Ocean governance and blue growth
Challenges, opportunities and policy responses

SUMMARY

Oceans cover more than two thirds of the earth and are a vital element of life on our planet. They are not only a primary source of food, but also central to the carbon cycle; they regulate the climate and produce most of the oxygen in the air we breathe. They also play an important socio-economic role. The ‘blue economy’, covering traditional sectors such as fisheries, extraction of oil and gas, maritime transport and coastal tourism, as well as new, fast-growing industries such as offshore wind, ocean energy and blue biotechnology, show great potential for further economic growth, employment creation and innovation.

At the same time, oceans face pressures, mainly associated with the over-exploitation of resources, pollution and the effects of climate change. In recent years, ocean pollution from plastics has received more attention from the public and has been high on policy-makers’ agendas.

At global level, the European Union is an active player in protecting oceans and shaping ocean governance. It has made progress by taking measures in a series of areas: maritime security, marine pollution, sustainable blue economy, climate change, marine protection, and sustainable fisheries; by working towards the United Nations 2030 Agenda sustainable development goal on oceans of the; and by taking part in the negotiations on a new international legally binding instrument on the conservation and sustainable use of marine biological diversity in areas beyond national jurisdiction. In encouraging the blue economy, the EU also recognises the environmental responsibilities that go along with it. Healthy, clean oceans guarantee the long-term capacity to sustain such economic activities, while a natural decline threatens the ecosystem of the planet as a whole and ultimately, the well-being of our societies. The conservation of marine biological resources under the common fisheries policy, EU action under the Marine Strategy Framework Directive and the establishment of marine protected areas are key EU policies in protecting the marine environment. They are complemented by recent environmental legislative initiatives such as the directive on single-use plastics to reduce marine litter.

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Benefits from oceans

Oceans include a wide range of ecosystems, from the stable, though vulnerable, environment of the deep ocean to highly dynamic and diverse coastal waters. In Europe, marine ecosystems provide a home for up to 48,000 species, with the Mediterranean hosting the greatest natural biodiversity. Primary producers, such as phytoplankton and seaweeds, absorb energy from sunlight and minerals, and are the basic food source for all life in the ocean. They support the existence of ecosystems, such as seagrass meadows and coral reefs, that provide habitats for many other species such as molluscs, crustaceans and fish, which are a source of food for larger predatory crustaceans and fish, and eventually also for humans. Marine resources constitute an important source of protein worldwide. In the EU, on average, 24 kg of seafood is consumed annually per capita.

Not only do oceans provide a rich biodiversity, seafood and ingredients for medicines, they are also vital to the climate and to the air we breathe. Covering over 70% of the earth’s surface and holding about 97% of the earth’s water, they transport heat from the equator to the poles, regulate our weather patterns, produce about half of the world’s oxygen and hold 50 times more carbon dioxide than our atmosphere. Seagrass and seaweed also function as a kind of biological purification system, by storing nitrogen and phosphorous compounds transported by rivers from agricultural areas to the sea.

In addition to environmental benefits, oceans provide economic benefits for EU citizens, including many of the 40% of the EU population living in coastal regions. According to a report by the European Commission, the ‘blue economy’ (economic activities related to the oceans, seas and coasts) amounted to 1.3% of the EU-28’s gross domestic product (GDP) and just over 1.6% of its employment in 2016. These sectors generated gross value added of €174.2 billion in 2016, up by 9.7% compared with 2009. Established blue economy sectors include fisheries, marine aquaculture, offshore energy production, maritime transport, cargo handling and warehousing, shipbuilding, coastal tourism and recreation. Emerging sectors such as marine renewable energy and blue biotechnology show great potential for jobs, growth and innovation, while new economic opportunities can also be found in the established sectors aquaculture and tourism. Similarly, well managed and properly enforced marine protected areas can bring benefits in terms of biodiversity protection as well as economic benefits, especially for tourism and fisheries. The section on the sustainable blue economy below provides more detail on those sectors with promising blue growth potential.

Pressures on oceans

Knowledge about oceans, especially on the state of marine biodiversity, remains limited. In 2015, when the results of the latest assessment were published, 80% of the species and habitats assessments under the Marine Strategy Framework Directive were categorised as ‘unknown’. As regards the most vulnerable European marine habitats and species, which are protected by the Habitats Directive, 25% of habitats and 66% of species had ‘unknown’ status. However, available data paint a bleak – and deteriorating – picture of the state of marine species and habitats. 66% of marine habitats and 26% of marine species protected under the Habitats Directive were in ‘bad/inadequate’ status in 2015. Although the situation is improving in some respects and in some places, oceans have been impacted by past and present human activities.

Pressures include:

- over-exploitation of living resources: although pressure on European fishing stocks has decreased in the past decade, many commercial stocks (worldwide and in Europe) are still being fished above their maximum sustainable yield (MSY);²
- pollution: oceans can be polluted by excess nutrients from agriculture or waste water, causing coastal eutrophication (a process ultimately removing oxygen from water, creating ‘dead zones’), by oil spills, by known contaminants (such as lead or mercury), which remain a serious
concern, by emerging pollutants (such as pharmaceutical products or endocrine disruptors), and by marine litter (mainly plastics);
climate change: besides a sea level rise, carbon emissions are inducing an increase in sea temperature and ocean acidification, making species and ecosystems more vulnerable to other pressures;
the introduction of non-indigenous species, mostly through shipping.

Plastics in the oceans
About three quarters of the marine litter in the world’s seas is plastic. Research published in 2015 suggests that 4.8 to 12.7 million tonnes of plastic, or 2 to 5 % of plastic waste generated, enters the oceans each year. It is estimated that there are over 150 million tonnes of plastic in the world’s seas and that, without significant action, there may be more plastic than fish (by weight) in the sea by 2050. Some marine litter consists of microplastics. These originate from the breaking down of larger plastic pieces or from microplastics released directly into the environment (mainly from the laundering of synthetic textiles and the abrasion of tyres while driving).

Wildlife may be affected by plastic marine litter through ingestion, or as a result of certain additives used in plastics, such as bisphenol A (BPA) or certain phthalates used in polyvinyl chloride (PVC). In addition, persistent organic pollutants can attach themselves to plastics in water and enter the food chain via marine fauna. A 2014 study for the European Commission estimates that degradation as a result of marine litter costs the EU economy between €259 million and €695 million per year, affecting mainly the tourism and recreation sector (up to €630 million) and the fisheries sector (up to €62 million). Both sectors are also themselves a source of marine litter.

EU and global policies
The 19 March 2019 European Parliament high-level ocean conference ‘The Future of the Blue Planet’ addresses three main topics: shaping global ocean governance for the future, achieving healthy, clean seas and oceans by 2030, and promoting a sustainable blue economy to reduce pressures on the oceans. The following section gives a brief overview of what the EU is doing on these three topics.

Shaping global ocean governance for the future
At global level, the annual international conference on oceans, named ‘Our ocean’, started by former US Secretary of State John Kerry in 2014 in response to the widespread deterioration of the marine environment, have provided the opportunity for countries to make voluntary commitments. The EU has been actively involved, hosting the 2017 conference in Malta, where it committed to 36 actions amounting to over €550 million, and making 23 new commitments at the 2018 conference held in Bali. The commitments made by the EU cover a broad range of topics, from maritime security, to marine pollution, sustainable blue economy, climate change, marine protection and sustainable fisheries. Concrete examples include allocating €64 million for international marine and maritime research projects along and across the Atlantic Ocean, committing €37.5 million to improve maritime security and counter piracy along the south-eastern African coastline and in the Indian Ocean, and contributing to Unesco’s intergovernmental oceanographic commission (IOC-UNESCO) to develop international guidelines for maritime spatial planning worldwide. The 2019 ‘Our ocean’ conference will be held in Oslo on 23 and 24 October.

In 2016, the European Commission and the High Representative of the Union for Foreign Affairs and Security Policy adopted a joint communication on international ocean governance. It is an integral part of EU’s response to the United Nations (UN) 2030 agenda and the sustainable development goals (SDGs), in particular sustainable development goal 14 ‘to conserve and sustainably use the oceans, seas and marine resources’. The communication sets out a number of actions around three
priority areas: 'improving the international ocean governance framework', 'reducing pressure on oceans and seas and creating the conditions for a sustainable blue economy', and 'strengthening international ocean research and data'. Concrete examples of actions linked to these three priority areas include: the development of ocean partnerships with key ocean players as Australia, Canada, China, Japan, New Zealand and the United States; engagement in multilateral negotiations in the World Trade Organization (WTO) to ban harmful fisheries subsidies; and action to strengthen an 'All-Atlantic Ocean Research Alliance' through enhanced marine cooperation frameworks in the southern Atlantic.

In January 2019, the European Commission published a reflection paper outlining three scenarios on how best to make progress on the SDGs. The most ambitious of these scenarios is an overarching EU strategy to guide all actions by the EU and Member States. The two other scenarios are the continued mainstreaming of SDGs in EU policies (but not enforcing Member States' action) and an enhanced focus on external action (while consolidating current sustainability ambition at EU level). This reflection is intended to inform a debate among citizens, stakeholders, governments and institutions with a view to inspire the preparation of the strategic agenda and priority setting of the next European Commission. The three outlined scenarios offer different ideas and the eventual outcome might be a combination of certain elements from each.

Copernicus, the EU's earth observation programme, constitutes the European contribution to building the global earth observation system of systems (GEOSS) and contains a marine environment monitoring service, providing information on the state and dynamics of the physical ocean and marine ecosystems across the globe. The programme provides data on currents, winds and sea ice to improve ship routing services, monitoring water quality and pollution. The data collected also play a role in weather forecasting and climate change monitoring and enable fisheries controls via satellite, including tackling illegal, unreported and unregulated fisheries in different parts of the world.

The external dimension of the common fisheries policy (CFP) provides the framework for the activities of the EU fishing fleet beyond EU waters and aims to ensure that EU fishing activities outside the EU are based on the same principles and standards as inside EU waters. It covers a substantial network of sustainable fisheries partnership agreements (SFPAs), wherein the EU gives financial and technical support in exchange for fishing rights, generally with southern partner countries. By November 2018, 10 SFPAs were in place with an overall budget of €135 million per year. Furthermore, the EU, represented by the Commission, plays an active role in 17 regional fisheries management organisations (RFMOs) around the world. The RFMOs are international organisations that have the competence to establish fisheries conservation and management measures in the high seas, such as catch and fishing effort limits, technical measures and control obligations. They are formed by countries with fishing interests in a given area. Some of them manage all the fish stocks found in a specific area, while others focus on particular highly-migratory species, notably tuna, throughout vast geographical areas of the world's oceans and seas.

As regards the protection of the marine Arctic, the EU is one of the 10 signatories (along with Canada, China, Denmark in respect of the Faroe Islands and Greenland, Iceland, Japan, Norway, the Russian Federation, South Korea and the United States of America) to a recently negotiated agreement to prevent unregulated commercial fishing in the high seas of the central Arctic Ocean, for an initial period of 16 years. The EU will also contribute to scientific support as a step towards a sustainable, science-based approach to replace profit-driven competition between countries. The agreement, signed on 3 October 2018, will enter into force once the 10 parties have ratified it. With the European Parliament giving its consent on 12 February 2019 and the Council adopting its decision on the conclusion of the agreement on 4 March 2019, the EU is one of the first signatories to ratify the agreement, demonstrating its commitment.

The EU has been working towards meeting the commitment agreed under the Convention on Biological Diversity to establish, by 2020, marine protected areas (MPAs) in 10% of its coastal waters
through ‘effectively and equitably managed, ecologically representative and well-connected systems’ of protected areas. One example of global cooperation is a project funded by the EU to protect marine ecosystems and promote an exchange of knowledge on the effective management of MPAs between the Atlantic and South East Asia regions.

The EU is also playing an active role in the negotiations on a new international legally binding instrument under the United Nations Convention on the Law of the Sea (UNCLOS) on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction. It will be the third UNCLOS implementing agreement (after the agreement related to deep seabed mining and marine scientific research in the seabed area beyond national jurisdiction and the agreement related to conservation and management of straddling and highly migratory fish stocks). The negotiations are currently ongoing. A first substantive session of the intergovernmental conference (IGC) was convened in September 2018, during which the EU outlined a number of key objectives and deliverables to be taken into account in the future agreement, in particular regarding marine genetic resources, area-based management tools, environmental impact assessments, capacity building and technology transfer. The next sessions of the IGC are expected to be convened from 25 March to 5 April 2019, 19 to 30 August 2019, and in the first half of 2020.

Achieving healthy, clean seas and oceans by 2030

Key EU policy actions on oceans aiming to reduce pressures on the environment include:

- a network of marine protected areas, geographically distinct zones for which protection objectives are set;
- the common fisheries policy, requiring the exploitation of fish stocks to be based on the maximum sustainable yield by 2020 at the latest.

The Marine Strategy Framework Directive requires Member States to take measures to achieve or maintain a good status of coastal and marine waters, a pre-requisite for sustainable marine and coastal tourism. In particular, it requires Member States, among other things, to establish environmental targets and associated indicators to achieve ‘good environmental status’ of their marine waters by 2020. In the second half of 2019, the Commission is expected to issue an implementation report, which would review progress ahead of the 2020 deadline.

Marine protected areas (MPAs) form a network of protected areas for safeguarding biodiversity and maintaining marine ecosystem health and the supply of ecosystem services. Marine reserves are a subset of MPAs in which human activities such as resource extraction and fisheries are not permitted. Built together with Member States, by the end of 2016 MPAs covered 10.8 % of EU marine waters, although the international commitment of 10 % by 2020 has yet to be reached in each sea basin (see Figure 1). In addition, it must be noted that management, connectivity and ecological representativeness in the current EU network of MPAs has still to be improved, despite having met the global 10 % target.
As regards sustainable fisheries, the 2013 CFP reform introduced the target of achieving exploitation of all stocks at maximum sustainable yield by 2020. To support progress towards this goal, it provided several major tools, in particular, the adoption of multiannual plans by sea basin to ensure the long-term management of stocks. The reform also introduced the obligation to land all catches, in order to end the wasteful practice of discarding fish back into the sea. This obligation applies to all species subject to catch limits (or, in the Mediterranean, to rules on size) as of 1 January 2019. While the reformed CFP has clearly led to progress towards the MSY target in the north-east Atlantic and the adjacent seas (which has in turn also led to an increase in profitability), the state of the stocks in the Mediterranean and the Black Sea remains a serious concern, with an average level of exploitation at more than twice the MSY level. As regards the fight against illegal, unreported and unregulated (IUU) fishing, the EU has set up a thorough control system, in particular the 2008 IUU Regulation, to prevent the import of IUU-caught products into the EU.

While in most sea areas, the majority of sources of marine litter are land-based, ships account for about 20% of global discharges into the sea. The EU is adapting its rules with a new proposal for directive, requiring ports to collect all sorts of ship waste, to structure the relevant fees in a way that does not incite ships to discharge at sea or dump waste into the sea and also to check what waste they have delivered. On the contrary, ships will also be encouraged to bring passively fished waste (unintentionally caught during fishing operations, mostly plastics) to the port, without in principle having to pay any extra charges for it. The directive is a clear example of how the EU is striving to strike a balance between environmental protection and economic activities.

Ocean pollution, in particular plastics, has been receiving more attention in recent years, both from the public and among policy makers. In May 2018, the Commission put forward a proposal for a new directive seeking to address the issue of marine litter from plastics. It builds on the 2015 circular economy action plan, and on the 2018 strategy for plastics in a circular economy. The proposed
directive would introduce measures (such as bans and requirements relating to consumption reduction, product design, labelling and awareness-raising and additional extended producer responsibility requirements) regarding the top 10 single-use plastics and discarded fishing gear found on European beaches (see Figure 2 below).

Both proposals (for a directive regarding the top 10 single-use plastics and discarded fishing gear and for a directive on the collection of waste from ships) are in their final stages of negotiation. Once adopted, Member States will have two years to implement the new rules in their national legislation.

Figure 2 – Composition of marine litter found on European beaches (in 2016, share by item count)


While EU efforts to reach the UN 2030 Agenda sustainable development goal on oceans are supported by the specific targeted legislation and actions mentioned above, the issues are also
addressed through a broad range of other EU policies and actions, such as EU-funded research projects under Horizon 2020, European development policy, and EU legislation on chemicals.

A sustainable blue economy, reducing pressures on the oceans

In 2012, the European Commission launched its blue growth strategy aimed at developing the five sectors considered to feature high potential for growth and jobs, namely:

- coastal and maritime tourism,
- aquaculture,
- 'blue' energy,
- marine biotechnology, and
- seabed mining.7

Since the launch of the blue growth strategy, various initiatives have been taken in order to facilitate the cooperation between businesses and public authorities across borders and sectors. The initiatives are supported by specific measures to improve knowledge, security and legal certainty, in particular marine knowledge, maritime spatial planning (MSP) and integrated maritime surveillance. In particular, MSP aims to apply an ecosystem-based approach to the management of human activities in order to achieve a good environmental status. The EU's integrated maritime policy aims to ensure policy coherence across all blue economy sectors. However, successfully aligning policies seeking to further exploit the oceans' resources with policies seeking to halt biodiversity loss and achieve good environmental status of marine waters, remains a challenge.

Apart from reducing regulatory barriers, the EU has provided financial support, mainly through the EU research programme and the EU structural funds, in particular the European Regional Development Fund (ERDF) and the European Maritime and Fisheries Fund (EMFF).

Maritime and coastal tourism is by far the largest source of employment in the blue economy, representing 61 % of blue economy jobs in 2016. Dominated by small business, the sector plays an important role in the economy of coastal communities. Half of European coastal tourism's jobs and added value are located in the Mediterranean. In 2014, the Commission published a strategy to enhance the sector's sustainability and competitiveness. It includes specific actions to address environmental pressures, for example the promotion of eco-tourism and the monitoring of sustainability through the ECO-label.

About 68 % of the seafood consumed in the EU is imported. In order to cope with the growing demand for seafood, future increases in EU fish product supply will have to be driven primarily by aquaculture. According to 2016 figures, about 75 000 people are directly employed in aquaculture in the EU. Out of the three sub-sectors (marine, shellfish and freshwater), marine aquaculture has the lowest employment but accounts for 51 % of EU aquaculture production in terms of value. The most important marine fish species in aquaculture in the EU-28 is salmon (the vast majority of which is farmed in the UK) and seabream and seabass (with Greece as the main producer). Production in the EU-28 has remained more or less stable over the past 20 years, whereas world production has more than tripled. In Norway, production rose from 278 to 1 326 thousand tonnes in the period from 1995 to 2016 (see Figure 3 below). In line with the 2013 CFP reform and the strategic guidelines on aquaculture, multiannual national plans have been developed by Members States to increase competitiveness, reduce administrative burdens and take advantage of the high quality of European aquaculture products resulting from the strict environmental, animal health and consumer protection standards. The new EMFF proposal for 2021 to 2027, currently under consideration by the Council and the European Parliament, includes an increased focus on aquaculture.
Of all the emerging blue economy sectors, **offshore wind energy** has been the fastest growing and can now be considered a well-established sector. Most of the sector’s installations are in EU waters (84% of the global offshore wind capacity at the end of 2017), with China taking off in recent years. In **2018**, total offshore wind capacity in Europe (including Norway) grew by 18%. The offshore wind industry employs about 46 000 people in the EU and the outlook is very positive (see Figure 4).
Ocean energy (from waves, tides or ocean thermal energy conversion) is developing slowly and is still in its pioneering stage, but as a new renewable energy source, it could provide regular predictable energy to complement the more variable wind and sun. Just as for the offshore wind industry, the EU is the world leader in this sector with strong growth potential. According to the ocean energy strategic roadmap report, published in 2016 by the Ocean Energy Forum for the European Commission, it could generate up to 400,000 jobs and meet 10% of EU demand for power by 2050. The sector currently employs some 2,000 high-skilled jobs, especially in research and development and with some projects (in particular on tidal energy) reaching a pre-commercial state. EU support has so far concentrated on research projects, while for commercial deployment, the challenge is to mobilise investment in what is an innovative industry with high capital needs.

The blue biotechnology sector exploits diverse marine organisms leading to a wide range of products such as pharmaceutical and veterinary products, biofuels (from micro-algae) and enzymes for detergents, papers or textiles. According to the Commission's 2018 economic report on the blue economy, the EU algae biomass sector currently employs some 14,000 people. Socio-economic data is lacking for other subsectors. One of these, water desalination, is showing a great potential on account of growing fresh water shortages in dry regions. Most European desalination plants can be found in the Mediterranean (in particular Spain, with over 700 plants), while, as part of development support, the Union is also co-funding new plants outside the EU (e.g. currently in Gaza).
As regards seabed mining, actual production has not yet begun, only exploration, but commercial interest is growing as the available minerals and metal resources on land are depleting at increasing rates. However, deep sea mining is controversial owing to the risks it poses to marine environments and communities (e.g. due to dust, light and noise pollution). As understanding of the deep-sea environment is limited, knowledge is needed on the effects of mining. In recent years, the EU has funded major research projects in order to develop sustainable solutions for deep sea mining, such as the ongoing blue nodules project. In past resolutions on the blue economy, Parliament has called on the Commission to apply the precautionary principle in relation to seabed mining and has called for attention to be paid to the reuse and recycling of minerals as an alternative option to deep sea mining.
MAIN REFERENCES


ENDNOTES

1 Almost all life on earth relies directly or indirectly on primary producers, producing their own food and forming the base of the food chain. Around half of these are microscopically small plants, the phytoplankton, growing in the ocean.

2 Fishing at maximum sustainable yield (MSY) levels means catching the maximum proportion of a fish stock that can safely be removed from the stock while maintaining its capacity to produce maximum sustainable returns in the long term.

3 It concerns agreements with Cape Verde, Cook Islands, Côte d'Ivoire, Greenland, Liberia, Madagascar, Mauritania, Mauritius, Senegal and Seychelles.

4 To be ecologically representative, an MPA network must protect the range of biodiversity in the area it covers, in particular by covering a representative proportion of the habitats present in the area.

5 Two multiannual plans concerning fisheries in the Baltic Sea and the North Sea are now in force; plans for fish stocks in western waters and the western Mediterranean are in the final stages of being adopted, while a plan for the Adriatic Sea is still being discussed by the Parliament and the Council.

6 Despite improvements, the Commission estimates that 60 000 to 300 000 tonnes of ship-generated rubbish, plus 31 000 m³ of oily waste and 136 000 m³ of sewage from merchant ships still end up in EU sea waters every year.

7 Deep-seabed mining refers to the production, extraction and processing of non-living resources in the seabed, in particular minerals and metals (e.g. cobalt, copper and zinc).

8 The Maritime Spatial Planning Directive stipulates that each Member State must establish and implement maritime spatial plans by 31 March 2021 at the latest.

9 Employment in the offshore wind industry in 2018 (about 17.5% out of the total onshore and offshore wind industry), as estimated by WindEurope, representing the European wind industry.

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