Coastal waters

Scottish coastal waters are mainly healthy and clean, but they are under pressure from human activities at sea and on land.

Summary

Good quality Scottish coastal waters are important to the Scottish economy. The majority are high or good quality, but there are local impacts from commercial fishing, aquaculture and diffuse pollution. The growth in industries such as aquaculture and renewable energy is putting additional pressure on the coastal environment. A new marine planning structure, including a national marine plan, has been put in place to manage the conflicting demands on coastal waters to ensure that the seas remain clean, safe, healthy, biologically diverse and productive.

Introduction

Coastal waters in Scotland are defined as extending landward from the 3 mile1 limit up to the limit of the highest tide or the seaward limits estuaries (Water Environment and Water Services (Scotland) Act (2003)).

Scotland has approximately 48,000 km^2 of coastal waters, which vary from sheltered west coast sea lochs to exposed east coast shores. The wide range of coastal habitats supports a diversity of marine life. Many of these habitats and animals are protected. They include:

- 56 Sites of Special Scientific Interest – these are intertidal areas which contain seal populations and intertidal features of interest (such as eelgrass beds, saline lagoons, sand flats and reefs);

- 58 Special Protection Areas with marine/coastal components – these are designated to protect birds;
- Special Areas of Conservation – these include a range of habitats and species including bottlenose dolphin, harbour seal and grey seal;
- Marine Protected Areas (MPAs) – the Scottish Government is in the process of establishing new MPAs of national importance to meet international commitments for protecting our seas.

See the section on wildlife for more information.

Coastal waters support a range of economic (fishing, aquaculture, ports, harbours) and recreational (sailing, diving, sea angling, bathing, bird watching) activities. The oil and gas industry, and the developing renewable energy industry, is located further offshore, and is discussed in more detail in the topic on Scotland's seas.

[1.] *The '3 mile limit' means the limit consisting of a line every point of which is at a distance of 3 miles on the seaward side from the nearest point of the baseline from which the breadth of the territorial sea of the UK adjacent to Scotland is measured; and 'miles' means international nautical miles of 1,852 metres.*

Description of coastal waters

Coastal water quality is classified using the Water Framework Directive (WFD) system. This assesses the condition of our coastal waters depending on how much they have been altered; high status water bodies show very little human alteration from undisturbed conditions (i.e. their water quality, habitats and tidal regime are very similar to unaltered coastal waters), with good status water bodies having only low levels of human alteration. Moderate, poor and bad status water bodies show progressively more impact from human activities. More details on the classification scheme can be found in the 2008 State of the water environment report, and the scheme is explained further in the Policy Statement on the Water Environment and Water Services (Scotland) Act 2003.

To be in a good condition, our waters need to be free of pollutants at concentrations that would harm the water plants and animals they support, have minimal changes to their habitats and not be adversely affected by invasive non-native species.

Over 90% of Scottish coastal waters are at high or good status (Table1). There are no coastal waters at bad or poor status in Scotland, and only 7% that are at moderate status. These impacts may be due to physical damage of the sea bed or contamination. Only a small percentage of Scottish coastal waters are at moderate status due to the presence of ocntaminants.

Table 1: Classification of Scotland's coastal waters, 2011 data

Indicator	Status									
	High		Good		Moderate		Poor		Bad	
	Area (km^2)	Area (%)	Area (km^2)	Area (%)	Area (km^2)	Area (%)	Area (km^2)	Area (%)	Area (km^2)	Area (%)
Overall status/ potential	8,365.72	18	35,809.80	75	3,533.42	7	0	0	0	0
Water quality	33,763.02	70.8	13,844.48	29	101.45	0.2	0	0	0	0
Bed and shores	16,710.04	35	27,768.61	58.2	3,230.30	6.8	0	0	0	0

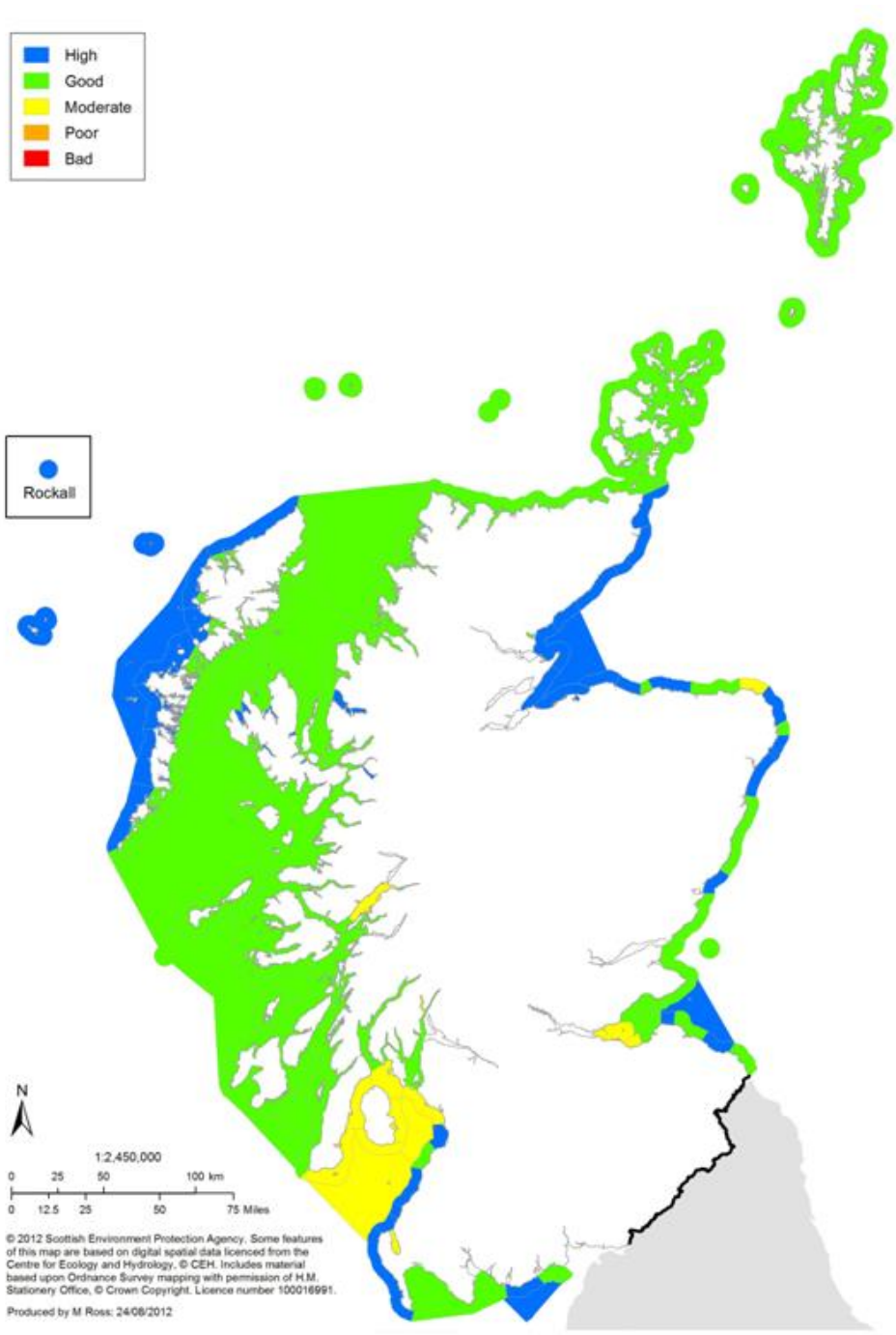
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Figure 1: Classification of Scotland's coastal waters, 2011

Water quality

A range of pollutants resulting from human activities are discharged into coastal waters, and the impacts on water, plants and animals are variable.

Hazardous substances, such as trace metals (e.g. cadmium and mercury), pesticides, oils and flame retardants, enter the sea via discharges of domestic and industrial waste water, spills, the use of anti-foulants, dumping of dredge spoil and being washed out of the atmosphere by rain. The concentration of contaminants in Scottish coastal waters is low and they do not exceed WFD chemical standards. There is evidence of contamination with TBT (tri-butyl-tin, a chemical paint applied to boats to prevent the unwanted growth of organisms) in one water body in the north-east. TBT causes imposex (the growth of male sexual characteristics) in female dog whelks. Dog whelks are molluscs that live on rocky shores.

Many contaminants become bound in sediments or accumulate in fatty tissue in animals. Contaminant concentrations in sediments, mussels and fish in Scottish coastal waters are measured and assessed against international standards. These concentrations are generally low in Scottish coastal waters, although there are localised problems for some contaminants in harbour sediments and in sediments and mussels in the Firths of Clyde and Forth.

Since 1990 the UK Cetacean Strandings Investigation Programme (CSIP) has been monitoring contaminants in stranded whales, dolphins and porpoises. The CSIP has generated one of the largest time series datasets for contaminants in marine mammals. This shows that some organochlorine and trace metal contaminant concentrations have declined since 1990; however, there has been no decrease in Polychlorinated biphenyls (PCBs) which still occur at relatively high concentrations.

Although a rich nutrient supply makes our coastal waters productive, an excessive nutrient supply can upset the balance of the ecosystem leading to eutrophication. Eutrophication occurs when excessive input of nutrients accelerates the growth of algae and other water plants, causing major changes in the balance of different plants and animals. Large amounts of organic matter are produced when the plants die and decay. Decomposition of this organic matter can reduce the amount of oxygen in the water making it uninhabitable for aquatic animals. No evidence of eutrophication was found in Scottish coastal waters in 2011.

Habitats

The Scottish coastline is altered by the construction of sea defences, ports and harbours. These alterations are often necessary to support the use of coastal areas for shipping, and to protect property from erosion. Four sections of coast are sufficiently modified for the associated water bodies to be downgraded to moderate status.

Bathing water quality

Scotland has many beaches that are popular with bathers. Beaches that are used by at least 150 people are designated as bathing waters by the Scottish government to comply with the European Union's current and revised Bathing Waters Directives. The directives require bathing waters to meet water quality standards designed to protect the health of people who bathe in the waters. Bathing waters are reviewed each year and the number of designated beaches has increased from 23 in 1988 to 83 in 2012. All but three of the designated bathing waters in Scotland are in coastal waters. Water quality at the original 23 sites has improved since 1988, and, currently, all beaches comply with the mandatory standard for the presence of bacteria in the water.

Shellfish

Water quality is protected in coastal waters used for the commercial cultivation of shellfish through designation as shellfish waters under the Shellfish Waters Directive (2006/113/EC).

There are currently 80 designated shellfish waters, mostly in sea lochs in north and north-western Scotland. All sites comply with mandatory standards for water quality (e.g. salinity, pH, temperature and contaminants) in the directive, although around one-third do not achieve the more stringent guideline values for faecal colifoms in shellfish.

The Food Standards Agency (Scotland) classifies shellfish produced for human consumption based on Shellfish Hygiene regulation bacteriological standards. Shellfish from Class A sites can go direct for human consumption, whereas those from Class B and C sites require further treatment before they can be sold. The FSA(S) classifies Shellfish Harvesting Areas in Scotland every year on a seasonal basis. The majority of sites in Scotland are class A/B or A all year round.

The Food Standards Agency (Scotland) also monitors Shellfish Harvesting Areas for the presence of biotoxins and biotoxin-producing algae. Biotoxins are natural substances produced by marine algae (phytoplankton), which are a risk to human and animal health if they are consumed. Biotoxins are not a risk at the concentrations found in water, but shellfish can accumulate biotoxins to a concentration that can cause toxic effects if the shellfish are consumed. The shellfish monitoring results are updated weekly and the shellfishery is closed if the toxins are present above permitted levels.

Litter

Litter in the coastal environment can be found on the shore and beaches, lying on the sea bed and floating in the sea.

The Marine Conservation Society monitors litter on UK beaches via the annual Beachwatch surveys. The results show that there were nearly 2,000 items of litter per kilometre of beach in the UK in 2010. The amount of litter found on the 57 beaches surveyed in Scotland is slightly above the UK average, and there is a higher percentage of sewage-related (20%) and fly tipped (1.6%) debris in Scotland compared with the UK averages of 7% and 1% respectively.

Radioactive substances in coastal waters

Radioactivity in the marine environment arising from licensed sites is reported annually in the Radioactivity in Food and the Environment reports. Radioactivity in the environment is well below the allowable dose rate. However, there are localised issues due to historical inputs of radioactive fuel particles at Dounreay and dumping of radioactive waste at Dalgety Bay.

Pressures affecting coastal waters

Scottish coastal waters are subject to a wide range of pressures resulting from human activities.

Climate change

An understanding of the impact of climate change on Scottish coastal waters is being developed through the Marine Climate Change Impacts Partnership (MCCIP). The MCCIP provides co-ordinated advice from scientists, government and non-governmental organisations on the impact of climate change in the marine environment.

The MCCIP publishes Annual Report Cards, which summarise the most recent understanding of the impact of climate change. Observations indicate that:

- warm water species are moving north as seawater temperature rises. This impacts on sea bird colonies, which rely on marine species for food;
- sea level has been increasing at a rate of 3 mm per year since 1992; there has also been an increase in storminess, which will contribute to an increased risk of coastal flooding.

Regional assessments show that fewer changes attributed to climate change occur in Scottish waters than English waters. An increased tendency for stratification leading to offshore blooms of algae, including Karenia mikimotoi (which has been associated with fish kills and benthic mortalities), is predicted for the Scottish west coast.

Ocean acidification is considered by many marine scientists as the biggest threat to the marine environment. Until 200 years ago atmospheric carbon dioxide (CO_2) had been constant for 650,000 years, and possibly for 20 million years. In the last 200 years ocean acidity has increased by 30%, a rate much faster than at any time in the last 65 million years. Substantial extinctions of benthic and planktonic organisms could result.

The UK Ocean Acidification Programme aims to measure changes in acidity, assess the impact on marine organisms and advise policy makers on how to mitigate the impacts.

Fishing

The sea bed in coastal areas is inhabited by an invertebrate community, which includes worms, shellfish, sea urchins and starfish. These provide an important ecosystem service by re-cycling nutrients and are a significant food source for bottom-feeding fish. In coastal waters this habitat is under pressure from mechanical damage caused by scallop dredging and bottom trawling. Nets, pots and creels can also damage the sea bed.

Inputs of contaminants to coastal waters

Contaminants enter coastal waters directly from discharges, run-off from land and rivers (both directly and via estuaries) and are deposited from the atmosphere. Inputs of some contaminants (ammonia, nitrogen, phosphate, cadmium, copper, lead, nickel, zinc, mercury and lindane) have been monitored at the tidal limit of rivers and in major discharges to estuaries and coastal waters since 1990 for the Oslo and Paris Commission (OSPAR) riverine inputs and direct discharges (RID) programme.

Data from this monitoring programme show that inputs from point source discharges have decreased, although there has been no decrease in inputs of nitrogen from rivers. Nitrogen originates from run-off from land, especially in agricultural areas. The amount of nitrogen discharged to coastal waters is correlated with the volume of river flow, and this, in turn, depends on rainfall in the catchment.

The number and volume of oil and chemical spills are collated and reported by the Advisory Committee on Protection of the Sea. Most spills in coastal waters occur in ports and harbours and are generally small (<220 litres). The frequency of these spills is linked to the amount of vessel activity, and they result in localised contamination of harbour sediments. Larger spills are generally related to damage to vessels. One of the biggest spills in recent years resulted from a deep sea fishing vessel that ran aground at St Kilda in 2008, spilling 8 tonnes of diesel oil. The impact of larger spills depends on the local conditions and type of oil spilt.

Dredging and dumping

Disposal of dredged material is currently allowed only from ports, harbours and marinas, and is licensed by Marine Scotland. In general, only dredged material with contaminant concentrations below a threshold can be disposed of at sea, and dredged material may be re-used for land reclamation or beach nourishments when contaminant concentrations are low. There are currently 66 active disposal sites affecting 42.36 km^2 of sea bed. The majority are in coastal waters but the largest dredging operation is at Grangemouth in the Forth estuary.

The amount of material disposed has remained relatively constant over time. During 2009, 2,901,499 tonnes were dredged and deposited compared to the 5,743,882 tonnes allowed under licence. Most disposal occurs in sea areas adjacent to the highest densities of human population and industry.

Aquaculture

Aquaculture is a growing industry in Scotland and we are one of the largest producers of farmed salmon in the world. Fish in floating net cages are fed specially formulised pelleted diets. Faecal matter and waste food, often containing medicines used to control sea lice, are deposited on the sea bed beneath fish farm cages. Stocking densities and the use of medicines are regulated to minimise the impact on the environment. Escaped fish may interbreed with wild fish leading to a dilution in genetic integrity, and may carry disease into the wild population.

Microbiological contamination

Discharges of human and animal waste can lead to microbiological contamination. Human waste is discharged to the marine environment from:

- treated sewage discharges;
- individual septic tank discharges;
- combined sewer outfalls (CSOs; outfalls that are used during periods of very wet weather);
- waste water from boats.

These sources are managed to minimise their impact, although sewage from both treated discharges and from CSOs remains a significant cause of pollution for coastal bathing waters.

It is more difficult to manage animal wastes, which often arise from:

- run-off from land to the sea via rivers;
- direct inputs from wildlife on beaches.

Diffuse inputs have been identified as causing microbiological failures at bathing beaches and shellfish waters.

Noise

Underwater noise is generated by dredging, shipping and construction. Many marine mammals, fish and some shellfish communicate by sound. Human-generated noise is thought to interrupt their ability to communicate and may injure or even kill wildlife.

There is currently not enough evidence on the extent of noise disturbance, nor of the impacts on wildlife.

Litter

The impact of litter on wildlife has not been quantified but there are concerns about increasing amounts of litter on beaches, the sea bed, in the water column and floating on the surface. The Marine Conservation Society Beachwatch surveys identified plastic as the main type of litter, with sources of litter on beaches including:

- litter dropped by the public;
- sewage-related debris (such as cotton buds);
- discarded fishing gear;
- litter dumped at sea (deliberately or washed overboard from ships);

There is a particular problem with high densities of cotton bud sticks on beaches in the Inner Firth of Clyde. Cotton bud sticks pass through the screens on sewage outfalls and are slow to degrade. They are carried by tides to areas where they accumulate.

The latest (2008–2011) Fishing For Litter project report showed that of the 242 tonnes of litter recovered from the sea bed, half was plastic, mainly ropes, bottles, wire and lobster/crab pots. The Fishing For Litter project is run by KIMO (the Local Authorities International Environmental Organisation). This project encourages fishermen to return the litter caught in their trawls for measurement and proper disposal. It has been estimated that litter costs the marine fishing industry up to £30,000 per year per boat, due to contamination of catches, broken gear and fouled propellers.

The amount of litter floating in coastal waters has not been measured, although plastic has been found in the stomachs of beached fulmars. Fulmars feed exclusively at sea, and eat almost anything they find on the surface of the sea so any plastic in their stomachs is likely to be marine in origin. Although Scottish waters were the cleanest, 45% of birds found in Scottish waters contained plastic in their stomachs.

Non-native species

Non-native species can be introduced by visiting ships and recreational craft (either attached to the hull, or in ballast water), floating litter and by aquaculture (either escape of the farmed species, or, more commonly, unintentional introduction alongside the farmed species). Non-native species can significantly alter the ecology of our native communities, as well as causing problems for shipping and aquaculture. An example is the carpet sea squirt which was found in a marina in Largs in October 2009. The carpet sea squirt spreads rapidly, smothering the sea bed and underwater structures. The colony was removed and no further sightings have been reported in Scottish coastal waters.

Consequences of a change in coastal waters

The coastal environment needs to be managed and protected to ensure that the government's vision of clean, safe, healthy, biologically diverse and productive seas is achieved.

Marine habitats and their diversity of organisms provide a range of ecosystem services and benefits of significant value to Scotland. These are discussed in detail in the Marine chapter of the National Ecosystem Assessment and include:

- provision of food and mineral resources;
- disposal and treatment of waste;
- flood protection;
- leisure and recreation.

Unsustainable use of the coastal environment will result in the loss of these benefits, with consequent losses to the economy. Consequences of the change in coastal waters include:

- loss of land near the sea, due to climate change and potential sea level rises;
- the spread of invasive non-native species;
- reduction in biodiversity due to loss of habitats resulting from modification of the coastline;
- increasing costs for removal, and consequent disposal, of litter from beaches;
- adverse impacts of aquaculture on wildlife;
- damage to the sea bed as a result of dredging and disposal of waste.

Response by society

Scotland's coastal waters are an important resource and there is potential for further economic development of these resources, particularly in growth areas such as marine renewables and aquaculture. It is important to promote economic growth in a sustainable way to preserve the rich variety of species and habitats in Scottish waters and make sure that they remain clean and safe. Legislation is currently the main mechanism for protecting the environment, and there are several forms of legislation used by regulatory authorities to protect the coastal environment.

Marine (Scotland) Act

The Marine (Scotland) Act ,which was introduced in March 2010, provides a framework to help balance competing demands on Scotland's seas. It introduces a duty to protect and enhance the marine environment and includes measures to help boost economic investment and growth in areas such as marine renewables. Marine Scotland has a leading role in enforcing the enhanced powers of marine conservation and licensing contained in the act.

The main measures in the Marine (Scotland) Act are:

- a marine planning system, which balances resource needs within marine space with protecting our marine environment. This means that all activities can be considered together, from wildlife tourism and recreational sea angling to energy and fishing. There are two tiers of plans. The National Marine Plan sets out strategic objectives and identifies national priorities, and Regional Marine Plans provide the context in which conflicts between different sectors can be resolved and by which key areas can be defined for key uses;
- a marine licensing system, which minimises the number of licences required for development in the marine environment to cut bureaucracy and encourage economic investment;

- new power to designate MPAs. This provides greater flexibility for ministers to use area-based measures to conserve marine biodiversity as well as nationally important historic assets such as historic shipwrecks. All MPA proposals will be based on science, or equivalent information for historic features. However, socio-economic impacts will be taken into account where two or more alternative sites meet the scientific criteria equally;
- improved protection for seals and a new comprehensive licence system to ensure appropriate management when necessary.

Marine strategy framework directive

The European Marine Strategy Framework Directive (MSFD) was transposed into UK legislation in July 2010. The directive requires member states to manage their seas to achieve good environmental status (GES) by 2020. The MSFD applies to coastal water and seawater out to the territorial limit, it does not apply to estuaries. The MSFD lists 11 qualitative descriptors of GES.

1. biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions;
2. non-native species introduced by humans do not adversely alter ecosystems;
3. populations of commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock;
4. all elements of the marine food webs, to the extent that they are known, occur at normal abundance and diversity and levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity;
5. human-induced eutrophication is minimised, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters;
6. seafloor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected;
7. permanent alteration of hydrographical conditions does not adversely affect marine ecosystems;
8. concentrations of contaminants are at levels not giving rise to pollution effects;
9. contaminants in fish and other seafood for human consumption do not exceed levels established by community legislation or other relevant standards;
10. properties and quantities of marine litter do not cause harm to the coastal and marine environment;
11. introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment.

Targets and indicators for these descriptors of GES need to be agreed in 2012 and monitoring to measure progress towards GES should be established by July 2014. Member states must establish a programme of measures to achieve GES by 2016.

Water framework directive

The main aim of the Water Framework Directive is to ensure that coastal waters achieve GES, or equivalent (as defined in the directive), by 2015.

The targets for improving the status of all coastal waters to at least good are shown in the river basin management plan. Sea bed damage is the main cause of downgrading in coastal waters. A long-term target has been set for improving coastal waters damaged by fishing as this involves a collaborative approach to managing and improving the environment. River basin management planning is designed to do this and offers opportunities for more effective co-ordination between partners. Actions needed to improve the quality of coastal waters to GES are detailed in individual Water Body Data Sheets (note, classification data on those sheets related to 2008).

Table 2: Targets for improvements to the status of coastal waters to be achieved through the WFD.

	Area of coastal waters (km^2)		
Overall status/potential	**2015**	**2021**	**2027**
High	15,649	15,649	15,649
Good	28,698	29,388	31,532
Moderate	3362	2672	528
Poor	0	0	0
Bad	0	0	0
Total	**47,709**	**47,709**	**47,709**
Proportion of total at good or better status (%)	**93**	**94**	**99**

Shellfish waters

Actions required to improve the quality of shellfish waters are outlined in individual Pollution Reduction Plans. Scottish Water has made significant investment in sewage treatment to reduce microbiological inputs to these waters; however, studies have shown that run-off from land contaminated with animal faeces is a significant source of contamination in some waters. General binding rules (GBRs) are in place to help control diffuse pollution, and catchment-based initiatives are used in some areas to tackle diffuse sources.

Bathing waters

The revised Bathing Waters Directive requires the provision of more information to bathers and sets tighter microbiological standards, which have to be met by 2015. Electronic signs provide predictions of water quality at 23 Scottish beaches and information on potential pollution sources and risks are provided in individual beach profiles. Changes to the monitoring programme to comply with the new directive were implemented in 2012, although compliance with the new standards will not be reported until 2015.

The changes are:

- monitoring will change to Escherichia coli and intestinal enterococci from coliform and faecal streptococci. The differences are anticipated to be minimal;
- samples will be collected within a 5-day window;
- implementation of signage and discounting;
- summary information to be posted at beach locations;

Inputs of contaminants

OSPAR has been working to reduce inputs of hazardous substances to the marine environment for over 20 years through regulation of industries and phasing out the use of some substances, for example:

- **polychlorinated biphenyls** – UK sales stopped in 1986;
- **brominated flame retardants** – use banned in 2004;
- **tri-butyl-tin** – use on all boats banned in 2008.

There is some evidence of a decrease in the use of a third of the 26 priority chemicals identified by OSPAR. The ban on TBT has led to a reduction in the incidence of imposex in dog whelks; however, polychlorinated biphenyls can still be detected in sediments and biota. Water-borne inputs of cadmium, lead and mercury are decreasing, and there has been a decrease in inputs of lindane. More information is required to determine whether the ban on brominated flame retardants has been successful.

The European Commission is constantly reviewing the impact of chemicals in the environment. The WFD lists 33 priority substances that have been identified on the basis of their toxicity, persistence and liability to bio-accumulate in the environment. The majority of the chemicals on this list are also on the OSPAR list of priority chemicals. The list will be reviewed by the Commission every four years and is divided into two categories (depending on the level of concern):

- priority substances;
- priority hazardous substances.

Regulatory authorities are required to:

- stop or phase out discharges, emissions and losses of priority hazardous substances by 2025;
- progressively reduce pollution from all priority substances.

Diffuse inputs of hazardous substances are more difficult to control. Best Management Practice guidance for agriculture and Sustainable Drainage System guidance have been produced to address the problem of diffuse pollution.

Dumping material at sea has progressively reduced since the 1980s as bans were imposed on the dumping of radioactive wastes (1982), colliery mine stone (1995) and sewage sludge (1998). The disposal of wastes is currently allowed only at licensed sites at ports, harbours and marinas. These restrictions have led to an overall reduction in disposal of dredge spoil at sea since 2005.

Chemicals used to control diseases in farmed fish are licensed for use by the Veterinary Medicines Directorate. The Fish Health Inspectorate monitors the incidence of disease in farmed fish and the use of veterinary medicines used to control diseases.

Litter

The recent European Marine Strategy Framework Directive includes litter as a descriptor of GES. Member states will have to agree methods to assess litter, and set targets for achieving GES for litter by 2020.

There are several initiatives to reduce the presence of litter in the marine environment.

- Scottish Water's Bag It and Bin It campaign, which aims to stop contamination of beaches caused by the disposal of sanitary waste via the sewerage network;
- Keep Scotland Beautiful beach award scheme;
- International Convention for the Prevention of Marine Pollution from Ships (MARPOL 73/78) and its Annex V (which prohibits the at-sea disposal of plastics and rubbish from ships);
- Directive 2000/59/EC: EU Port Waste Reception Directive on port reception facilities for ship-generated waste and cargo residues;
- The Forth Estuary Forum and Firth of Clyde Forum actively campaign to reduce litter on beaches in their areas.

Tourism

Water sports and wildlife tourism are important to the Scottish economy; however, these activities need to be carefully managed to minimise the impact on the environment. The Green Blue organisation gives guidance to recreational boat users on how to reduce their impact on the environment.

Oil spills

Port authorities have a responsibility to respond to spills from boats in their harbour area. Clearwater Forth is an example of an emergency response plan for the Forth.

In the event of a major spill from shipping or offshore oil and gas installations, the national contingency plan is implemented. Post-incident monitoring guidelines are available to the Environment Group established by this plan to assess the longer-term impact of spills.

Non-native species

The Invasive Non-Native Species Framework Strategy for Great Britain sets out the agreed hierarchical approach to invasive non-native species:

- prevention;
- early detection, surveillance, monitoring and rapid response;
- mitigation, control and eradication.