



## **Norwegian Blue Forests Network (NBFN)**

Mobilizing Norwegian expertise for sustainable management of the blue forests in Norway and abroad





Distribution of mangroves, temperate salt marshes and arctic and subpolar salt marshes.

Source: Scott et al. 2014.



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## Blue forests – why they are important and where they are found

Blue forests are marine and coastal ecosystems that are particularly valuable through their provisioning of multiple ecosystem services, of which carbon capturing and sequestration is one.

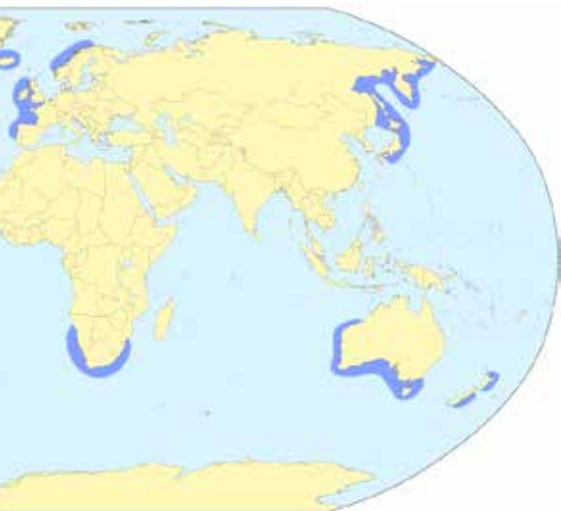
The ability to assimilate and store atmospheric carbon is shared by all marine ecosystems (a concept also termed ‘blue carbon’). Some are particularly effective at this. Mangrove forests, seagrass meadows and saltwater marshes in tropical areas account for more than 50 % of all carbon storage in ocean sediments; despite they only cover 0.5 % of the sea bed. In the northern and southern hemispheres, kelp forests are particularly important. Kelp forests live on temperate and boreal rocky reefs, covering 25 % of the world’s coastline and are found along most of the Norwegian coast.

The carbon value of coastal blue forests is being recognized as important by the UN Framework Convention on Climate Change (UNFCCC) and the Intergovernmental Panel on Climate Change (IPCC), not at least due to the ability to sequester vast amounts of carbon – up to five times that stored in tropical forests.

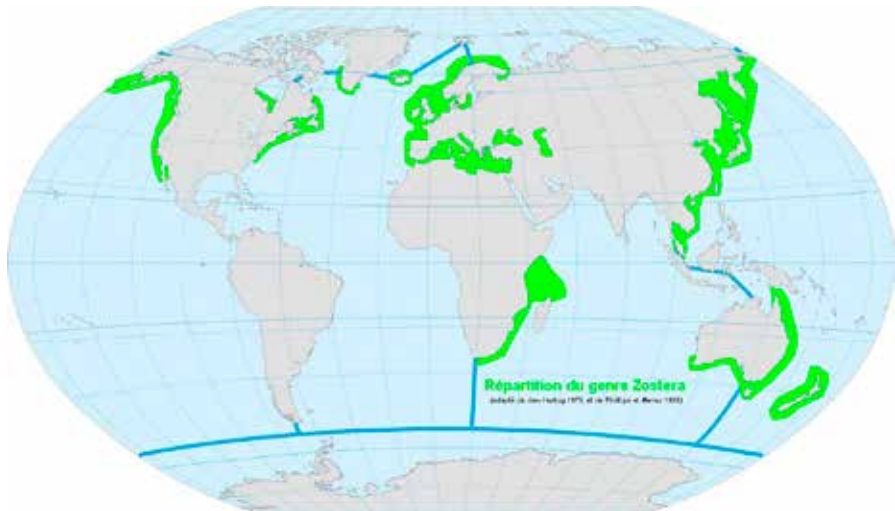
Blue forests ecosystems also provide many other important services beyond the carbon sequestration. In tropical areas the mangrove ecosystems are particularly important for coastal and island communities by protecting against coastal erosion, storms and flooding; also making them valuable for climate change adaptation. They provide food from fisheries, as well as a habitat for juvenile fish and shrimps to thrive in. They improve coastal water quality by trapping sediments and nutrients. They can provide local revenue from tourism, as well as materials for building or ingredients for medicines. All tropical blue forests ecosystems are under considerable human pressure, thus their conservation and sustainable use is crucial.

In temperate and boreal regions, such as for Norway, the conservation, restoration and sustainable management and commercial use of kelp can contribute to both climate sequestration and to replace a black carbon economy with a blue-green one. The high productivity and equally biodiversity of the kelp forests make them important providers of various ecosystem services, of which some are similar to those for tropical blue forests. Kelp forests act as important food baskets and breeding areas for economically important coastal fish stocks, crabs and lobsters. In Norway kelp has been commercially harvested for more than 50 years. Now, the algae-based green economy is rapidly developing in Norway and other kelp countries offering products such as human food (stabilisers, thickeners, human food directly), drugs, and protein-rich animal fodder. Some main threats to kelp forests are sea urchins, eutrophication and raising temperatures under climate change.

Norway, with its long coastline and strong traditional connection to marine resources, has internationally been a strong advocate for the sustainable use of coastal blue forests ecosystems. Norway has also supported blue forests policy at the international level, within the context of UNFCCC and IPCC, and under the UN Convention on Biological Diversity. Also, under its development policy umbrella Norway supports projects in blue forests ecosystems that aim to improve ecosystem management, empower and involve local communities, and contribute to poverty reduction. Nationally, the sustainable use of marine ecosystems is a cornerstone of Norway’s goal to develop its blue-green economy.



Distribution of kelp forests.  
Source: Maximilian Dörrbecker.



Distribution of *Zostera* seagrass.  
Source: Wikimedia Commons.

## NBFN objectives and key beneficiaries

NBFN aims to jointly strengthen the Norwegian competence and know-how in blue forests so that its full potential in addressing the global climate challenge and provisioning of other ecosystem services can be met nationally and abroad.

The four main objectives are to:

**Raise awareness in Norway** on the role of blue forests in capturing and long-term storing atmospheric carbon dioxide and their role in providing multiple and important ecosystem services through targeted communications and outreach.

**Conduct research** to contribute to increased knowledge on the role of blue forests, nationally and internationally, in addressing the global climate challenge and in supporting a wide range of vital ecosystem services.

**Develop and execute action oriented projects** in Norway and elsewhere, aiming to conserve and improve ecosystem management for blue forests.

**Support the Norwegian blue forests policy and research agenda** and its implementation nationally and internationally, under the various international climate and biodiversity conventions and mechanisms, as well as those with a national origin requested by the Parliament, Government and subordinate agencies.

### Potential key beneficiaries

- The Norwegian Parliament
- The Government represented by
  - The Ministry of Climate and Environment
  - The Ministry of Education and Research
  - The Ministry of Trade, Industry and Fisheries
  - The Ministry of Foreign Affairs
- Subordinate agencies of the ministries
  - The Norwegian Environment Agency
  - The Research Council of Norway
  - The Directorate of Fisheries
  - The Norwegian Agency for Development Cooperation

NBFN will also offer international support to parties such as the UN system, the EU and national governments.



## Norwegian Blue Forests Network (NBFN) partners

The Norwegian Blue Forests Network (NBFN) was established in 2014 and consists of the following leading Norwegian organizations with overlapping and complementary competencies and experiences in blue forests:

**GRID-Arendal** is a Norwegian foundation that supports the United Nations Environment Programme. With a mission to create environmental knowledge enabling positive change, GRID-Arendal works around the world – from the Himalayas to the Arctic, from Africa to the South Pacific. GRID-Arendal's competence in blue forests includes communications and information sharing (e.g., [www.bluecarbonportal.org](http://www.bluecarbonportal.org)), capacity building, and the development and management of blue carbon projects such as the UNEP/GEF Blue Forests Project, a global initiative focused on harnessing the values associated with coastal carbon and ecosystem services to achieve improved ecosystem management. Project sites include Indonesia, Madagascar, Mozambique, Ecuador, UAE, Kenya and Central America. The project also addresses key blue forests knowledge gaps, provides experience and tools for greater global application, and advances blue forests policy, including with the UNFCCC.

**Institute for Marine Research (IMR)** is a national advisory research institute employing more than 700 persons and Norway's largest centre of marine science. Its main objective is to provide knowledge and advice to Norwegian authorities, the Ministry of Trade Industry and Fisheries, the Food Safety Authority, as well as the fishing industry and other stakeholders, on questions related to sustainable use

and the management of our oceans, the coastal environment, and the biological resources including fish and kelp. IMR has a national advisory function regarding kelp (blue) forest management and runs several research and monitoring projects to increase the knowledge on kelp forest ecosystem services, carbon storage, climate change implications and potential production loss in the food chain, including blue forest. Dissemination of knowledge is significant and to make new scientific results available to the relevant authorities, businesses and society in general, is a priority jointly shared with members of the Norwegian Blue Forests Network.

**Norwegian Institute for Water Research, NIVA**, is a non-profit research foundation with 200 staff members committed to research, monitoring, assessment and studies on freshwater, coastal and marine environments in addition to environmental technology. NIVA's broad scope of scientific competence and research expertise are important to Norwegian business and industry, as well as public administration on various levels. This helps promote Norway's interests in international fora. NIVA has a strong track record in research and development work in Norwegian coastal ecosystems including the dynamics, biodiversity, and structure of kelp forests in connection to climate change, sea urchins and other pressures. Commissioned by the Norwegian Environment Agency, NIVA provided the first comprehensive study of Norwegian blue carbon sequestration by kelp forests in 2011. NIVA has also considerable international project experience, including assessments of coastal ecosystems in different parts of the world.



### Norwegian Blue Forests Network contact information

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