

12 REGIONAL SUMMARIES



OSPAR's actions are clearly helping to reduce pollution of the marine environment, but many problems persist. The most widespread impacts on ecosystems result from fishing, and the emerging impacts of climate change cause serious concern. The current status in relation to the OSPAR Strategy objectives and other specific impacts of human activities is different for each Region → FIGURE 12.1, but a number of cross-cutting issues affect the quality status of large parts of the OSPAR area:

Climate change. Rising sea temperature and increasing acidification are already apparent throughout the OSPAR area, due to rising levels of carbon dioxide (CO₂) (and other greenhouse gases) in the atmosphere. Impacts on Arctic biodiversity are imminent with loss of sea-ice habitat. Pressures arising through climate change are set to grow in all five Regions and will interact with pressures from human activities. OSPAR must monitor the changes and their effects on marine ecosystems. → CHAPTER 3

Eutrophication. The OSPAR objective of no eutrophication by 2010 has not been achieved and there are problem areas in Regions II, III and IV. Action is needed to reduce the levels of nutrients reaching these areas from land, especially from agriculture, and via the air. → CHAPTER 4

Hazardous substances. Heavy metals are at unacceptable levels in sediments, fish and shellfish, mostly at coastal sites, especially in Regions II, III and IV. Contamination with polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs) is widespread and unacceptable in many areas of Regions I, II, III and IV. Further action is needed to prevent discharges and emissions of both well-monitored and less well-known hazardous substances and to understand their biological effects. → CHAPTER 5

Radioactivity. β-activity discharges from the nuclear installations in the catchments of Regions II, III and IV have generally fallen and impacts on man and marine life are low. Radionuclides from past discharges are still present in sediments and will be a continued source of contamination in future. Other sources of radioactive substances, particularly naturally-occurring radionuclides introduced to the sea by offshore oil and gas activities, must continue to be monitored. → CHAPTER 6

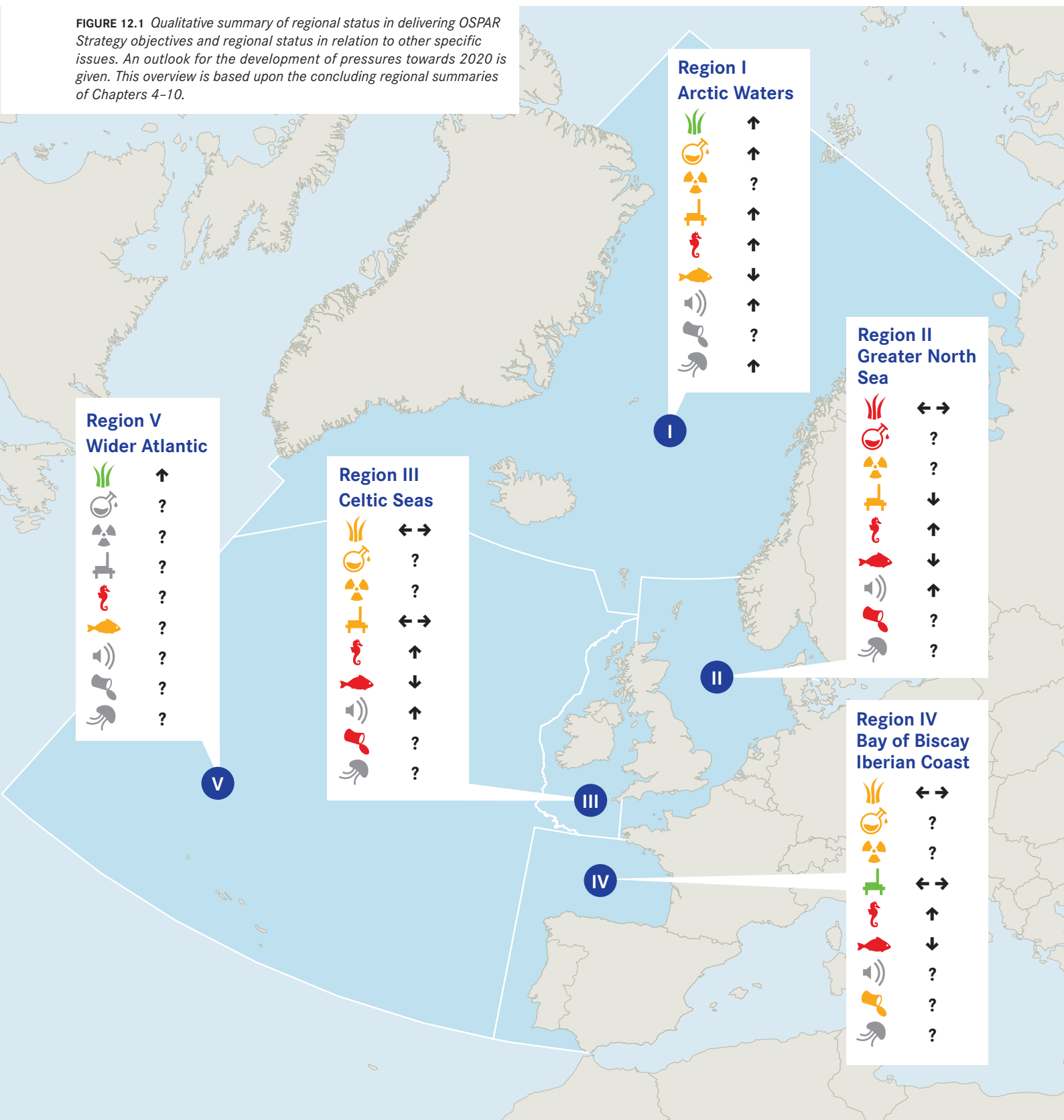
Oil and gas. Oil discharges from the production sites in Regions I, II and III have reduced on average by more than 20%, with most countries meeting OSPAR's 15% target. Discharges of organic-phase drilling fluids have largely ceased since 2005. OSPAR continues to manage and monitor discharges of oil and chemicals in produced water. → CHAPTER 7

Fishing. Excessive fishing pressure is causing widespread problems in parts of the OSPAR area. Stocks are being fished at unsustainable levels, seabed habitats are being damaged and by-catch of fish, marine mammals and seabirds is too high. High discard rates need to be addressed as a priority. OSPAR must continue to work closely with fisheries management authorities to promote ecosystem-based fisheries management strategies that address these issues. → CHAPTER 8

Other uses of the sea. There are increasing demands for marine space and resources, including from shipping, renewable energy, coastal defence and mineral extraction. As well as their direct impacts, these activities also contribute to levels of noise and litter and introduce non-indigenous species to the OSPAR area, whose impacts and extent are not well understood. OSPAR is working towards a coordinated approach to marine planning, so that new developments are incorporated in a coherent strategy that protects the environment. → CHAPTER 9

Biodiversity. A reduction in the decline in biodiversity is still a long way off in all five Regions. Endangered habitats and species are still being damaged and targeted action is needed to protect them. OSPAR has drawn up a list of threatened and/or declining species and habitats and is establishing a coherent network of well-managed marine protected areas (MPAs). OSPAR countries also need better monitoring of biodiversity within and outside protected areas. → CHAPTER 10

FIGURE 12.1 Qualitative summary of regional status in delivering OSPAR Strategy objectives and regional status in relation to other specific issues. An outlook for the development of pressures towards 2020 is given. This overview is based upon the concluding regional summaries of Chapters 4–10.



Delivering OSPAR Strategy objectives

- No eutrophication by 2010
- Status of hazardous substances relating to background/zero
- Reduction in discharges of radioactive substances
- Prevent/eliminate pollution from offshore oil and gas industry
- Status of threatened and/or declining species and habitats

Specific issues

- Commercial fish stocks
- Noise
- Marine litter
- Non-indigenous species

Status

- Many problems
- Some problems
- No problems
- Not known

Outlook for pressures

- Increase
- No change
- Decrease
- Not known



Compared to other Regions, Region I is relatively unpolluted. Few people live in its catchments and parts of the Region are permanently ice-bound. The most intense pressures are at or near the coast of continental northern Europe. The Arctic hosts unique and specialised species, such as the polar bear and the narwhal, and the southern part of the Region has some of the world’s most important fisheries, including those for cod, herring and capelin.

Despite its remoteness, Region I is far from isolated from the other OSPAR Regions. Region I is both a sink for contaminants carried in from other areas, which accumulate in fish and marine mammals, and a source of water for wide-ranging ocean currents.

A significant proportion of the world’s known oil and gas reserves are in the Arctic, and large new extraction projects are already underway in the east, such as at the *Shtokman* field in the Russian Barents Sea.

The QSR 2000 concluded that the general status of Region I was good. Issues of high importance were: impacts of fishing; persistent organic pollutants in fish and marine mammals; fish farming; and lack of knowledge on the biological and chemical effects of climate change. Since the QSR 2000, some fish stocks have improved and fish farming is generally well managed.

Eutrophication problem area extent	0 %
Monitored sites with unacceptable status	
– Mercury	4 %
– PAHs	31 %
Species under threat	19
Habitats under threat	7
MPA coverage	1.5 %

Successes

Illegal cod catch down. The illegal cod catch in the Barents Sea fell by 85 % between 2005 and 2008, through cooperation between countries and better control of illegal fishing vessels.

Protection of vulnerable habitats. In the past ten years, fifteen MPAs have been established in Norwegian and Icelandic waters. Most protect cold-water coral ecosystems. Two isolated hydro-thermal vents off the coast of Iceland and extensive coastal areas around the Norwegian Svalbard archipelago and Bear Island (Bjørnøya) are also protected.

Integrated management plans. The Norwegian plans for integrated management of the Barents Sea and the Norwegian Sea view the ecosystem as a whole. They are good examples of future management approaches for the OSPAR area.

Ongoing concerns

Impacts of climate change. Wildlife in Region I is especially at risk from climate change. Air temperature is rising faster in the Arctic than in the rest of the OSPAR area and satellite data show that summer sea-ice cover has dropped almost 9% per decade since 1979. Winter sea-ice cover fell 2.5% per decade over this period.

As the sea ice retreats, species that breed or hunt on the ice lose their habitat. Less ice could also mean more fishing, oil extraction, shipping and tourism.

Thawing permafrost could release locked-in nutrients like nitrogen and phosphorus to the ocean, and persistent organic pollutants may be freed from the ice as it melts.

Low temperatures, greater vulnerability. The Arctic ecosystem has low temperatures, a short growing season and highly variable weather. Its species may not be able to respond quickly to rapid change, or recover quickly from damage.

Arctic animals have high fat contents in their bodies to cope with the cold, which means they can accumulate persistent fat-soluble pollutants such as PCBs and brominated flame retardants. These are transported into the Arctic by winds from lower latitudes, and high concentrations can end up at the top of the Arctic food chain.

Ocean acidification. As CO₂ levels in the atmosphere increase, the harmful effects of ocean acidification may be felt earlier in the Arctic because CO₂ dissolves more quickly in cold water. As the acidity of the seawater rises, organisms with calcium carbonate shells, including cold-water corals, may have difficulty forming shells and skeletons. Recent projections suggest that this could start happening as early as 2016 in the Arctic winter, and throughout the year by 2026.

Declines in seabird populations. Populations of several seabird species have declined in Region I, especially in the Norwegian and Barents Seas. The decline has been most pronounced for species that feed in the open sea, such as the northern fulmar, black-legged kittiwake and common guillemot. The 2008 breeding seasons of these birds were some of the poorest ever recorded in the North-East Atlantic. Some species totally failed to breed. Food shortage and changes to other parts of the marine

food chain may be to blame, but there is an urgent need for more research into the links between long-term health of seabird populations and environmental factors.

Increasing threat of pollution from shipping and industry. Oil and gas extraction and shipping are likely to increase in Region I in the coming years. This brings increased threats of direct pollution from oil and hazardous substances, and of pollution from atmospheric nitrogen.

An emerging activity is the carbon capture and storage industry. As part of efforts to mitigate climate change, there is strong political interest to store CO₂ under the seabed. Geological formations beneath the ocean are favoured, and old oil and gas fields in the Norwegian Sea are possible sites. This could generate significant industrial activity and a need for long-term monitoring in the area.

What should be done?

→ Develop more integrated management plans

Plans developed in the Barents Sea and Norwegian Sea demonstrate how OSPAR believes the Arctic ecosystem ought to be managed. The approach should be applied in other parts of Region I.

→ Closely monitor the situation

OSPAR must watch carefully for effects of climate change and ocean acidification on this ecosystem. It must monitor threatened species groups for evidence of decline, and continue to assess the impacts of industrial activity in the Region, especially offshore oil and gas, and shipping.

→ Cooperate to protect

OSPAR must cooperate even more closely with other organisations working to protect the Arctic environment, such as the Arctic Council and its working groups: Conservation of Arctic Flora and Fauna (CAFF), Protection of the Arctic Marine Environment (PAME) and the Arctic Monitoring and Assessment Programme (AMAP).



The human population density around much of the North Sea is high, with greatest pressure from humans in eastern and southern parts of the Region. More than 500 people per km² live in some coastal areas and intensive farming covers up to 70% of the land that drains into this part of the ocean. Overall fishing effort is decreasing (down 25% from 2000 to 2006), but around 30 different commercial fish stocks are still exploited.

Extensive mudflats and estuaries line the coasts of the southern North Sea. The Wadden Sea is the largest area of intertidal mudflats in the world, hosting 10 to 12 million migrating birds every year. In the north-west of the Region, there are large kelp forests in rocky areas and globally important island sea-bird colonies.

The North Sea has some of the busiest shipping lanes in the world and maritime transport continues to increase. Construction activities have also been increasing this decade, with more coastal structures and wind farms being built and operated, and more tourist traffic. This is why it is a crucial area for a coherent approach to planning and protecting the marine environment.

The QSR 2000 identified as issues of high importance in Region II: impacts of fisheries; hazardous substances, especially persistent organic pollutants; nutrient inputs from land; and a lack of knowledge on climate change.

Eutrophication problem area extent	17 %
Monitored sites with unacceptable status	
– Mercury	37 %
– PAHs	55 %
Species under threat	29
Habitats under threat	10
MPA coverage	5.4 %

Successes

Some fish stocks improved. Fisheries management is changing for the better, with long-term management plans for key stocks and substantial decreases in destructive practices such as beam and otter trawl fishing in some areas. The excessive discards of fish are beginning to be addressed. There are signs that fish communities near the seabed may be starting to recover.

Reduced inputs of hazardous substances and nutrients. Most OSPAR countries have met and many exceeded the OSPAR target for reducing phosphorus inputs to eutrophication problem areas, and three countries are approaching the 50% reduction target for nitrogen. Inputs of mercury and lead to the sea from several major rivers have dropped.

Good MPA coverage. Region II has greater coverage by MPAs than the other Regions, with 5.4% of the waters and seabed protected. The challenge now is to integrate management of these MPAs with wider spatial plans.

Ongoing concerns

Eutrophication on the coasts. Eutrophication caused by nutrient inputs is a problem along the east coast of the North Sea from Belgium to Norway, and in some small estuaries and bays of eastern England and north-west France. Associated problems include fish dying in the fjords of Denmark and Sweden, and sugar kelp declining along parts of the Norwegian coast. Nitrogen inputs, largely from agriculture, are the biggest cause of eutrophication and few countries approach OSPAR's 50% reduction target for nitrogen inputs to problem areas. It can take decades before reduced nutrient inputs benefit the marine environment because nutrients can be released from soil and sediments.

Pollution with hazardous substances. Concentrations of metals (cadmium, mercury and lead) and persistent organic pollutants are above background in some offshore waters of the North Sea, and unacceptable in some coastal areas. Lead levels, for example, were unacceptable at 40% of locations monitored, while PAHs and PCBs were at unacceptable levels at more than half of the monitoring sites.

Amounts of litter are a concern. Over 90% of fulmars have microscopic plastic particles in their stomachs and 45% to 60% have more than the Ecological Quality Objective (EcoQO) set by OSPAR. Beach litter in the southern North Sea is at OSPAR-wide average (around 700 items per 100m beach), but levels are higher in the northern North Sea.

Progress towards sustainable fishing is slow. Some important North Sea fish stocks are still outside sustainable limits and while damaging practices have been reduced, the picture is not uniformly good. The poor status of cod is of particular concern. By-catch of rays, sharks, porpoises and dolphins in fishing nets is also of concern.

Breeding failure of seabirds. In the northern North Sea, some seabirds have suffered a decade of breeding failure, possibly due to the combined effects of climate change and fishing on key prey species. Although breeding success was good for the first time in 2009, the long-term picture is still one of serious concern.

Damage to seabed habitats. Significant damage has occurred to shallow sediment habitats and reefs as a result of bottom fishing practices, especially beam trawling. In the western Channel, thick beds of red calcareous seaweed called maerl declined in extent and quality, partly as a result of damage resulting from its extraction for use as an agricultural soil conditioner.

Impacts of climate change. The pace of warming of the sea is highest in Region II, with an increase in sea surface temperature of 1 to 2 °C over the past 25 years. Plankton and fish communities are already changing in response to warming. Fish like silvery John dory, sea bass and red mullet are becoming more common further north, while North Sea cod stocks seem to be falling faster than would be expected from the impact of fishing alone.

Pressures from responses to climate change. A number of industrial activities are likely to begin or increase in Region II in response to climate change. The coasts of the southern North Sea are susceptible to sea-level rise and erosion, so large-scale development of coastal defence is likely, with an associated increase in pressure on seabed habitats from sand extraction for beach nourishment. As in the Norwegian Sea (Region I), old North Sea oil and gas fields are proposed sites for sub-seabed storage of CO₂. The North Sea is an attractive site for offshore energy generation from renewable sources, owing to its proximity to large populations. The long-term effects of these large-scale projects are not clear.

What should be done?

→ Develop coordinated spatial planning

With pressure from multiple activities increasing and intense competition for space, improved marine spatial management is particularly urgent.

→ Promote further action to manage fishing effort

OSPAR must keep cooperating with the fisheries authorities to support sustainable management of fishing, including reductions in discards, improved stock assessments and better reporting and mitigation of by-catch of marine mammals and long-lived shark, skate and ray species.

→ Focused targets to reduce pollution

Efforts to reduce pollution from nutrients, hazardous substances and the oil and gas industry should now be focused on problem areas and regional hotspots, with appropriate reduction targets for discharges and losses in particular places.



Region III includes parts of the open Atlantic west of Ireland and Scotland, shallow seas surrounded by land in the Irish Sea and west of Scotland, numerous sea lochs, and large estuaries like the Shannon, Severn and Solway Firth. The most intense human activity in Region III is in and around the Irish Sea, particularly on the coasts, although population densities are not as high as around the North Sea and Iberian coast.

There are many different habitats here, including sea lochs and tidal mudflats, and thick beds of the red calcified seaweed called maerl which has built up over centuries. Most of the sea is relatively shallow. Region III supports some of the major migratory fish stocks of the North-East Atlantic, such as Atlantic mackerel, blue whiting and sea bass.

As in the North Sea (Region II), construction projects such as offshore renewable energy are increasing in Region III.

The QSR 2000 concluded that the quality status of Region III was generally good. Issues of high importance were: effects of pollution localised in urban estuaries; some fish stocks critically depleted; hormone disruption due to hazardous substances, including tributyltin (TBT) pollution; extensive coastal development; effects of climate change. Climate change has remained an ongoing concern.

Eutrophication problem area extent	0.1 %
Monitored sites with unacceptable status	
– Mercury	24 %
– PAHs	61 %
Species under threat	23
Habitats under threat	11
MPA coverage	3.5 %

Successes

Radionuclides down. Region III has benefited from a reduction in the discharge of radionuclides from the nuclear sector. In particular, there have been drastic reductions in the discharge of radioactive technetium from nuclear reprocessing activities at Sellafield (UK).

TBT down. Region III is the Region with the greatest proportion of monitored sites where the impacts of TBT are now at acceptable levels, but there are still some problem areas close to harbours and busy shipping lanes.

Recovery for some fish communities. Recent trends show an improvement in the structure of fish communities that live on or near the seabed, particularly in the north of Region III. Following implementation of a long-term management plan, the northern hake stock recovered and is now classed as sustainable.

Ongoing concerns

Damage to seabed habitats. The seabed in shallow areas of Region III, including areas of sediment, rock and some biogenic reefs, has been significantly damaged by benthic trawling.

Increasing pressure from human activities.

Pressures on species and habitats in Region III are expected to rise as coastal and offshore engineering activities increase. Many more offshore wind turbines are expected to be installed in the coming years and wave and tidal power generation developments may be introduced. Little is currently known about the long-term effects of these activities on ecosystems because there are so few and they are all relatively new. Their construction can disturb marine mammals and their presence may displace seabirds, but they can also provide retreat areas for fish.

Some fish have low stocks. While trawl effort has fallen in the Irish Sea and to the west of Scotland, fishing effort is still high in Region III. Some beam trawlers have switched to otter trawling or scallop dredging, a fishery without quotas.

Several fish stocks are harvested unsustainably. Cod and whiting are depleted to the west of Scotland and in the Irish Sea. To date recovery plans for cod have not been effective in rebuilding the Irish Sea stock.

The amount of fish caught and discarded in Region III must be addressed and by-catch is still a problem in some areas.

Poor knowledge of the status of marine mammals. At present, there are insufficient data on the populations of marine mammals in Region III. Harbour seals are counted every five or six years,

the bare minimum to assess their status, and other marine mammals have little systematic recording. A decline in the harbour seal population in the Outer Hebrides has been reported.

Hazardous substances unacceptable at some coastal locations. Heavy metal, PAH and PCB concentrations in sediment, fish and shellfish have fallen, but are still above acceptable levels in some coastal areas of Region III, mainly around the Irish Sea. Concentrations of PAHs and PCBs are unacceptable at more than half the sites tested.

High levels of litter. On beaches around the Irish Sea there are unacceptable quantities of litter, reaching over 1000 litter items per 100 m beach in some areas. This can be dangerous to seabirds, and to turtles and marine mammals when washed into the sea. Much of this litter probably comes from sources on land.

What should be done?

→ **Develop coordinated spatial planning**

Demand for space from human activities is increasing, especially for marine renewable energy developments, so improved marine spatial management is particularly urgent.

→ **Reduce marine litter**

Monitoring of marine litter must continue. OSPAR needs to promote efforts to stop litter entering the marine environment.

→ **Promote sustainable fishing**

OSPAR needs to promote fisheries management plans that address depleted stocks, and encourage the adoption of rules to prevent fishing from damaging the seabed.

Region IV – Bay of Biscay and Iberian Coast



Region IV is characterised by well-mixed waters and upwelling of nutrients and cold water along the continental slope. The area is strongly affected by people. The Iberian coast is densely populated, with more than 500 inhabitants per km² in some areas and there are very active shipping routes. Most of the activities affecting the marine environment are concentrated along the narrow continental shelf, and coastal defences, cable-laying and tourism have all increased since 1998.

The seas are productive and there are large populations of pelagic fish. During spring, blooms of algae on the Iberian coast attract huge shoals of sardines and other fish. The coast is diverse, with many different habitats, from muddy shores to rocky cliffs. The seabed has some outstanding features, with seamounts and deep underwater canyons where giant squid and large sponges can be found. Because of its latitude, Region IV has both northerly species at the southern edge of their range and southerly or Mediterranean species at the northern edge of their range.

The QSR 2000 concluded that the quality status of Region IV was generally good, but a lack of information made it difficult to assess human impacts in many areas. Issues of high importance were: declining fish stocks (sardine, hake, anglerfish, bluefin tuna, swordfish); pressures from coastal development; and effects of climate change. Climate change has remained an ongoing concern.

Eutrophication problem area extent	0.6 %
Monitored sites with unacceptable status	
– Mercury	41 %
– PAHs	19 %
Species under threat	25
Habitats under threat	9
MPA coverage	0.5 %

Successes

Much better information than before. Although some gaps remain, there is much better knowledge about the state of the environment in Region IV than ten years ago.

Improvements in fishing practice. A number of improvements in fishing practice have been implemented to help protect the marine environment. For example, local prohibition of rock-hopper trawling has had a positive effect on the seabed and a driftnet ban has reduced the by-catch of marine mammals.

An important new protected area. The establishment of the El Cachucho MPA in the Cantabrian Sea is a major achievement. This MPA protects the wildlife associated with a seamount and a system of channels and canyons, and has strong measures to manage fisheries.

Ongoing concerns

Fish stocks in danger. The anchovy population in the Bay of Biscay has declined dramatically due to a lack of new young fish, and the fishery was closed between 2005 and 2009. The southern stock of hake is at low levels and subjected to unreported fishing. Most aspects of the demersal fish community on the French continental shelf are in a poorer state than in the mid- to late 1980s. There has been some improvement in the status of swordfish.

Eutrophication in the Bay of Biscay. There are eutrophication problems in small coastal bays and estuaries where waters are less active, particularly in the northern Bay of Biscay and in possibly some estuaries on the Spanish and Portuguese coasts.

Shipping incidents. Ship traffic has been increasing in Region IV over the past 20 years. Vessels often hit rough seas as they enter the exposed waters of the Atlantic en route from the North Sea and Baltic regions, and older ships are particularly vulnerable to accidents that create spillage. The *Prestige* oil spill in 2002 killed thousands of seabirds, and damaged some of the last remaining colonies of the Iberian population of the guillemot. The long-term effects of this spill are still not known.

Hazardous chemicals. Mercury remains a particular problem in Region IV, with over 40% of sites having unacceptable levels in sediments, perhaps as a legacy of past mining activities. In general, there is little information from Portugal on this type of pollution, but on other coasts, pollution from hazardous substances is found in coastal locations close to urban and industrial areas.

New industry. There are plans to store CO₂ under the Cantabrian continental shelf, and offshore wind, wave and tidal energy developments all seem likely in Region IV. As for the other OSPAR Regions, the long-term impacts and combined ecosystem effects of these activities are not well understood.

Lack of monitoring in deep sea areas (>200 m). Research has provided much greater knowledge of the habitats and ecosystems of this Region than was available ten years ago. Although the locations of canyons, seamounts and other important habitats are now known, there is no adequate monitoring of these sites. OSPAR must find ways and means to monitor marine life in these areas, so that it can assess and begin to understand human impacts.

What should be done?

→ Develop coordinated spatial planning

The limited extent of the continental shelf in Region IV, especially around the Iberian peninsula, and the demand for space for human activities including marine renewable energy developments, mean improved marine spatial management is particularly urgent.

→ Expand the MPA network

In Region IV there is a need to build upon the MPAs that have been established so far, to ensure that ecologically important areas are protected and form part of a network.

→ Promote sustainable fishing

OSPAR must promote the development of fisheries management plans that address depleted stocks, and encourage the collection of data to support the management of mixed fisheries.



Region V is dominated by the High Seas, so effective management requires international cooperation. The only inhabitants are the 250 000 people living on the Azores.

Beyond the continental slope much of the seabed is an abyssal plain. Dissecting the abyssal plain is the longest mountain range in the world – the Mid-Atlantic Ridge – which runs from Iceland to the Azores and beyond. Both the continental slope and these underwater mountains support diverse biological communities, including cold-water coral reefs and deep-sea sponge communities. The Mid-Atlantic Ridge is an active tectonic boundary, with hydrothermal vents occurring along its length where hot mineral-rich seeps support forms of life that are only just starting to be understood.

Sharks, tuna and marlin roam the High Seas, migrating far beyond the boundaries of Region V.

To date, there is no exploitation of oil and gas in Region V, but deep-water fishing is exerting pressure on the ecosystems. There is a tendency for fishing to target accessible areas of the seabed, that is, isolated seamounts and shallower parts of the Mid-Atlantic Ridge – precisely where biodiversity is likely to be highest. Some of these areas are now protected. Deep-water fish species have been shown to be particularly sensitive to exploitation.

Region V is important for Europe's threatened sea turtles, and wide-ranging oceanic seabirds like Cory's shearwater.

Eutrophication problem area extent	0 %
Species under threat	21
Habitats under threat	7
MPA coverage	0.2 %

The QSR 2000 concluded that the quality status of Region V was good but far from pristine. Issues of high importance were: over-fishing; large numbers of fish and marine mammals killed accidentally; lack of information about the impacts of climate change; mechanical damage to fragile habitats; expansion of the oil and gas industry into Region V; and increasing inputs of nutrients, hazardous substances, oil and litter.

Successes

Some international cooperation to control fishing. The potential for illegal, unregulated and unreported fishing is causing concern in Region V. Countries are cooperating to control it by preventing individual blacklisted vessels from landing at their ports. This effort needs to be intensified. Gill-netting, discards and other impacts on fish, marine mammals and seabed habitats are being regulated by the North East Atlantic Fisheries Commission (NEAFC).

Protecting deep-sea habitats. Owing to the efforts of OSPAR, NEAFC, the EU and a number of OSPAR countries, some deep-sea habitats (including on the Rockall and Hatton Banks, a large area around the Azores, sections of the Mid-Atlantic Ridge and several seamounts) now have some protection and are closed to bottom fishing at the least on a temporary basis.

Ongoing concerns

Information is still limited. While many issues of concern remain the same as in 2000 for Region V, there is not enough new information to establish trends since 2000. In particular, OSPAR must promote the long-term observation and monitoring of the major habitats in Region V, such as continental margins, seamounts, the Mid-Atlantic Ridge, and abyssal plains. OSPAR should work on more detailed maps of the seafloor with information about the extent of different habitats, so it is clear where to focus surveillance effort.

Long-lived species slow to recover. The full extent of deepwater fishing effort is not known. Management measures were first introduced in 2004. Many deep-sea species are very long-lived, for example, the orange roughy can live for more than 100 years. Their populations are slow to recover when they have been depleted by over-fishing. Large whale species, whose populations fell due to heavy exploitation before the 1980s, are recovering very slowly.

Bluefin tuna in trouble. The status of the Eastern Atlantic and Mediterranean stock of bluefin tuna is of major concern. The population declined strongly over the past decade, but there are not enough data to assess with certainty how many bluefin tuna are left. In 2007, the annual catch of bluefin tuna was estimated to be double that allowed by the fishing authorities and well in excess of the level scientists believe to be sustainable. Improved surveillance seems to have reduced catches in 2008, but the need of further reductions in catches, better monitoring and regulation of the fishery is urgent.

Increasing industrial activity. Exploration for oil and gas is still continuing but production has not yet expanded into Region V. As the continental margins become depleted, mineral extraction, fishing and possibly fossil energy industries will turn their attention to the High Seas. Activities such as deep seabed mining could have significant impacts on the environment and marine life. OSPAR must gather as much information about this environment

as possible, so that when such activities begin, it can support management that protects the most important and biodiverse sites.

MPAs in the High Seas. Establishing MPAs in the large area outside national jurisdiction in Region V is challenging. This is partly due to the difficulties of defining such areas, and the international co-operation required to manage them. Several candidate areas have been identified in Region V, but there are important jurisdictional issues to be addressed in considering their designation as MPAs. One candidate area is the Charlie Gibbs Fracture Zone, a complex section of the Mid-Atlantic Ridge. The proposed area would cover 5% of Region V, giving it the highest protected area coverage of any OSPAR Region.

What should be done?

→ Continue and improve monitoring of fisheries

OSPAR must continue to collaborate with the North East Atlantic Fisheries Commission to monitor and assess fisheries in Region V. Relevant fisheries organisations should be encouraged to expand the fisheries observer programme to gain better information on by-catch and accidental catches.

→ Focus on helping fish stocks recover

OSPAR must encourage the adoption of measures to aid the recovery of depleted fish stocks, including stocks that straddle several Regions, like the bluefin tuna.

→ Protect the Mid-Atlantic Ridge and isolated seamounts

OSPAR is working with other organisations to find the best way to establish an MPA that protects the unique ecosystems along the Mid-Atlantic Ridge and around isolated seamounts and seamount complexes. This would be a pioneering step towards protecting the marine life of the High Seas.