen blue forest expertise among national actors. This includes research to better exploit the full potential of blue forests for carbon capture and storage,

and a range of other ecosystem services, both national and global.

6.5.1 Kelp: the new climate actor?

Kelp forests grow off all continents except Antarctica, and cover approximately 35 % of the world's coastal waters. Large-scale cultivation of kelp is an established industry in Asia, and interest in Europe is growing. Since 2014 the Government has granted permits to about 25 companies to cultivate kelp in some 35 locations.

We are not as familiar with the carbon sequestration rate for kelp as we are for mangrove, seaweed and salt marshes, first and foremost because kelp grows on rocks with no direct sediment storage. Kelp forests are currently not included in climate negotiations or the work of the IPCC, but their carbon sequestration rate is estimated to be considerable. Their biomass is estimated by the Norwegian Institute of Marine Research at 50–80 million tonnes, with sizable additional potential if overgrazed areas are regrown. In Norwegian marine areas, sustainable development, restoration and cultivation of kelp could result in extensive carbon sequestration and new forms of business development.

Kelp forests are affected by sea urchin grazing, eutrophication and sea temperature rise (in the south, but not in the north). It is not known how kelp will be affected by ocean acidification. Mapping and research have shown that although global drivers may have an effect, it is mainly local and regional conditions that affect spread and growth. This indicates the importance, for Norway and other countries, of sound national management based on the principle of cumulative effects and taking local and regional conditions into account.

The Government will

– intensify Norwegian participation in international knowledge processes centred on blue forests as part of the work towards achieving Sustainable Development Goal 13 (combatting

[4] The Norwegian Blue Forests Network consists of the following organisations: the Institute of Marine Research, the Norwegian Institute for Water Research (NIVA) and GRID-Arendal.

Figure 6.5 Cuvie is one of the most common kelp species in Norway.

Photo: Janne K. Gitmark/NIVA and the Norwegian Blue Forests Network.

climate change) and Sustainable Development Goal 14 (conservation and sustainable use of the oceans)
- enhance knowledge and capacity support to tropical blue forest initiatives in partner countries with blue forests, namely Haiti, Somalia, Myanmar and Tanzania
- strengthen efforts to include mangrove forests in the work of reducing greenhouse gas emissions associated with deforestation and forest degradation
- help prioritise research into kelp's role in the global carbon cycle by, among other things, including it in IPCC reports

6.6 Marine protected areas and other area-based management measures

The United Nations Convention on the Law of the Sea combines the right to use the sea and to exploit its resources with a duty to protect the marine environment. Such use must be sustainable, meaning that it must be designed to meet the needs of today's generation without reducing opportunities for future generations to meet their needs. Marine management must aspire to adopt an integrated perspective in which use, pressures and impacts, and species, habitats and ecosystems are viewed in relation to each other. Norway has given its support to the goal of adopting such an ecosystem-based approach to marine management in key forums such as the UN General Assembly, regional fisheries management organisations, the OSPAR Commission and the Arctic Council. At national level, we have established integrated management plans for Norwegian marine areas in order to maintain such a comprehensive perspective.

At the World Summit on Sustainable Development in Johannesburg in 2002, agreement was reached on establishing a representative network of marine protected areas by 2012[5] and reducing the use of destructive fishing methods. This was followed up by the UN General Assembly in 2002, when all member states were encouraged to establish marine protected areas. This was followed up further in the Convention on Biological Diversity with adoption of the global Aichi Biodiversity Targets, one of which is to conserve at least 10 % of the world's coastal and marine areas by 2020. Parties are encouraged to adopt appropriate measures for sustainable use and protection in vulnerable areas by establishing well-connected systems of protected areas and other effective area-based conservation measures. This target was also reflected in resolutions passed by the General Assembly and set out in Sustainable Development Goal 14.

The targets adopted in the UN and in the Convention on Biological Diversity are achieved through action by states or by the competent organisations. Regional environmental conventions such as OSPAR may, under the Law of the Sea, establish marine protected areas, while restrictions on activities that fall under other organisations' areas of competence are introduced through interaction with the relevant organisations. For example, the IMO may establish areas where restrictions apply to shipping. Regional fisheries management organisations, such as the NEAFC, may close areas to fishing or prohibit the use of harmful fishing gear, while the International Seabed Authority may close areas to mineral extraction.

Norway considers it important to provide a framework for integrated marine management that will ensure sustainable use of marine resources. Achieving sustainable use requires knowledge of environmental pressures and the ecological status of the different marine areas. In addition, we must develop sound policies and take effective management measures. A sound environment and productive oceans must be safeguarded using a broad spectrum of policy instruments.

Marine protected areas and other area-based management measures are important tools in the work of promoting sustainable use and conservation of marine ecosystems.

Under area-based management, areas and ecosystems of differing character are managed in different ways, depending on which species and habitats occur there and their ecological status; some areas, for example, are afforded greater protection. Marine protected areas can range from areas enjoying full protection to areas that can be used to some degree. Determining which activities to permit in a protected area requires an assessment that takes into account the purpose of protection and the cumulative effects of the activities in question. In Norway's firm view, decisions to establish marine protected areas should be scientifically well founded. Sustainable use must be facilitated wherever this is compatible with the purpose of the protection measure in question. Where knowledge falls short, the precautionary principle must apply. It is important that a prote-

[5] The deadline was later extended to 2020 at the Rio Conference 'The Future We Want' in 2012.

ctive measure's purpose is well defined and that the measure in question is effective, targeted and appropriate to ensuring long-term protection of the natural environment and the ecosystems.

In Norway a range of area-based measures are used to ensure protection and sustainable use of the marine environment and marine resources. Examples include lobster reserves, bans on the use of bottom gear to protect corals, bans on certain types of aquaculture in specific areas, and the establishment of nature reserves, national parks and marine protected areas along the coastline. This topic is discussed in more detail in the white paper, *Nature for life: Norway's national biodiversity action plan* (Meld. St. 14 (2015–2016)). In 2016 the Government decided to protect several new areas in the marine environment.[6] Dynamic and purposeful fisheries management also covers the development of fishing gear that has less environmental impact, closures during the spawning season and when large numbers of juvenile fish are present, minimum sizes for a range of species, bans on directed fishing of certain stocks, and time-limited fishing.

At regional level, a network of marine protected areas has been established in the North-East Atlantic under the OSPAR Convention. To improve cooperation and coordination of protection in the North Atlantic, the OSPAR Commission and NEAFC have entered into important cooperation on area-based management measures, and in several instances have instituted protections and imposed measures in roughly the same areas. OSPAR's protected areas outside national jurisdiction coincide geographically in part with NEAFC decisions to prohibit the use of bottom gear that can harm seabed habitats such as corals. The marine protected areas in Norwegian territorial waters are included in the OSPAR network, which consists of more than 400 marine protected areas, including seven in areas outside the national jurisdiction of the OSPAR member states.

The Arctic Council has prepared a framework of common goals and principles for the establishment of marine protected areas, which member states can use when establishing such areas in the Arctic. The member states decide which marine areas are to be protected. The Arctic states are now cooperating on collating information on existing marine protected areas in the Arctic as well as various measures for area-based management that the states can use to conserve Arctic biodiversity. The result will be presented to the foreign ministers of the Arctic states at the Arctic Council's ministerial meeting in spring 2017.

When considering protective measures in international marine areas located above national continental shelves beyond 200 nautical miles, it is important that the rights and special status of coastal states be respected. Because of the special jurisdictional conditions that apply in national continental shelf areas below international waters, a practice has developed, in relevant decisions, of expressly specifying that the establishment of a marine protected area or other measure beyond 200 nautical miles does not, under the Law of the Sea, affect the rights of the coastal state in respect of its continental shelf.

6.6.1 The world's largest marine protected area

The marine areas around Antarctica have been little affected by human activity. In autumn 2016 the members of CCAMLR agreed to establish a protected area in the Ross Sea. The marine protected area in the Ross Sea is equivalent in size to the Nordic region, and is the world's largest. It was designed using the best available knowledge about the area's environment, and ensures a good balance between conservation and sustainable resource use. For the past five years the proposal has been the subject of detailed assessment by the international research community in the commission's Scientific Committee. Norway worked for several years with the other CCAMLR members on establishing the protected area. Almost three quarters of it is closed to fishing.

This extensive protection provided will secure the habitats of many Antarctic species for the future. In the long term, the impacts of climate change may put Antarctic species under pressure. One reason why protecting such a large area is important is that it will result in improved understanding of human impacts there. To ensure the effectiveness of the protective measure, the CCAMLR's contracting parties will have to contribute research and knowledge acquisition in the area. Certain zones have therefore been designated for research harvesting.

[6] On 8 January 2016 nine new areas containing cold-water coral reefs were protected under the Marine Resources Act from destruction as a result of fishing activity. Eighteen coral reef areas, representing all of Norway's marine areas, are now protected. On 17 June 2016 three new coastline areas were designated as marine protected areas: the coast of Jæren in Rogaland county, and Gaulosen and Rødberget in Sør-Trøndelag county. This brings the number of marine areas protected under the Nature Diversity Act to six.

The Government will

- continue to work actively in the UN for a new agreement that secures sound maritime legal frameworks for the protection and sustainable use of biodiversity beyond national jurisdictions
- continue to cooperate with other countries on developing and establishing marine protected areas and other area-based measures to conserve marine ecosystems, including helping to clarify which policy instruments may be useful in reaching the global target of conserving 10 % of the world's coastal and marine areas by 2020 (Aichi Biodiversity Target 11). The Government will support participation by developing countries in this work
- promote greater understanding internationally of the need to ensure that conservation measures in international waters can be combined with sustainable use that is compatible with the purpose of protection. This is also important for Norway's partner countries in the Global South and for small island states
- work for a practice in which introduction of protective measures must be based on the best available knowledge, so resource use by international community is as efficient as possible and the measures imposed are appropriate. This must be followed up with research and knowledge acquisition in order to ensure that the protective measures align with protection needs
- help strengthen efforts under the Convention on Biological Diversity to identify ecologically and biologically important areas and ensure that the scientific information is updated and holds a high standard
- work to ensure that coastal states' rights and special status are respected when establishing protective measures in international marine areas located above national continental shelves beyond the 200-nautical-mile point

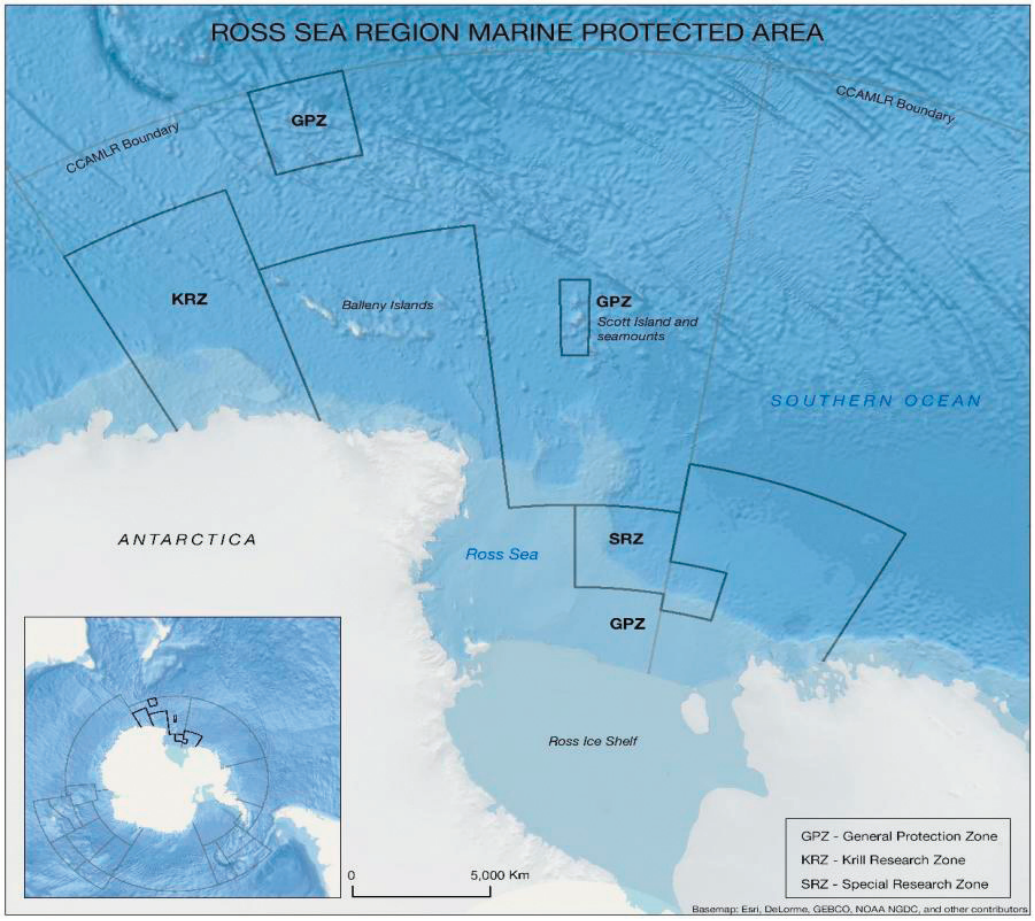

Figure 6.6 In autumn 2016, CCAMLR members agreed to establish a protected area in the Ross Sea. This area is equivalent in size to the Nordic region, and is the world's largest marine protected area.

https://mfat.govt.nz/en/environment/antarctica/ross-sea-region-marine-protected-area/

7 The blue economy in development policy

Based on the current rate of population growth, there will be more than 2 billion additional people in the world by 2050. Most of them will live in developing countries. Many developing countries have high hopes for the economic and social development opportunities represented by the blue economy. They look to the sea to meet their current and future needs. Optimal utilisation, however, is being hindered by rising pressure on the environment and resources.

Our own history shows that ocean resources managed responsibly can build prosperity. Norway has been approached by many low-income and middle-income countries seeking access to Norwegian expertise in areas related to the blue economy. Norwegian experience in sectors such as energy, shipping, maritime technology, fisheries and aquaculture is in demand. So is our experience with integrated ecosystem-based management, in which different activities are viewed contextually. Norway can point to many years of commitment to development policies linked to oceans, seas and marine resources.

The potential of oceans and large freshwater and river areas as food sources is a key to achieving Sustainable Development Goals 1 and 2, regarding poverty, hunger, food security and improved nutrition. Sustainable Development Goal 14, regarding the conservation and use of oceans, seas and marine resources in a way that promotes sustainable development, is supportive of Sustainable Development Goals 1 and 2 and is therefore a clear and important development policy goal.

7.1 The potential of the blue economy

Many of Norway's partner countries in the Global South have substantial marine resources and a high potential for developing blue industries. The potential in the fisheries and aquaculture sector is significant. Between 70 and 80 % of all fishery production and 95 % of all aquaculture production today occur in developing countries.[1] Another trend is growth of the blue bioeconomy, meaning industrial development based on marine resources such as waste products from aquaculture and fishing as well as seaweed, animal plankton and newly discovered species. For many countries these resources may represent considerable untapped potential. This is also an area where Norway can learn from other countries.

Oil and gas production is an important new revenue source for many developing countries. If managed responsibly, petroleum resources could help generate sustainable economic growth and general welfare for the population. The energy potential of offshore wind is also considerable, but the technology employed to date has not yet proved lucrative enough in competition with other renewable and fossil energy forms.

Many countries are vulnerable to transnational problems such as marine pollution, climate change and crime at sea. Environmental crime and illegal fishing undermine living conditions for local coastal communities. At the national level, low institutional capacity can pose a challenge, adversely affecting the ability of some countries to formulate, manage, monitor and enforce laws and regulations. In combination, these may represent a serious impediment to realising blue economy potential.

The severity of these issues varies among regions and countries. The challenges that must be dealt with are both global in nature and nationally contingent. In its bilateral cooperation, Norway works directly with its partner countries or in partnership with international institutions – through capacity building and research cooperation – to promote the sustainable use of marine resources, job creation and business development.

In the white paper *Working together: Private sector development in Norwegian development cooperation (*Meld. St. 35 (2014–2015)), the Government sets out its intention to provide strengthened and strategically targeted business development support that will facilitate private investment, job creation and poverty reduction. A

[1] *The State of World Fisheries and Aquaculture* (2016), FAO.

well-functioning business community is essential for job creation, economic growth and poverty reduction. All business development efforts should occur in a way supportive of sustainable resource exploitation.

Many developing countries have become aware of the potential of marine resources, though it is not easy to develop plans for their use that are also sustainable. For more than 40 years, Norway has contributed marine and maritime expertise with emphasis on the entire value chain. Key actors in the combined effort consist of experts drawn from public administration, knowledge communities, business and industry, and international institutions. The aid programmes Fish for Development and Oil for Development demonstrate the significance of mobilising expert resources from across different sectors.

7.1.1 Continental Shelf Initiative

To be able to fully exploit the blue economy's potential, it is vital that coastal states establish the extent of their continental shelves, including maritime delimitation lines with the shelves of other states. For 54 of the world's poorest countries, marine areas account for a significant portion of the state's jurisdictional area. Since 2008, through the Continental Shelf Initiative, Norway has provided expert assistance to a number of African countries so they are better equipped to protect their continental shelf interests. The initiative has been carried out in two phases. For many developing countries it has helped secure vital rights under the Law of the Sea, which may provide a basis for economic and social development for future generations. Many of the countries still have work to do to finally establish their continental shelves. Developing countries often lack the expertise needed to submit documentation on the extent of their continental shelf.

Under the United Nations Convention on the Law of the Sea, all coastal states have continental shelves out to the 200-nautical-mile point, while any shelf beyond that must be documented for the UN Commission on the Limits of the Continental Shelf. In principle, such documentation must be submitted no later than 10 years after the United Nations Convention on the Law of the Sea entered into force for the country in question. In 2008, Norway won UN acceptance for countries to be allowed to suspend the 10-year time limit by showing that the existence of continental shelf beyond 200 nautical miles is probable. More than 40 states have so far taken advantage of this method.

Based on experience from Norway's document submission in support of its own shelf, and at the request of the UN General Assembly, the Norwegian Ministry of Foreign Affairs began to develop the Continental Shelf Initiative in 2008. Through this initiative, Norwegian experience and expertise were put at the disposal of developing countries, enabling them to secure their own shelf interests for the benefit of future generations. In the first phase of the project, 10 developing countries received Norwegian assistance to submit preliminary shelf data to the Commission on the Limits of the Continental Shelf. Other countries also received counsel from Norway.[2]

Phase II of the Continental Shelf Initiative (2010–2014) was a regional project involving seven West African countries: Cape Verde, Gambia, Guinea, Guinea-Bissau, Mauritania, Senegal and Sierra Leone. The aim of the project was to gather and process shelf data and prepare a complete submission of data to the Commission on the Limits of the Continental Shelf. Norway also provided assistance in establishing baselines and developing relevant legislation. African ownership of the process and a regional approach were key elements. The initiative's regional approach was cost-effective, but important also because neighbouring states had to consent to processing of each other's shelf submissions in contentious areas. Liberia received support for a submission based on available data, but was not part of the more comprehensive initiative involving the other seven West African countries. Norway also gave similar assistance to Somalia. The Somalia project was completed in July 2014 when Somalia submitted its documentation to the commission.

In 2014 the West African countries agreed to make a joint submission of their data. The final documentation was provided to the UN's Division for Ocean Affairs and the Law of the Sea in September 2014. The joint submission of data by seven countries was historic. Funding support for the project came to approximately NOK 100 million.

The continental shelf initiative has been important for several reasons. It is in Norway's foreign policy interest to ensure that the Law of the Sea works as intended, allowing all states to take advantage of their rights. The shelf initiative the-

[2] These were: Benin, Gambia, Guinea, Guinea-Bissau, Cape Verde, Mauritania, São Tomé and Príncipe, Senegal, Somalia, Togo, Sierra Leone, Ivory Coast, Tanzania and Liberia.

refore serves the interests both of poor countries and of Norway. For Norway's part, helping to strengthen implementation of the Law of the Sea is essential. The initiative was also important because the countries involved, in line with the United Nations Convention on the Law of the Sea, took the first important steps towards cooperating with their neighbours to settle maritime delimitation lines in contentious areas. The initiative has thus reinforced regional cooperation in a sensitive and complex area. In addition to the actual data submission, a considerable amount of technical, legal and procedural knowledge was transferred.

Several years may pass before the Commission on the Limits of the Continental Shelf will process the shelf documentation and the countries will have to defend their conclusion.

The Government will

- contribute to a follow-up project that will maintain technical and operative expertise in the seven West African countries that participated in the second phase of the continental shelf initiative, so the countries will be prepared to defend their conclusions before the UN's Commission on the Limits of the Continental Shelf
- consider the possibility of providing assistance to maintain technical and operative expertise on continental shelf issues in sub-Saharan African countries beyond the seven West African countries
- consider increasing political and financial support to the work of the UN Division for Ocean Affairs and the Law of the Sea (DOALOS) by, among other things, contributing further to the UN assistance fund for members of the Commission on the Limits of the Continental Shelf, as a measure to promote the Law of the Sea

7.2 Development assistance for local and regional integrated management

Norway's model of integrated marine management plans is of interest to many developing countries. There is a pressing need to establish and strengthen management regimes that help tap the potential for business development and sustainable use of marine resources and at the same time ensure good ecological status and well-functioning ecosystems as a basis for future exploitation.

The developing countries often lack research-based knowledge on managing marine resources. Most ocean research is carried out by or in Western countries, and no good mechanisms currently exist for international sharing of maritime research findings. Additional capacity and stronger national institutions are needed to improve data collection and data monitoring and to systematise knowledge about the environment and resources. Many countries lack an overview of their own ocean resources and are therefore unable to negotiate favourable agreements with external actors on resource use. The Government supported Sierra Leone's efforts to prepare its first comprehensive resource overview, which was completed in 2015.[3] Capacity building and transfer will be crucial to resolving common challenges and achieving Sustainable Development Goal 14.

Norway has long supported the Consultative Group for International Agricultural Research (CGIAR), one of whose research centres, WorldFish, is focused on fisheries. Its research programmes centre on aquaculture, sustainable small-scale fisheries, entrepreneurship, value chains, and the nutritional value of fish. The Government will increase its support to CGIAR.

Cross-sectoral cooperation is a mainstay of global marine management and a prerequisite for successfully assisting in the development of integrated management programmes and a sustainable blue economy. Sound resource management requires appropriate rules for ecosystem protection and food security, based on the best available knowledge and the priorities and policies of the countries in question. International conventions and agreements set important parameters for national legislation. What often fails is regulation enforcement, which requires cooperation from multiple institutions and actors.

Stronger cooperation between sectoral organisations, in areas such as fisheries and the environment, make it possible to view different activities and ecosystems in context and thus to regulate human activities in a comprehensive manner for the sustainable use of marine resources. Good cooperation between regional sectoral organisations, and with global institutions such as the Food and Agriculture Organization (FAO) and the International Maritime Organization (IMO), must be facilitated. FAO plays an influential role in the work done internationally on sustainable fisheries and aquaculture in developing countries. It is

[3] http://www.grida.no/publications/default/6638.aspx

Box 7.1 Blue forests

Figure 7.1 The UN Environment Programme promotes the management of natural resources along the coast of Haiti. Rehabilitation of mangrove forests is one of many focus areas.

Photo: UNEP

Since 2011 Norway has cooperated with UNEP on natural resources and environmental management in two of Haiti's southern provinces, Sud and Grand'Anse. A key component in this cooperation has been support for fisheries cooperatives and local fisheries and coastal zone management in an area where coastal small-scale fisheries are one of the key economic activities. Several fishing communities in this region have received assistance with building fish markets, installing refrigerating plants, maintaining fishing boats and training in more sustainable fishing methods. Support is also given to protect marine ecosystems by implementing measures to safeguard coral reefs, rehabilitate mangrove forests and reduce erosion and sedimentation, as well as to develop management plans for Haiti's largest marine protected areas. Since Haiti is one of the countries most vulnerable to natural disaster, the cooperation also aims to reinforce natural protection against extreme weather, using vegetation and natural buffers.

important to boost the organisation's capacity to assist developing countries in this area.

One example of regional cooperation concerns the Benguela Current along the coastline of South Africa, Namibia and Angola. The natural conditions there support rich fisheries, and the area contains spawning grounds for important South Atlantic fish species. The management of these areas is a joint responsibility, and the countries have formed the Benguela Current Commission (BCC), a regional management organisation, in part with the help of Norwegian funding and expertise. Norway has also contributed to mapping and monitoring of fish stock trends in this marine area for many years. Steadily increasing pressure on the stocks – from both legal and illegal harvesting – has made this work even more important. The Government will continue its support to regional fisheries management organisations.

Norway has also given considerable support to developing the Regional Seas Programme for the South-West Atlantic under the Abidjan Convention.

The Government will place emphasis on increased support for regional cooperation through suitable multilateral bodies. UNEP contributes by serving as an umbrella organisation for the different Regional Seas Programmes. UNEP is involved to varying degrees in the programmes. Regions with sound capacity and that can stand on their own feet require far less engagement than regions with less capacity and where management programmes are less developed. In some places the organisation acts as secretariat and offers technical assistance. Increased support for UNEP's work to promote the Regional Seas Programmes can help improve marine management at regional level in developing countries. The aim will be to use the organisation's existing system to establish and strengthen regional forms of cooperation. Through dialogue with UNEP, assessments will be made to document what work is already under way and any opportunities to reinforce it, and to assess which regions have the greatest need. With regard to marine resources, it is important that the countries cooperate on shared stocks via regional fisheries management organisations. FAO's normative work in managing marine resources plays a key role in this respect.

Consideration should also be given to ways of capitalising on the experience of well-functioning Regional Seas Programmes in other marine areas, such as the North-East Atlantic. NEAFC and the OSPAR Commission have important roles to play in this context, in fisheries management and environmental issues respectively. It is important that UNEP and FAO coordinate their efforts in relation to the mandates and roles of regional institutions, in order to avoid overlapping.

The Government will

- intensify its efforts to promote regional marine resource and environmental management by supporting regional fisheries management organisations as well as the work of FAO and UNEP in the Regional Seas Programmes
- share with developing countries the experience Norway has accumulated in creating integrated management plans for Norwegian marine areas
- strengthen FAO's capacity to assist developing countries with sustainable fisheries and aquaculture management
- increase support to fisheries science through the Consultative Group for International Agricultural Research's WorldFish research centre
- promote international sharing of maritime research findings, and contribute to knowledge building in and capacity transfer to developing countries.
- continue cooperation with the IMO in providing assistance to developing countries to prevent marine pollution from ships

7.3 Oil for Development

Oil and gas production is an important source of revenue for many developing countries, and if managed responsibly, the oil and gas industry can make a significant contribution to economic and social development. However, translating oil revenues into improved general welfare has often proved difficult. The goal for the Oil for Development programme[4] is to transfer Norwegian expertise so that developing countries can manage their oil resources in a way that contributes to lasting poverty reduction and takes due account of environmental issues. By the time the Oil for Development programme was established in 2005, Norway had already been providing competence transfer in petroleum management to developing countries for decades. This work has been significantly stepped up and expanded through the programme, which builds on an integrated framework and system of organisation for the petroleum sector.

The content of the Oil for Development country programme aligns closely with the administrative responsibilities of Norwegian government ministries, and can be divided into four main components: resources, environment, safety and revenues. The respective Norwegian ministries work closely to ensure an integrated programme approach:

- Resource component: To develop petroleum policy, legislation and other framework conditions, expertise and capacity, which together facilitate sound resource management and

[4] The programme is led by a steering group consisting of five ministries: the Ministry of Oil and Energy, the Ministry of Climate and Environment, the Ministry of Finance, the Ministry of Transport and Communications, and the Ministry of Foreign Affairs. The Ministry of Foreign Affairs has formal responsibility. The main implementing institutions are: the Norwegian Petroleum Directorate, the Petroleum Safety Authority, the Norwegian Environment Agency, the Norwegian Coastal Administration, Statistics Norway and the Petroleum Tax Office at the Norwegian Tax Administration. The secretariat of Norad has responsibility for quality assistance and aid coordination, while the embassies manage the agreements.

socio-economically beneficial and sustainable production of oil and gas.
- Environment component: To develop the expertise and capacity needed to interact in a professional manner with oil and gas companies, and to ensure that undesirable environmental impacts of petroleum activities are kept to a minimum.
- Safety component: To enhance monitoring capacity to ensure that petroleum industry actors maintain high safety standards, primarily to prevent and limit damage associated with major accidents, acute pollution and personal injuries.
- Revenue component: To help ensure that countries retain a fair share of revenues from petroleum activities, that resources are used effectively, and that revenues are phased into the economy so macroeconomic instability is avoided as far as possible.

Transparency in petroleum resource management is a fundamental principle in Oil for Development, and support is provided to train parliamentarians, civil society and the media in order to enhance democratic control and supervision of petroleum management by the authorities. In this way we can contribute to a more democratic system of government, which is a prerequisite for creating lasting peace, stability and development of benefit to the countries' citizens.

Demand for the programme has grown among our partner countries, and the weight given to its different components is varied to suit individual countries. The Oil for Development programme currently involves 12 countries, most of them in Africa.[5]

The programme operates within a complex context, with operational risk associated with petroleum activities and financial risk associated with socio-economically effective resource utilisation in a sector exposed to corruption. It is becoming increasingly important for the partner countries to strengthen environmental management, anti-corruption efforts, oil pollution preparedness and operational safety to avoid accidents and oil spills.

The oil and gas industry is a significant source of greenhouse gas emissions. Today, the Oil for Development programme informs partner countries about greenhouse gas emissions from oil production and about legislation and regulations pertaining to gas flaring. Through training in effective resource utilisation and environmental management, the programme helps reduce negative climate and environmental impacts. Information is provided about fee systems related to greenhouse gas emissions, and assistance is provided for documenting, measuring and reporting on greenhouse gas emissions as well as for measuring flare gas.

Several evaluations and reviews conclude that Oil for Development has helped lay a foundation for better petroleum management in the partner countries and is an example of experience and expertise raising Norway's profile in many countries. However, it is clear that building institutions and capacity takes time.

The Government will

- continue efforts to strengthen the partner countries' resource management, environment management, oil pollution preparedness and operational safety as well as their revenue management under the Oil for Development programme. Due consideration will be given to cross-cutting issues such as climate and environment, human rights, gender equality, and anti-corruption.

7.4 Fish for Development

The Fish for Development programme was launched in 2015 to increase support to fisheries aid and strengthen the impact of aid initiatives related to the sustainable use of living resources, primarily in marine but also freshwater environments. The overriding goal is poverty reduction through food security, sustainable management and profitable economic activity. The programme has three main pillars: 1) research and education, 2) management, laws and regulations, and 3) business development.

Fish for Development builds on longstanding Norwegian fisheries and aquaculture assistance and assumes a long-term perspective based on demand from the countries in question. Modules in specialised fields are offered through communities of experts in Norway. The idea is to meet the demand and needs of partner countries with expertise and capacity from Norwegian knowledge communities.

[5] Angola, Cuba, Ghana, Iraq, Kenya, Lebanon, Mozambique, Myanmar, South Sudan, Sudan, Tanzania and Uganda. Colombia and Somalia are currently being surveyed.

Box 7.2 National oil pollution preparedness plan

Figure 7.2 Oil spill preparedness exercise outside Dar es Salaam, Tanzania.

Photo: Ken Opprann

Major oil spills can have serious environmental impacts. A national oil pollution preparedness plan and its implementation are critical to being able to manage oil spills fast and with the right measures. Norway, represented by the Norwegian Coastal Administration, has over many years developed a national system to manage future oil spills from shipping and the oil industry. Through the Oil for Development programme, the Norwegian Coastal Administration has assisted relevant authorities with capacity building in a number of the programme's partner countries. In Tanzania, Uganda and Lebanon, the Norwegian Coastal Administration helps national authorities put national preparedness plans into place. The Norwegian Coastal Administration has also facilitated a full-scale exercise in Tanzania involving both land and sea activities. Delegations from Tanzania, Uganda, Lebanon and other countries have visited the Norwegian Coastal Administration to take part in full-scale exercises in Norway. The work of the Norwegian Coastal Administration has led to better cooperation between all the actors in Tanzania's national oil pollution preparedness committee and between national and local authorities and the industry.

The programme is intended to help national authorities in partner countries to sustainably manage their marine resources through capacity building, improved knowledge bases, sound legislation, monitoring and control, and enhanced regional cooperation. The Government will help ensure that research, development and education strengthen the public and private sectors alike, and that marine resource use is both profitable and sustainable.

Cooperation between private business, the authorities and research institutions was central to the development of Norway's aquaculture industry. The experience thus gained has been incorpo-

Figure 7.3 Fillet packing at Sea Work in Walvis Bay, Namibia.

Photo: Tone Slenes

rated into the Fish for Development programme. The Government will contribute to a strengthening of this tripartite cooperation in the Fish for Development programme. In countries with weak public administration, civil society organisations can play an important role, often at local level, by creating jobs related to small-scale fisheries and aquaculture. International organisations, for their part, can help advance transparency, rights-based approaches and normative instruments to secure development of sustainable fisheries and aquaculture industries.

The programme builds on experience gained from longstanding fisheries assistance activity. Cooperation with Namibia in the 1990s and 2000s showed that good results can be achieved by viewing all initiatives in context and acting with broad purpose in a country whose authorities prioritise the effort and do their own follow-up. Namibia's fisheries management is now ranked among the 10 best in the world. A significant factor in this achievement has been the country's longstanding partnership with Norway to create a sustainable national fisheries management system.

Today the Fish for Development programme is in high demand. The Government will increase its allocation to the Fish for Development programme to meet the demand in developing countries for knowledge and management experience relating to marine resources and the oceans. Which sectors and countries to focus on will be continuously assessed. The Government intends among other things to identify assistance opportunities in fisheries and aquaculture cooperation with Colombia, Ghana and Myanmar.

The Government will

- increase its allocation to the Fish for Development programme to meet the demand in developing countries for knowledge and management experience in marine resources and the oceans
- help strengthen effective cooperation between the public sector, private business and academia in the Fish for Development programme
- contribute to competence building in partner countries by cooperating with relevant Norwegian business actors and cooperating on vocational education in ocean-related industries and sectors
- consider initiating cooperation with new core countries within the framework of the Fish for Development programme
- strengthen cooperation with actors that can provide expertise and investment, thereby helping to realise blue economy potential in Norwegian partner countries

7.4.1 Nansen Programme

Norway has supported the Nansen Programme in cooperation with FAO for more than 40 years. This programme, the largest initiative in Fish for Development, supports developing countries' fisheries research and management for sustainable use of living marine resources and increased protection of the marine environment. The long-term goal is for the partner countries to possess systems and expertise to sustainably manage their resources. The programme gives researchers and government officials the necessary training and contributes to the development and implementation of sustainable management plans.

The Nansen Programme is an effective platform of cooperation, knowledge generation and technology transfer between Norway and partner countries. The official naming ceremony for the third in a line of research vessels called *Dr Fridtjof Nansen*, a new state-of-the-art research vessel, took place on 24 March 2017. The event also marked a new phase of the programme. The new vessel will make it possible to carry out more extensive marine research and promote ecosystem-based fisheries management in developing countries.

The programme's emphasis will continue to be on assisting developing countries to establish ecosystem-based fisheries management in cooperation with FAO. This involves collecting physical and biological information on ocean and coastal

Box 7.3 Dr Fridtjof Nansen

Figure 7.4 The new research vessel *Dr Fridtjof Nansen* was christened in March 2017.
Photo: Kjartan Mæstad

The Nansen Programme was started in 1974 on the basis of Norwegian experience with stock management. The core of the programme has been the Norwegian-owned-and-operated research vessel *Dr Fridtjof Nansen*. This vessel has provided a platform for measuring fish stocks, training local researchers and managers and exploring the marine environment. Now that the Government has removed self-financing requirements for the participating countries, the Institute of Marine Research and FAO will be able to organise a far better programme of scientific expeditions from 2017 onwards. The new research vessel will be able to facilitate more extensive marine research and ecosystem-based fisheries management in developing countries.

research expeditions as well as training local scientists in practical marine research and expedition activity. Increased programme resources will be employed in analysing and processing the collected data for use in management decision-making. Furthermore, greater emphasis will be placed on strengthening management ability to use the data effectively.

The new phase in the programme will strengthen environmental and climate-related marine research, activities for which the new vessel is well equipped. Environmental research can be particularly useful for countries with petroleum activities and for surveying marine pollution and concentrations of plastics, microplastics and other marine litter. During an expedition in the Indian Ocean in 2015 the research vessel discovered plastic particles in all water samples taken.

The Government will increasingly view the new phase of the Nansen Programme in relation to other Norwegian initiatives, and ensure that data collected from research expeditions be used more extensively in research and as a basis for integrated management decisions. More emp-

hasis will be placed on capacity building in order to support marine resource management in partner countries. The Government will also ensure that Norwegian support to international organisations is viewed in the context of major investments such as the Nansen Programme.

The Government will

- use the new research vessel *Dr Fridtjof Nansen* to facilitate more extensive marine research and ecosystem-based fisheries management, including capacity building, in developing countries
- increasingly view the new phase in the Nansen Programme in relation to other Norwegian initiatives related to the oceans, seas and marine resources
- ensure that Norwegian support to international organisations such as the World Bank, GEF and UNEP be viewed in relation to other Norwegian initiatives such as the Nansen Programme

7.4.2 Small-scale fisheries

Most fisheries in developing countries operate on a small scale, but are vital to employment and local food security. Small-scale fisheries represent an important but often underestimated source of employment, food security and income in developing countries. It is estimated that about 90 % of all people employed in capture fisheries work in the small-scale fisheries sector and that 75 % of aquaculture businesses are small-scale. While 19 % of fishers are women, the proportion of women in fish processing and sales activities is estimated at about 50 %. [6]

To support such types of fishing activity, in 2014 FAO negotiated the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines). In the 2015–2016 period Norway provided NOK 15 million in support to FAO's work implementing the guidelines, which in many countries will require policy and legislative revision. The Government will consider continuing this support to FAO and will seek to employ the guideline content in other bilateral and multilateral fisheries cooperation.

Business development assistance in small-scale fisheries includes measures to reduce waste after the fish are caught and support throughout the value chain, including processing, so that broader markets with better prices can be reached. Civil society organisations with special expertise in local conditions and the fisheries sector can play an important role in such measures.

The Government will

- consider continuing its support to FAO's global programme for implementing the SSF Guidelines and seek to employ the guideline content in other bilateral and multilateral cooperation in the fisheries sector

7.4.3 Training and education

Over many years, Norway has developed educational pathways in fishery subjects, both academic and practical. Many students from developing countries have received their education in fisheries science at Norwegian universities. Most have returned home and used their education to benefit their countries. African fisheries ministers and fisheries directors are among those educated in Norway.

Almost all the assistance programmes Norway supports contain some form of competence building, and capacity development is integral to the cooperation. This approach has contributed significantly to the development of fisheries expertise in countries such as Namibia, Angola, South Africa and Vietnam, and such study courses are still in demand. Many countries choose to send their candidates to Norwegian universities. This enables Norwegian universities to maintain expertise in the fisheries issues faced by the developing countries.

As African and Asian universities become established partners with Norwegian universities in fishery and marine research, new cooperative projects are being established. Both parties benefit from such projects. Moving forward, the Research Council of Norway can play a role in this cooperation.

The Norwegian Programme for Capacity Development in Higher Education and Research for Development (NORHED) is not part of the Fish for Development programme, but its aim is to strengthen capacity in higher education institutions in low- and middle-income countries. The projects are selected based on the needs and priorities of the partner institutions, and must align with national priorities. The areas of cooperation should also align with Norwegian development

[6] *The State of World Fisheries and Aquaculture* (2016), FAO.

Box 7.4 Aquaculture cooperation with China

Aquaculture in China goes back thousands of years, and the country is the world's largest fish producer. Since 2011 the Institute of Marine Research and the Yellow Sea Fisheries Research Institute at the Chinese Academy of Fishery Sciences have cooperated in the Environment and Aquaculture Governance project. The project benefits both Chinese and Norwegian partners, and has resulted in close institutional relations, a network for young researchers, and establishment of a platform for research cooperation. A key objective is to identify and explore areas of aquaculture expertise in which the two countries can learn from each other. The overriding objective is to contribute jointly to food security and a healthier marine environment. The knowledge exchanged in aquaculture management covers topics such as planning tools, ecosystem modelling, monitoring systems and integrated systems for better understanding climate change impacts.

policy priorities and represent areas in which Norway has comparative advantages. The programme has a clear aim of finding synergies with other Norwegian-funded efforts in the same area. To date, the portfolio has included projects related to climate change in coastal landscapes, fish health and water quality.

The steadily increasing pace of technological change in fisheries, not least in aquaculture, is creating a growing need for fisheries vocational education. The Government will focus more on vocational training relevant to the blue economy in developing countries. Norway has upper secondary schools that provide vocational education in fisheries subjects. A similar school was established in Mbegani, Tanzania, with Norwegian support. The Norwegian support ended in 1990, but the school continued to operate under the auspices of the Tanzanian fisheries authorities. Namibia received support for its fisheries school, the Namibian Maritime and Fisheries Institute, under bilateral cooperation from 1990 to 2005.

Increased focus on vocational training in the aquaculture sector is planned under the Fish for Development programme.

The Government will

– focus more on vocational education, student exchange and cooperative projects in fisheries and aquaculture with universities in partner countries

Box 7.5 Training and education

Building Skills for Jobs is one of Norway's global programmes to promote education, with a budget ceiling of NOK 500 million over five years. The programme objective is to help youth and young adults acquire skills that developing country labour markets demand or that enable them to create their own workplace. Priority is given to five sectors, including the fish and marine resources sector and the maritime sector. Emphasis is placed on business involvement to ensure that the skills taught are relevant in the labour market. The initial call for project outlines is administrated by the Norwegian Centre for International Cooperation in Education in cooperation with Norad.

7.4.4 Fisheries management and legislation

Knowledge about marine ecosystems, a sound legal framework, a management regime that provides security for private investments, and effective enforcement mechanisms are all needed to ensure successful fisheries management. Aquaculture in developing countries entails risk, so policy instruments that reduce investment risk are often required. Norwegian expertise is sought after, not least with regard to the forms of support and management a fledgling aquaculture industry requires of government. Norway has provided assistance for aquaculture development in a number of countries, as well as for managing the sector. Norway also supports aquaculture sector knowledge development through international institutions; for example FAO's vulnerability assessments of aquaculture in different regions as the climate changes.

To varying degrees, countries in Africa, Asia and Latin America adhere to and comply with international maritime and ocean laws and regulations, and have incorporated them into their national fisheries management legislation. Sound implementation is vital to their ability to manage

Box 7.6 Antibiotics challenges in aquaculture

Aquaculture production in some developing countries consumes relatively large quantities of antibiotics. A number of factors may be at cause, including low levels of expertise in fish diseases, lack of diagnostic laboratories and limited biosecurity expertise. Often few or no commercial vaccines are available. The lack of willingness to pay for vaccines may be a further challenge. This situation is often resolved by extensive use of antibiotics, which are relatively easily available. Major problems with bacterial resistance and multidrug resistant strains of bacteria have consequently arisen in production of the *Pangasius* species.

In Norwegian aquaculture it has been possible to minimise antibiotics use by developing vaccines, breeding selectively, maintaining separation between fish farms and ensuring fish welfare, among other measures. What Norway has experienced, including management measures that effectively address the issues cited above, is relevant to development assistance for improving aquaculture fish health and reducing antibiotics use. Noteworthy in this context is the One Health concept, which highlights the significance of cross-sectoral cooperation for human health, animal health and the environment – especially in efforts to combat the development of antimicrobial resistance. The use of antibiotics in aquaculture may have major significance in the spread of antimicrobial resistance in human and livestock environments.

issues related to oceans and lakes in general and to fisheries in particular, including aquaculture.

The Government will

- help partner countries to put fisheries regulations in place that can address the goal of sustainability in the sector, both in marine fisheries and in aquaculture
- assist developing countries, especially in Asia, with measures that promote fish health and environmental aspects of the aquaculture industry

7.4.5 Business development

In light of the expected growth in the aquaculture sector, Norwegian companies are showing increasing interest in investing in this sector in developing countries. It is important that these actors invest for the long term, and the goal should be industrialisation of the aquaculture industry, with large-scale technology and cages. Development of the industry can play a key role in food security and job creation while helping to shield overexploited fish stocks. Success in aquaculture requires the entire value chain to work, and it is important that its various inputs be viewed in relation to one other. This can form a basis for establishing strategic partnerships between public and private actors.

The Government will focus a larger portion of its assistance on business development derived from both marine and freshwater resources. Aquaculture development has been among the beneficiaries of Norway's business development support schemes. Fish farmers and other businesses in the value chain have also received training as part of this support. Support for aquaculture investment will be viewed in close connection with other activities in the Fish for Development programme so that national framework conditions and aquaculture research support the countries' economic opportunities.

The aquaculture sector as we know it in Norway is a high-tech, capital-intensive industry. Local laws and regulations for the sector must be developed and the authorities must implement them. With establishment of an aquaculture industry the potential exists for substantial value creation, generating employment and sizable tax revenues for the countries in question. However, there are also many challenges that can cause economic loss and environmental destruction. Aquaculture in developing countries is a high-risk activity, and policy instruments to reduce investment risk are often required. The keys to success include controlled growth and sound control of fish health challenges.

The Government will view business development assistance in close connection with the work done in the partner countries to strengthen framework conditions, management and education in the aquaculture sector. Among the pressing needs of a fledging aquaculture sector are a competent workforce, support functions and infra-

Box 7.7 Science Week

The South Africa–Norway Science Week conference was arranged for the first time in autumn 2016. The aim of the conference was to stimulate cooperation in research, education, business and innovation. The conference's target groups were scientists, research and education managers, business and industry representatives, students, public authorities and research-funded organisations. The Norwegian embassy in South Africa and Innovation Norway create forums for business development and job creation. The potential is vast, and not only in South Africa. Several African countries are now investing in ocean-related expertise and business development. South Africa, however, has a clear lead given its infrastructure, its access to three oceans, its functioning bank and finance sector and, not least, its high-quality knowledge institutions. Science Week created and renewed connections within many sectors and on many levels, and offered a good opportunity to build and strengthen Norway's position as a key partner in developing the blue economy.

structure operations. Research-based knowledge development and cooperation are also necessary.

Cross-sectoral engagement is necessary for contributing to sustainable growth in the blue economy in developing countries. The Government will facilitate arenas where Norwegian centres of business, research and expertise contribute to capacity building, investment, job creation and cooperation with our partner countries.

Food waste is also a serious problem in the fisheries industry. It reduces food security and revenue. To combat it several initiatives and innovation-oriented measures could be supported. Regulation, technology development and the industry itself can also help reduce food waste.

The Government will

- use a greater proportion of development aid to build up expertise on business development in the marine and maritime sectors strengthen business development assistance related to aquaculture and view this work in close connection with the work done to strengthen aquaculture framework conditions, management and education in partner countries
- help reduce food waste in fisheries

7.4.6 Financing

Norway is experiencing considerable demand from partner countries seeking access to expertise and financing in areas related to a sustainable blue economy. Norway is regarded as a preferred partner in a number of fields, and Norwegian companies and knowledge institutions receive many enquiries about cooperation.

In addition to feasibility study grants before making investment decisions, there is a need for adequate financing schemes at different levels. Such schemes may be to support small-scale initiatives, small and medium-sized start-ups or access to capital for large investments in, for example, aquaculture. Common to them all is the provision of loans, on reasonable terms, that must be repaid. This gives the money additional value and creates opportunities for more people to start up and develop local businesses.

The Government will consider assigning a clearer blue economy identity to a number of important assistance programmes. The business development support scheme is already receiving applications related to aquaculture, fisheries and seafood. It will be possible to increase investment in this area. One could envisage incorporation of the programmes into an overarching blue development initiative.

The purpose of Norfund is to help develop sustainable business activity in developing countries by providing equity capital and other risk capital, and by furnishing loans and issuing guarantees.[7] Norfund makes investments in the food industry, including aquaculture. Such investments have been given priority in Norfund's strategy for 2016–2020.

The Government will

- consider strengthening the business development support scheme related to the blue economy in developing countries

[7] Section 1, Act relating to the Norwegian Investment Fund for Developing Countries. Norfund was established in 1997 as a market-driven investment fund.

Box 7.8 Vietnam: An aquaculture and fisheries law

Figure 7.5 Aquaculture at Halong Bay, Vietnam.
Photo: Ken Opprann

Norway has given support to Vietnam's fisheries since 1998. This has proved successful, and Norwegian support is now gradually being phased out. Two areas in particular were focused on: a sustainable aquaculture industry, and development and implementation of new fisheries legislation. Norway has supported aquaculture research and development since 1998. Vietnam has received a total of NOK 42 million, and the research has enabled poor families to increase their production by up to 40 % after participating in an aquaculture trial project with a new type of tilapia fish. Selective breeding resulted in a 46-per-cent higher growth rate and greater cold tolerance than with the more common Nile tilapia. Few of the fish farms that began using the method experienced incidences of fish disease, while most of the other fish farms did. In 2001 Vietnam's total tilapia production was 15 000 tonnes, and by 2015 this figure had risen to 187 000 tonnes. Through its support, Norway has also improved Vietnam's research capacity in genetics, fish health and marine aquaculture.

Norway's business development support schemes have also boosted animal feed production in Vietnam. Support for training and for health, safety and environment measures (HSE) has also contributed to a significant increase in the proportion of feed ingredients produced locally, at the expense of imported fishmeal. It has also improved HSE training for employees and suppliers and resulted in training for 500 Vietnamese fish farmers in how optimal feeding can improve production efficiency and quality.

In its work assisting Vietnam to prepare and implement a new fisheries law, Norway has attached weight to the legislation's ability to secure an environmentally and economically sustainable fisheries industry and provide fishermen and the aquaculture industry with predictable framework conditions. The project was carried out in two phases between 1999 and 2011. In record time, Vietnam managed to prepare its legislation and have it adopted by autumn 2003. Norway's contribution totalled NOK 34 million. The results came in the form of increased revenue and fewer violations of the law. Regulation under the new law has taken the pressure off Vietnam's fish resources by, among other things, increasing investment in aquaculture. In 1996 fishing accounted for 66 % of total revenues in the sector; 10 years later this figure was halved. Between 2005 and 2015, aquaculture production grew by 7.1 % annually. The value of aquaculture production in 2015 was 6.9 times greater than in 2001. Furthermore, the new fisheries law introduced regulations to protect vulnerable species, and 15 new protected areas have been established along the coastline.

Management plans, licensing and supervision have created a better and more predictable management regime. Aquaculture licences have been allocated to the population of Thang Loi in the Halong Bay area. The licences make it possible to obtain credit and loans, and have helped stimulate economic activity. A survey conducted by local authorities showed that the number of poor in the municipality was reduced from 48 % to 18 % between 2007 and 2012. Much has been done to increase knowledge about the new fisheries law in order to raise awareness and change harmful practices. A survey of selected fisherman four years after introduction of the law showed that violations had fallen by 50 % to 70 %. The biggest changes came in in ocean pollution levels. Competence building in Vietnamese public administration has resulted in more active Vietnamese participation in regional fisheries cooperation and in international forums such as the FAO Committee on Fisheries and the UN Convention on the Law of the Sea. This has given Vietnam the opportunity to promote its own interests and influence international policies.

7.4.7 Illegal, unreported and unregulated fishing and fisheries crime

Although aquaculture is the fastest-growing part of the fisheries sector, wild fish harvesting will retain its importance for many developing countries. To ensure that the potential of this sector is realised, sustainable harvesting of resources is extremely important. Among the greatest threats to this is illegal, unreported and unregulated fishing (IUU) and fisheries crime. Many developing countries have a pressing need to establish and strengthen management regimes capable of limiting the losses arising from illegal activities and helping to develop the potential of sustainable ocean utilisation. The Government has significant initiatives in place to combat illegal fishing and fisheries crime.

7.4.7.1 Combatting illegal, unreported and unregulated fishing

IUU fishing is especially a problem in countries and regions where fisheries management is weak and systems for monitoring and enforcing regulations are inadequate. For West African fish stocks and fisheries, IUU fishing by other states' fishing fleets is a major problem. The losses incurred by West Africa alone are estimated at USD 1.3 billion annually.[8] The estimated scope of the problem in global terms is uncertain, but is believed to be upwards of 26 million tonnes of fish every year.[9] This represents more than 15 % of the world's total production of wild fish. This problem deprives developing countries of vast resources and undermines living conditions in coastal communities.

Norway assists multilateral and regional organisations in combatting IUU fishing through the Port State Measures Agreement, a binding agreement to combat IUU that was adopted at the FAO Conference in 2009. Norway ratified the agreement in 2011, and it entered into force in June 2016 after ratification by 25 countries. Work towards the agreement was initiated by Norway, Norwegian experts contributed to its drafting, and Norway provided most of the funding for the negotiations involved.

The agreement was an important milestone in efforts to prevent, deter and eliminate IUU fishing internationally. Under the agreement, states must cooperate in turning away catches obtained in contravention of sustainable management and in the seizure of vessels involved in such activity if national regulations permitting legal action are in place. The agreement covers measures such as denial of port entry for IUU-listed vessels, exchange of information, conducting inspections, and preventive measures. The objective is to prevent or make it less profitable to land catches not harvested in accordance with sustainable management principles.

The Government will host the first meeting of state parties to the agreement at the end of May 2017. Widespread accession to treaty, including by developing countries, is vital to its acceptance. The Government will encourage new states to join the agreement and support its implementation in developing countries. Countries with weak institutional capacity may find it challenging to effectively fulfil their duties under the agreement and implement its provisions.

The Government will

- intensify the fight against illegal, unreported and unregulated fishing by encouraging other states to ratify the Port State Measures Agreement and by hosting the first meeting of state parties to the agreement in 2017
- provide support for implementation of the Port State Measures Agreement in developing countries
- continue to support regional cooperation against illegal fishing
- help prevent the sale of fish caught with IUU techniques by developing and applying relevant international guidelines negotiated by FAO member states
- help promote cooperation and coordination among all multilateral organisations with mandates to address IUU fishing, human rights and fisheries crime. This applies to FAO, ILO, IMO, UNODC and Interpol, among others.

7.4.7.2 Combatting fisheries crime

Fisheries crime refers to various criminal acts that undermine sustainable management of global fish resources and cause economic and security problems in many developing countries. The problem extends to all criminal offences committed throughout the fish value chain, from illegal fishing to tax crime, customs fraud, other types of fraud, corruption, human trafficking in the form of forced labour in the fisheries sector, human smuggling and drug smuggling. Effective preven-

[8] Africa Progress Report, 2014.

[9] *The State of World Fisheries and Aquaculture* (2016), FAO.

tion requires efforts across administrative boundary lines. In most cases, fisheries crime is connected to transnational organised crime, and calls for a coordinated international response.

For some developing countries, fisheries crime poses a direct threat to economic development. Norway supports training of fisheries control officers to combat fisheries crime through cooperation with the Nelson Mandela University in South Africa. The project will strengthen the ability of South Africa – and eventually other African states – to monitor their own coastal and marine areas. This can make a positive contribution to regional cooperation on an important issue for Africa and for Norway.

Fisheries crime is an area that must be monitored and followed up internationally. Norway is a driving force in developing tools to address the problem. Its activities include promoting law enforcement cooperation between national supervisory authorities and the police and through international police cooperation. The Government will work towards adoption of a resolution on fisheries crime in the UN Commission on Crime Prevention and Criminal Justice.

Coordinating and facilitating information exchange between supervisory agencies and the police is central to combatting illegal activity. In Norway, public agencies collaborate via BarentsWatch on collecting, developing and sharing information about coastal and marine areas. The Directorate of Fisheries and the Norwegian Coastal Administration's analysis unit at the Vardø Vessel Traffic Service collaborates with BarentsWatch to expose illegal fishing activity and improve safety at sea. The unit, which possesses specialised expertise gained by Norway in combatting illegal fishing in the Barents Sea, does work at the request of both national and international authorities, and has assisted several developing countries in collecting and analysing information on criminal activities at sea. The unit has also helped train analysts from a number of developing countries.

Fisheries crime is combatted through the judicial system and international cooperation. Interpol and the United Nations Office on Drugs and Crime (UNODC) are key actors. Norway pressed for the establishment of a fisheries crime working group at Interpol in 2013, and supports Interpol's work in this regard. In November 2016 the Government entered into a four-year agreement

Box 7.9 IUU fishing off West Africa

In marine areas off the coast of West Africa, the Norwegian foundation Trygg Mat Tracking (TMT) assists six countries – Liberia, Ivory Coast, Ghana, Togo, Benin and Nigeria – in uncovering illegal fishing. The effort has led to the identification and expulsion from national waters of vessels engaging in illegal fishing since 2014. Though the Fisheries Intelligence and MCS Support in West Africa project, TMT and Stop Illegal Fishing (SIF) provide technical support to the Fisheries Committee for the West Central Gulf of Guinea (FCWC). The project provides information on fishing operators in the region, facilitates information exchange between countries, and supports the countries' supervisory activities, such as vessel inspections. In addition, the national authorities are given guidance in application of the Port State Measures Agreement. The aim is to achieve effective national and regional fisheries management in the area through improved access to information, enhanced sharing of information and cooperation between the countries, enhanced coordination between the different fisheries management actors in individual countries, and capacity building in monitoring and supervising fishing activities in the member countries. This approach has proved effective, and has produced results in that the countries now actively exchange important information about vessel movements and reloading, as well as documentation concerning the issuance of fishing licences. One of the cornerstones of the project has been the establishment of the West Africa Task Force (WATF), an operative group consisting of the directors of fisheries authorities in the respective countries and the heads of monitoring and supervisory activities. Moreover, national working groups consisting of fisheries authorities, naval representatives, port authorities, maritime authorities and other relevant state institutions have been set up. A web-based regional cooperative platform was established and is regularly updated with feedback, with information and requests for cooperation between countries and with technical support enquiries.

Box 7.10 Interpol's efforts to combat fisheries crime

As part of its development policy, the Government supports Interpol's efforts to combat fisheries crime and illegal fishing. This is intended to help national authorities in developing countries to comply with national and international laws and to enhance cooperation, both geographically and between sectors. Norway's partner in this cooperation is the Norwegian national advisory group against organised IUU fishing, whose secretariat is in the Ministry of Trade, Industry and Fisheries. Norwegian support amounts to NOK 42.3 million over five years (2015–2019). This support has already produced concrete results; with assistance from Interpol, São Tomé and Príncipe carried out an investigation and trial against the owners and senior crew members of *Thunder* for illegal fishing in the Southern Ocean and polluting the waters off São Tomé and Principe, in 2015. The crew members received jail sentences. Operative case meetings on illegal fishing, headed by Interpol, have encouraged cooperation between industrialised countries and developing countries on a number of criminal fishing cases.

with UNODC to provide NOK 39.7 million to combat transnational organised fisheries crime in developing countries. The UNODC will assist by providing updates of legislation and by building competence and capacity in law enforcement agencies, customs authorities and judiciaries. The Norwegian support represents a significant strengthening of international efforts to combat fisheries crime.

The Government will

- continue Norway's extensive support to Interpol and UNODC, seek adoption of a resolution on fisheries crime in the UN Commission on Crime Prevention and Criminal Justice, and continue being a driving force in the area of fisheries crime
- support further development of the analysis unit in Vardø and BarentsWatch so as to assist developing countries with analyses and satellite-based information aimed at exposing illegal fishing and other illegal activities at sea

The Ministry of Foreign Affairs

r e c o m m e n d s :

that the recommendation of the Ministry of Foreign Affairs concerning the place of the oceans in Norway's foreign and development policy dated 24 March 2017 should be submitted to the Storting.

Annex 1

List of abbreviations and acronyms

ACAP	Arctic Contaminants Action Program
AMAP	Arctic Monitoring and Assessment Program
AOSIS	Alliance of Small Island States
ASEAN	Association of Southeast Asian Nations
AU	African Union
BCC	Benguela Current Commission
CAFF	Conservation of Arctic Flora and Fauna
CAMLR Convention	Convention on the Conservation of Antarctic Marine Living Resources
CBD	Convention on Biological Diversity
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CGIAR	Consultative Group on International Agricultural Research
CITES	Convention on International Trade of Endangered Species
COPERNICUS	European Earth Observation Programme
EFTA	European Free Trade Association
EPPR	Emergency Prevention, Preparedness and Response Working Group of the Arctic Council
EEA	European Economic Area
FAO	Food and Agriculture Organization of the United Nations
Ffu	Fish for Development
FRONTEX	European Agency for the management of Operational Cooperation at the External Borders of the Member States of the European Union
GEF	Global Environment Facility
ICES	International Council for the Exploration of the Sea
IEA	International Energy Agency
IEF	International Energy Forum
ILO	International Labour Organization
IMO	International Maritime Organization
INTERPOL	International Criminal Police Organization
IOC	Intergovernmental Oceanographic Commission
IWC	International Whaling Commission
JPI Oceans	Joint Programming Initiative Healthy and Productive Seas and Oceans

MARPART	Maritime Preparedness and International Partnership in the High North
MARPOL	International Convention for the Prevention of Pollution from Ships
NAFO	Northwest Atlantic Fisheries Organization
NEAFC	North East Atlantic Fisheries Commission
NIVA	Norwegian Institute for Water Research
NORHED	Norwegian Programme for Capacity Development in Higher Education and Research for Development
Norfund	Norwegian Investment Fund for Developing Countries
NSOAF	North Sea Offshore Authorities Forum
OECD	Organisation for Economic Co-operation and Development
Ofu	Oil for Development
OPEC	Organization of the Oil Exporting Countries
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic
PAME	Protection of the Arctic Marine Environment
REDD	Reducing Emissions from Deforestation and Forest Degradation Programme
SARiNOR	Search and Rescue in the High North
SIDS	Small Islands Developing States
SOLAS	International Convention for the Safety of Life at Sea
SPU	Government Pension Fund Global
TPP	Trans-Pacific Partnership
TTIP	Transatlantic Trade and Investment Partnership
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNODC	United Nations Office on Drugs and Crime
IUU fishing	Illegal, unreported and unregulated fishing
WTO	World Trade Organization