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The Tangle of the Forth

The Case for a Marine Act for Scotland

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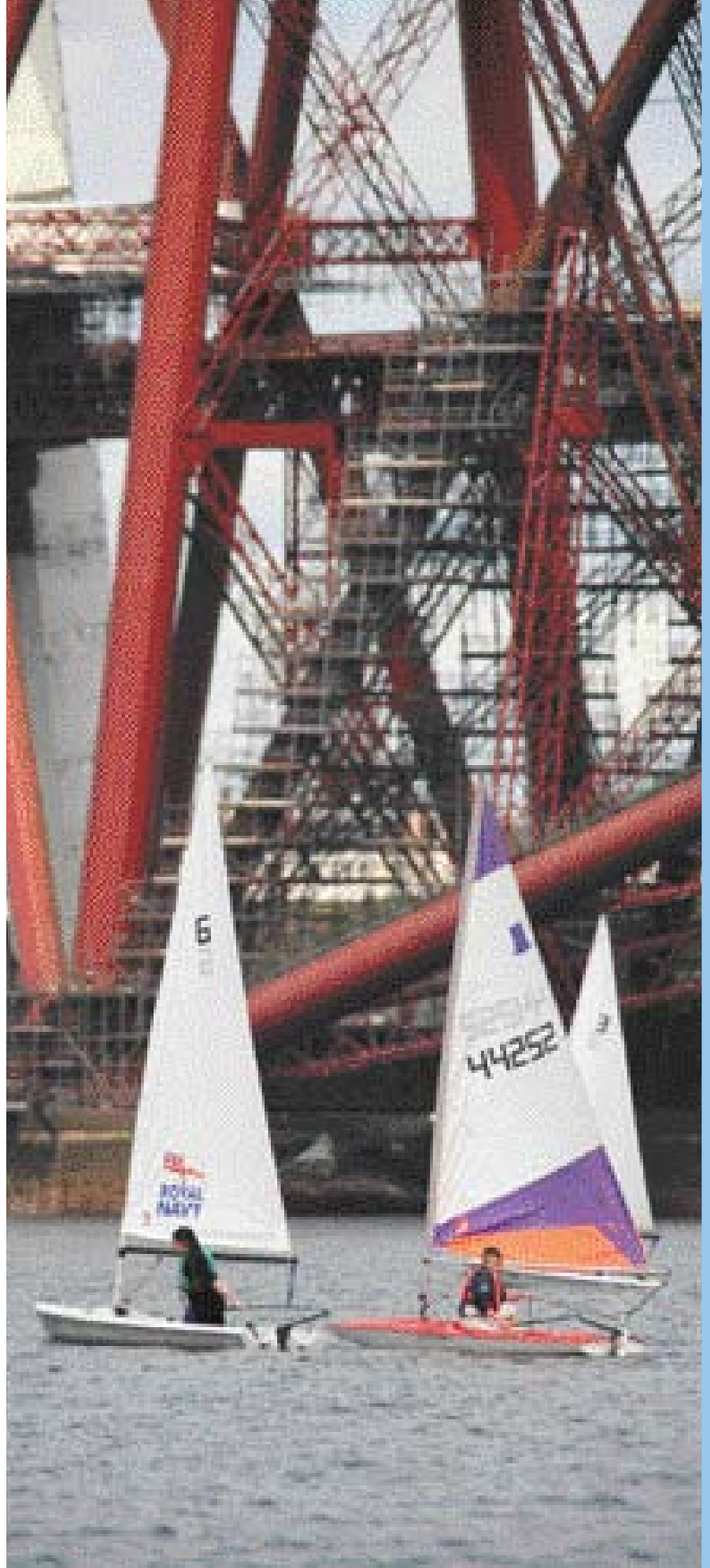

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The Tangle of the Forth

The Case for a Marine Act for Scotland

SCOTLAND'S incredibly rich marine environment is one of the most diverse in Europe supporting an array of wildlife and habitats, many of international importance, some unique to Scottish waters. Playing host to over twenty species of whales and dolphins, the world's second largest fish - the basking shark, the largest gannet colony in the world and internationally important numbers of seabirds and seals Scotland's seas also contain amazing deepwater coral reefs, anemones and starfish. The rugged coastline is characterised by uniquely varied habitats including steep shelving sea cliffs, sandy beaches and majestic sea lochs. All of these combined represent one of Scotland's greatest economic and aesthetic assets.

Scotland's uniquely diverse marine environment is also host to a range of different, and sometimes conflicting, uses and activities. Scotland's amazing marine scenery is one of its key attractions as a tourist destination and provides for many recreational activities such as diving, sailing and wildlife tourism. Meanwhile Scotland's marine waters also provide the basis for a range of industrial activities including oil extraction, shipping, and commercial fisheries.

Scotland has over 11,000km of coastline, one of the longest in Europe

- **Scotland's territorial waters cover 53 per cent of its total terrestrial and marine surface area**
- **Scotland's marine and estuarine environment contributes £14 billion to Scotland's £64 billion GDP**
- **5.5 million passengers and 90 million tonnes of freight pass through Scottish ports**
- **70 per cent of Scotland's population of 5 million live within 10km of the coast and 20 per cent within 1km**
- **25 per cent of Scottish business, accounting for 10 per cent of Scottish turnover and 20 per cent of employment is located within 1km of the coast**
- **There are over 790 Scottish islands, including 130 which are inhabited**

IN 2004, the Scottish Coastal Forum published a Strategy for Scotland's coasts and inshore waters. When considering the various uses of the coasts and inshore waters, the Strategy observes:

> **"Sectoral management systems have historically tended to downplay these cross-sectoral linkages but integrated management systems acknowledge and address them more explicitly. There is an economic rationale for this as well as a matter of principle. Benign interactions tend to add to the total sum of wealth whereas conflicting interests tend to limit or diminish it."**

This highlights that a sector-by-sector approach to the management of coastal and marine resources will not only result in conflicts, which fail to realise maximum benefits from the resources but is likely to undermine and degrade the resources, to the extent that the benefits provided are reduced or degraded. Thus, in the long term, there will be a reduction in the available benefit that the resources are able to provide. The Strategy identifies a large number of objectives and necessary actions under a series of goals including integration, spatial planning and decision-making, and stakeholder participation.

In September 2005 the Scottish Executive published a marine and coastal strategy, Seas the Opportunity: a strategy for the long-term sustainability of Scotland's sea and coasts. The Minister for Environment and Rural Development established a high level Advisory Group for the Marine and Coastal Strategy (AGMACS) to, among other objectives, consider the potential for marine spatial planning and how such a system might operate in practice and to identify whether any of the elements of the strategy might require underpinning by new legislation or new delivery mechanisms.

Sustainable development requires that natural resources be used in ways that avoid irreversible damage, loss of irreplaceable features, or reduction in ecosystem resilience

Sustainable development requires that natural resources be used in ways that avoid irreversible damage, loss of irreplaceable features, or reduction in ecosystem resilience. Today's needs must be met without compromising the ability of future generations to meet their needs. Environmental, social, and economic interests should be considered simultaneously to ensure cohesion within a management system that allows a long-term and dependable flow of benefits from both renewable and non-renewable natural resources.

The challenge is converting this definition into a practical reality. Today, the approach to managing coastal and marine activities and to marine conservation remains unstructured, piecemeal, sector-focused and unsustainable.

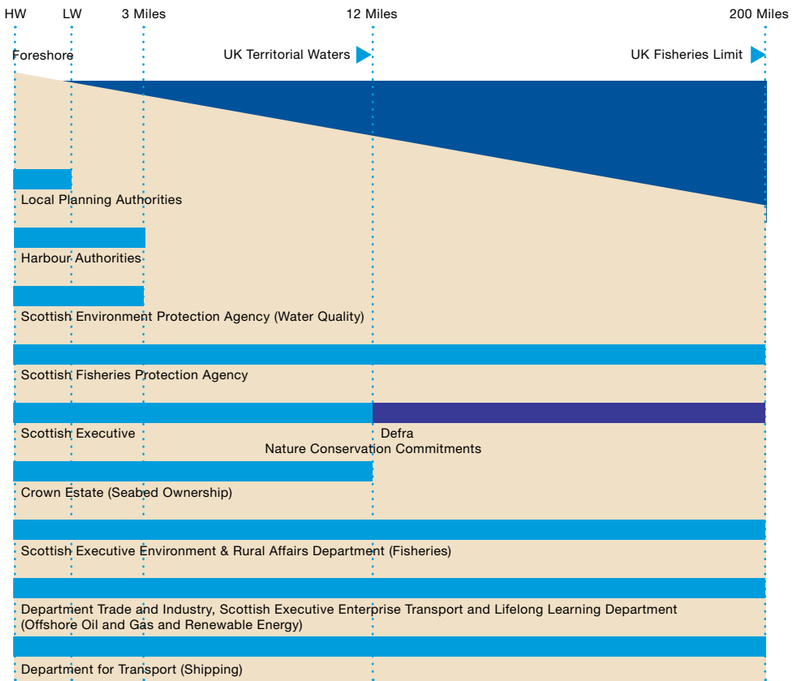
Scotland's seas are some of the most productive in the world; for example, the North Sea accounts for 3.5 per cent of the world's commercial fish catch, but comprises only 0.18 per cent of the earth's surface. Scotland's seas support around 13–14,000 fishing and processing jobs, while 60 per cent of the UK fish catch, with a value of £328 million, comes from Scottish vessels. Declines in North Sea fish stocks and recent growth in shellfish markets have resulted in the Scottish inshore fleet becoming almost entirely dependent on shellfish. Key shellfish species for the inshore fleet include scallops, crabs and lobster and the Scottish langoustine (also known as Norwegian lobster or Nephrops), with landings worth £57.2 million in 2004.

- **Three in every four Scottish fishing vessels fish in inshore waters**
- **Of 21 commercially exploited fish stocks in 2003, 16 are considered to be fished beyond safe biological limits**

Scotland's coast boasts outstanding scenery and natural environment – the two most important factors for both UK and overseas visitors to Scotland according to surveys conducted by Visit Scotland. Scotland's waters are considered to be highly diverse. It is estimated there are over 8,000 marine species in Scottish waters, including over 250 species of fish, 20 species of whales and dolphins, over 3,000 species of shellfish, internationally important colonies of seals, internationally important populations of waterfowl, and 43 per cent of all seabirds breeding in the EU. It has been calculated that whale and dolphin watching generates £3.4 million annually and that marine wildlife tourism generates over £57 million in revenue and supports nearly 3,000 jobs. However, worrying trends indicate that we are failing to manage our marine resources sustainably and as a result many species and habitats are not prospering as they should:

- **Leatherback turtle – noticeable decline in North Atlantic**
- **Atlantic salmon – significant decline**
- **Other migratory fish – sea trout and eels – in decline**
- **Cod populations – severe decline. Certain stocks at historic low**
- **Common skate – severe decline**
- **Roseate tern –severe decline in population**
- **Scoter – substantial decline in population**
- **Redshank – breeding population in decline**
- **Kittiwake – population declining in some areas, particularly east coast Scotland**
- **Saltmarsh - significant decline in past 50 years**
- **Seagrass beds – severe decline**

UK Marine Jurisdictions



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Edinburgh city and the Lothians is the most popular tourist destination in Scotland – one-fifth of all UK visitors and one-third of all overseas spending is in this region. The two key factors in selecting their destination cited by all visitors are the scenery and the natural environment

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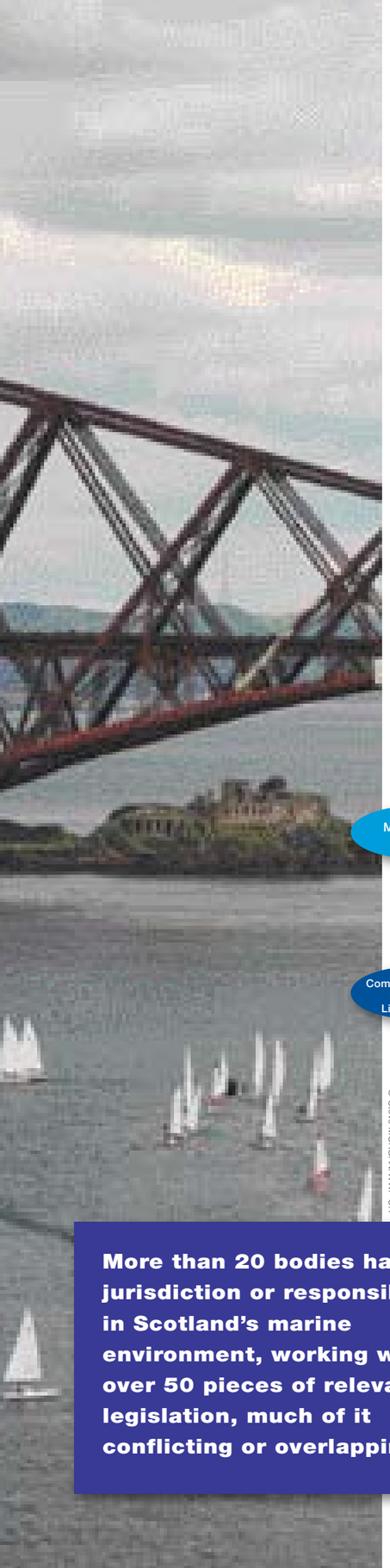
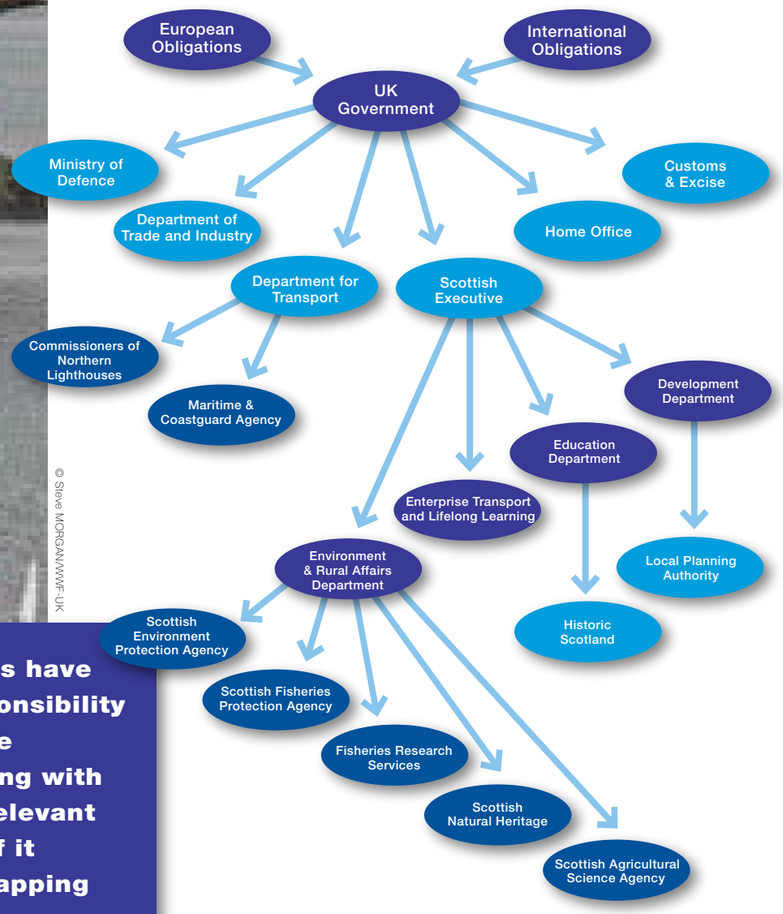


Scotland's Responsible Authorities and Relevant Legislation

CURRENTLY more than 20 bodies have jurisdiction or responsibility in Scotland's marine environment – from global organisations such as the International Maritime Organization responsible for agreeing measures for the management of international shipping to the European Commission and the 25 Member State Fisheries Ministers. From Westminster's Ministry of Defence and Department of Trade and Industry which has reserved responsibilities for maritime sectors operating in Scotland's waters to the Scottish Parliament and government departments, responsible for the management of most activities within 12nm of the coast and the local authorities. All have a role to play.

The complexity of legislation is even greater. Largely driven by the need to respond to the inadequacies of the management system of the day, more than 50 relevant pieces of legislation, some dating back a hundred years, have been adopted. The proliferation of legislation in the last two decades demonstrates the ad hoc and confused approach to the continued mis-management of coastal and marine resources. All signs point to the fact that the time has come to overhaul the existing legislative system for the management of coastal and marine resources and to develop a cohesive planning system for the coast and sea.

Governmental Marine Responsibilities in Scotland



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More than 20 bodies have jurisdiction or responsibility in Scotland's marine environment, working with over 50 pieces of relevant legislation, much of it conflicting or overlapping

The Firth of Forth is recognised on an International, European and National level for its outstanding marine and coastal biodiversity but the implementation and enforcement of these levels of protection is virtually impossible under current legislation

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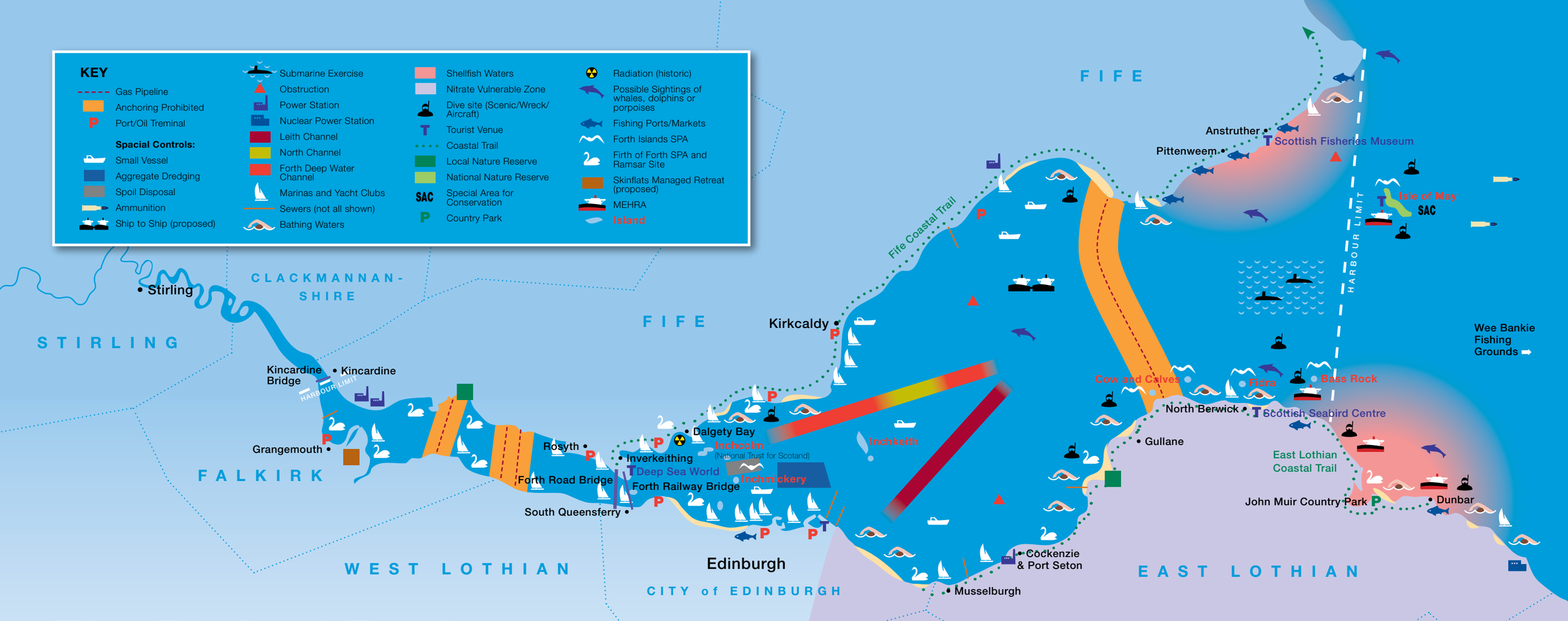
The range of legislation relevant to marine and coastal developments and activities

- Dockyard Ports Regulations Act 1865
- Military Lands Act 1892
- Diseases of Fish Acts 1937
- Coast Protection Act 1949
- Land Drainage (Scotland) Act 1958
- Crown Estate Act 1961
- Flood Prevention (Scotland) Act 1961
- Pipe-Lines Act 1962
- Harbours Act 1964
- Sea Fisheries Regulation Act 1966
- Sea Fish (Conservation) Act 1967
- Sea Fisheries (Shellfish) Act 1967
- Conservation of Seals Act 1970
- Prevention of Oil Pollution Act 1971
- Local Government Act 1972
- Protection of Wrecks Act 1973
- Control of Pollution Act 1974 amended by Water Resources Act 1991
- Endangered Species (Import and Export) Act 1976
- Ancient Monuments and Archaeological Areas Act 1979
- Merchant Shipping Act 1979
- Wildlife and Countryside Act 1981
- Diseases of Fish Acts 1983
- Inshore Fishing (Scotland) Act 1984
- Fishing (Scotland) Act 1984
- Telecommunications Act 1984 amended by Communications Act 2003
- Food and Environment Protection Act 1985
- Protection of Military Remains Act 1986
- Pilotage Act 1987
- Electricity Act 1989
- Inshore Fishing (Prohibition of Fishing and Fishing Methods) (Scotland) Order 1989 amended in 1994, 1996 and 1999
- Environmental Protection Act 1990
- Natural Heritage (Scotland) Act 1991
- Water Resources Act 1991
- Sea fisheries (Wildlife Conservation) Act 1992
- Transport & Works Act 1992
- Conservation (Natural Habitats, &c.) Regulations 1994
- Environment Act 1995
- Merchant Shipping Act 1995
- Flood Prevention and Land Drainage (Scotland) Act 1997
- Town & Country Planning (Scotland) Act 1997
- Merchant Shipping and Maritime Security Act 1997
- Merchant Shipping (Port Waste Reception Facilities) Regulation 1997
- Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997
- Scotland Act 1998
- Environmental Assessment and Habitats (Extraction of Minerals by Marine Dredging) Regulations 1998
- Merchant Shipping (Oil Pollution Preparedness Response and Co-operation Convention) Regulations 1998
- Merchant Shipping (Prevention of Pollution by Garbage) Regulations 1998
- Petroleum Act 1998
- Petroleum (Production) (Seaward Areas) Regulations 1988
- Environmental Impact Assessment (Scotland) Regulations 1999
- EIA (Fish Farming in Marine Waters) Regulations 1999
- EIA (Scotland) Regulations 1999
- Harbour Works (Environmental Impact Assessment) Regulations 1999
- Offshore Petroleum Production and Pipe-Lines (Assessment of Environmental Effects) Regulations 1999
- Electricity Works (Environmental Impact Assessment) Regulations 2000
- National Parks (Scotland) Act 2000
- Sea Fisheries (Shellfish) Amendment (Scotland) Act 2000
- Pollution Prevention and Control Regulations 2000
- EU Common Fisheries Policy 2002
- National Heritage Act 2002
- Land Reform (Scotland) Act 2003
- Water Environment and Water Services (Scotland) Act 2003
- Conservation (Natural Habitats) Amendment (Scotland) Regulations 2004
- Environmental Assessment of Plans and Programmes (Scotland) Regulations 2004
- Nature Conservation (Scotland) Act 2004



The Firth of Forth

THE FIRTH of Forth, from Alloa Inches in the River Forth to Fife Ness and Dunbar in the east, is renowned as an international haven for wildlife and, in particular, for around 200,000 waterfowl and seabirds. It consists of a dazzling complex of rocky shorelines, dune systems, sandy beaches, shingle, brackish lagoons, estuaries, mudflats, salt marshes, underwater reefs, and sea cliffs – both above and below the water. The extensive intertidal mudflats with sea grass beds and offshore craggy islands create a birdwatchers' paradise for one of the largest congregations of waterfowl and seabirds in the UK. Present in internationally important numbers, pink-footed geese, redshank and shelduck overwinter in the wetlands, while gannets, puffins and the rare roseate tern nest offshore on Bass Rock (one of the world's largest gannet colonies), and the Isle of May where the largest east coast population of grey seals produce pups on the island's shores.

"We are today classifying the Firth of Forth as a Special Protection Area – guaranteeing the future of the area's astonishing array of birdlife. It is a measure of the unique natural heritage of this country that species such as bar-tailed godwit, golden plover, knot and red shank can thrive alongside bustling cities and industry...This announcement will ensure that the Firth of Forth will remain one of this country's most important areas for birdlife for generations to come."
(Rhona Brankin, 2001, Deputy-Minister for Environment and Rural Affairs)

Despite the importance for waterfowl, seabirds and marine wildlife, the shores of the Firth of Forth are subject to an extremely high degree of pressure from housing and commercial development. Scotland's internationally renowned capital city, Edinburgh, overlooks the Firth from its south shore and over one quarter of Scotland's population resides in the seven unitary authorities with shores on the Firth. The Firth of Forth is also the busiest shipping area in Scotland, and the fourth largest port in the UK.

The tidal limit at Stirling is generally considered to mark the boundary between the River Forth and the Forth Estuary. The estuary runs from the tidal limit to the Queensferry bridges. Seawards of the bridges to a line drawn from Fifeness to Dunbar, including the Isle of May is the Firth of Forth. The Firth is 96km long and covers an area of 1,670km2 open water.

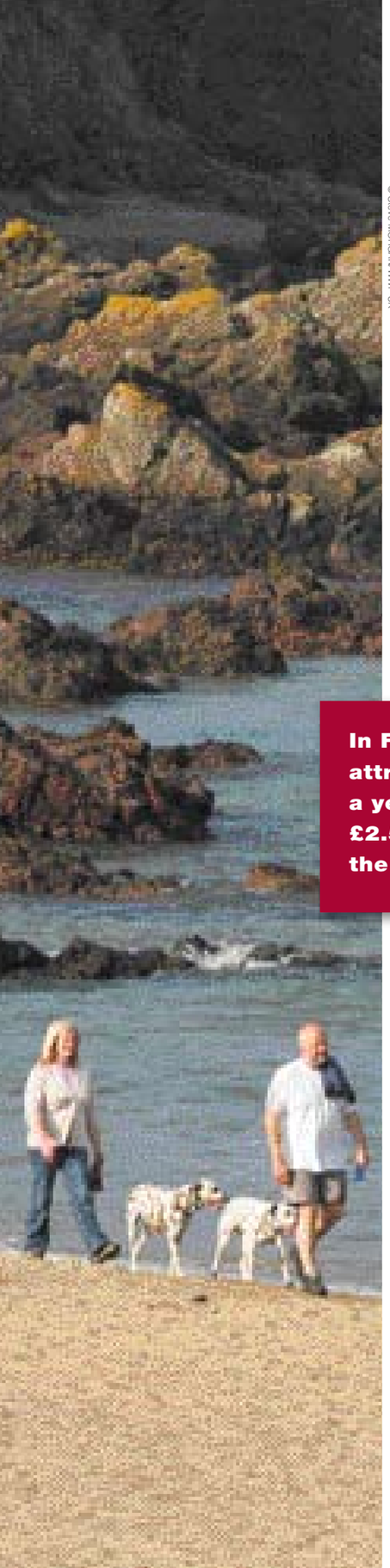
The Firth of Forth is the busiest shipping area in Scotland, and the fourth largest port in the UK

As well as Edinburgh, the sixth largest financial centre in Europe, a large number of cities, towns and villages line the shores of the Forth including the university city of Stirling, Dunfermline, Leven, Kirkcaldy, Alloa and Grangemouth.

For the seven local authorities of East Lothian, City of Edinburgh, West Lothian, Falkirk, Stirling, Clackmannanshire, and Fife there is no overall planning framework, although a voluntary partnership – the Forth Estuary Forum – brings together a wide range of Firth of Forth interests with the aim of delivering integrated coastal zone management.

CONFLICT

In February 2004, an outline planning application was published to extend the central Kirkcaldy shopping area into the Firth of Forth Special Protection Area (SPA), the full Environmental Impact Assessment (EIA) followed later in the year. The proposed development would result in direct loss of approximately 13ha of the protected site – the area is of European-wide importance for wintering wildfowl including turnstone, knot and eider ducks. Fortunately, the proposal was objected to by RSPB Scotland on the grounds of the adverse impact it would have on an internationally important bird site and was subsequently rejected on this basis. The whole process took two and a half years. Marine spatial planning could prevent such conflicts from occurring by putting in place a system to identify potential areas for development and areas which need to be protected at all costs.



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One of the most significant activities in the Forth is **shipping** – Forth Ports is the Competent Harbour Authority (CHA) for the Forth.

- **The Firth of Forth is the fourth largest port area in the UK**
- **4,700 ships call annually at ports on the Forth**
- **Over 30 million tonnes of North Sea crude oil, 3 million tonnes of liquefied gas, plus refined oil, chemical traffic and a range of other cargoes transit the Forth each year**
- **The former naval dockyard at Rosyth is an important high-speed ferry terminal with 192,000 passengers travelling from Rosyth to Zeebrugge in 2004 alone**
- **Leith is the largest enclosed, deepwater port in Scotland**

The Forth Navigation Service provides four radar stations based at Leith, Gullane, Burntisland and Port Edgar. Ships are directed to deepwater channels to the south of Inchkeith Island to access Leith Docks and to the north to travel further up the Firth to Rosyth, Grangemouth or the two oil terminals.

In Fife, the beaches alone attract over 250,000 visitors a year and contribute nearly £2.5 million per annum to the local economy

Tourism in the Firth of Forth provides direct employment for 200,000 people, generates visitor spending of more than £4 billion annually and is a rapidly growing sector, with a 43 per cent increase in the 30 years to 2002. Tourism is the lifeblood of the Forth, with Edinburgh city and the Lothians the most popular tourist destination in Scotland – one-fifth of all UK visitors and one-third of all overseas spending is in this region. The two key factors in selecting their destination cited by all visitors are the scenery and the natural environment.

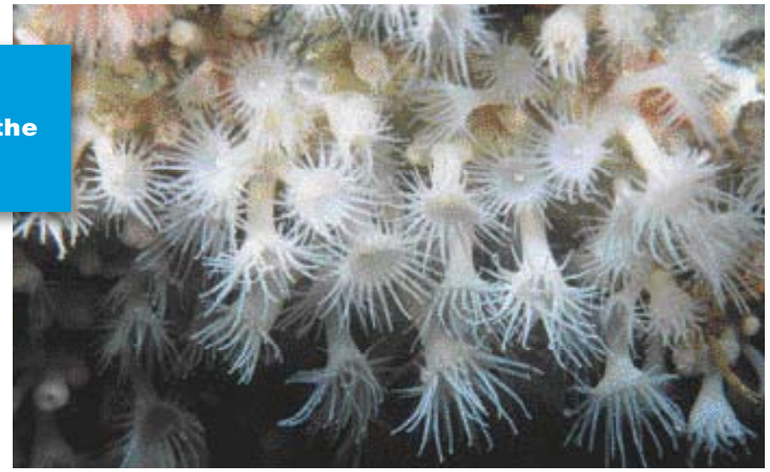
Many interesting tourist venues are both based on the Forth and focus on the Forth's marine environment, including the Scottish Seabird Centre at North Berwick and the Isle of May which had nearly 6,000 visitors in 2004. Even the little known Wemyss Cave prehistoric carvings had 800 visitors. Also popular are the Royal Yacht Britannia in Leith Port, with over 300,000 visitors in 2004, the Scottish Fisheries Museum at Anstruther, telling the story of fishing from earliest times to the present day, with nearly 22,000 visitors, and Deep Sea World at North Queensferry with over 285,000 visitors in 2004.

Recreation is another extremely important activity around the Firth of Forth. The extensive sandy beaches, bathing waters and coastal walks are a magnet for tourists, day-trippers, families on days out, ramblers, nature lovers, and dog walkers alike. 15 of 63 Scottish bathing water sites are recognised in the Firth of Forth, with 14 having excellent water quality. Gullane Bay and privately owned Seacliff Beach, at the entrance to the Firth, are used by surfers. Popular with ramblers and cyclists are the East Lothian coastal trail from Musselburgh to Dunbar and the John Muir Country Park – Scotland's first country park named after the world-famous naturalist and conservationist. Every year, admirers travel thousands of miles to visit John Muir's childhood home in Dunbar. In Fife, the beaches alone attract over 250,000 visitors a year and contribute nearly £5 million per annum to the local economy.

The Firth of Forth is considered one of UK's best **dive sites** and divers travel from far afield to experience the Forth's underwater treasures. Scenic dives are concentrated largely in the outer Firth in the waters surrounding Bass Rock (which drop off to 46m), the Isle of May and a pinnacle off Dunbar on the south shore where octopus, wolf fish, angler fish, seals and diving gannets can be seen. Wreck dives include a number of war wrecks (ships and planes) and some historic wrecks - many rich in marine life – plumose anemones, pollack and blennies. Shore dives are also popular in the outer Firth, including at Dunbar and Seacliff Harbour with some magnificent underwater scenery and wildlife.

Scotland boasts a world-class **boating and water sports** environment with over 25 clubs distributed along both the north and south shores of the Firth of Forth. The majority of clubs focus on yacht and dinghy sailing or motor boating, but kayaking and windsurfing are also popular. Most sailing clubs organise a considerable number of races throughout the season, often more than three times a week. Port Edgar at South Queensferry is one of Scotland's largest sailing schools and boasts a marina with over 300 berths as well as a water sports centre.

Scotland offers some of the finest and most varied **sea angling** in the world – from offshore and inshore boat fishing, to rocks,



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The Firth of Forth is considered to be one of the UK's best dive sites

beach, estuary and pier angling. No permits or licences are required. In the Forth, flounder is caught from Kirkcaldy esplanade, cod is targeted off Buckhaven breakwater, while cod, wrasse, and conger are caught from the shore from Elie to St. Andrews. From boats in the outer Firth, on rough ground it is possible to catch cod, ling, pollack, coalfish and from Dunbar octopus, cod, flounder, mackerel and coalfish.

The Scottish **inshore fishing** fleet is heavily dependent on shellfish, many of which are exported to Europe. Two designated shellfish waters fall within the Firth of Forth – an area offshore from Fife Ness on the north shore and North Sea coast to Elie, and on the south shore an area offshore from North Berwick to Dunbar. Scottish langoustine is the most important species and one of the main inshore fisheries is in the Firth of Forth. Pittenweem fish market is the centre of trade for the East Neuk fishing fleet encompassing boats from St Monans, Pittenweem, Anstruther, Cellardyke and Crail on the north shore of the Firth. Pittenweem was once an important white fish port, while the Forth also supported a strong herring fishery. However today the remaining vessels in the Forth now concentrate on shellfish and the catch is largely made up of langoustine, scallops, and lobster, with some monkfish, cod, and haddock. Trawls and creels are used to catch langoustine, while creels are used for crab and lobster.

The Firth of Forth has considerable **coastal and marine developments**, a number of which have been developed on former intertidal habitats. The inner Firth between Kincardine and Forth Bridges has, however, lost about half of its former intertidal area and so its natural coastal defences, as a result of land being reclaimed, partly for agriculture, but mainly for industry and the large ash lagoons built to deposit the spoil from coal fired power stations at Longannet and Kincardine. As well as a significant number of urban developments and power stations at Longannet and Kincardine (which is being dismantled), other developments include Cockenzie and Methil (now disused) power stations, a nuclear power station 8km south east of Dunbar at Torness, petrochemical complexes at Burntisland and Grangemouth, oil terminals at Hound Point and Braefoot Bay, chemical production at Mossmoran, and a range of oil and gas industry services and other manufacturing along the shores. More are planned or under consideration – a new bridge, a new hovercraft service various urban developments and the regeneration of derelict areas for housing. A further range of marine developments on the Forth and the associated environmental impacts are addressed by legislation administered by the Scottish Executive, including exploitation of deposits in the sea such as dredged material, navigational safety and port developments.

CONFLICT

In 1993, the Braer oil tanker carrying 85,000 tonnes of crude oil ran aground off the Shetland Islands. The subsequent Public Inquiry recommended that the most environmentally sensitive areas of the UK's coastal seas should be identified as Marine Environment High Risk Areas (MEHRAs) to protect them from such disasters in future. After a 10 year wait, the selected MEHRAs were finally revealed - 14 of these environmentally sensitive locations are around the Scottish coastline and three are on the Firth of Forth, including the Isle of May, Bass Rock and Dunbar. The purpose of a MEHRA is to inform ships' masters where even greater care is required than normal because of the environmental sensitivity. However, despite the recognition of the threat to internationally important wildlife sites, no action has yet been taken to reduce the risks. At some point in the future, the Maritime & Coastguard Agency (MCA) intends to consider a traffic separation scheme for the entrance to the Firth of Forth and additional routeing measures to address the risks. Marine spatial planning can consider all types of spatial management measures including traffic separation schemes, areas to be avoided, preferred routes and no-go areas for development.

Marine wildlife tourism generates over £57 million in revenue and supports nearly 3,000 jobs

The Crown Estate owns most of the seabed out to 12nm offshore and around 55 per cent of the foreshore. In Scotland this is the area between mean high spring tides and mean low spring tides. They generally grant leases or licences for specific activities such as offshore wind farms, fish farms, moorings, cables and pipelines and **marine aggregate** extraction. In the Firth of Forth Westminster Gravels Ltd is licensed to dredge the Middle Bank (north of Edinburgh).

Coastal defences account for about 6 per cent of the mainland coastline, with the most extensive and continuous or semi-continuous defences being on the inner Firths and estuaries, including the Forth. However, no accurate record exists of the extent of coastal defences in Scotland, primarily because no single organisation has responsibility for their construction, management or approval. The Fife coast has significant coastal retreat sites, however Fife Council has produced a coastal defence distribution map and East Lothian has maintained maps and records of coastal defences. In light of an anticipated possible sea level-rise, coastal defences are being reconsidered. On the Forth, a possible managed realignment site has been identified at Bothkennar and Forth Estuary Forum's "Skinflats project" is considering repositioning the seawall further inland, however the whole consents process is complex and local public concerns about flood risk can be hard to address.

In recognition of its **nature conservation** importance for wildfowl and waders, the Firth of Forth has been designated a wetland of international importance under the Ramsar Convention and a Special Protection Area under the EU Birds Directive. A number of the Forth's Islands are included together in a second Special Protection Area.The waters surrounding the Isle of May are a Special Area for Conservation (SAC) for its grey seals and reefs. A further SAC, for vegetated sea cliffs, is situated just south of the Firth of Forth from Fast Castle Head to St Abbs. Here a huge diversity of marine life, including soft corals, is found due to the intermingling of warm southern waters and cold Arctic currents. These four protected areas within and adjacent to the Firth of Forth contribute to Natura 2000 - the Europe-wide network of protected areas.

The Firth of Forth is renowned as an international haven for wildlife, in particular 200,000 waterfowl and seabirds

In addition, there are a number of local nature reserves (LNRs), sites of Special Scientific Interest (SSSIs), local landscape designations (LLDs) and the Isle of May is also a National Nature Reserve (NNR). The SSSI designations largely mirror the Ramsar site and SPA designations with some small differences in extent, the Firth of Forth SSSI

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covering a somewhat larger area than the SPA or Ramsar site.

In the outer Forth there are several sightings of bottlenose dolphins, porpoises and minke whales each year, and more occasionally humpback, sperm and fin whales. All cetaceans are protected under the Habitats Directive.

Essentially the Forth is recognised on an international, European and national level for its outstanding marine and coastal biodiversity but the actual implementation and enforcement of these levels of protection is in practical terms virtually impossible under current legislation.

Over 20 species of whales and dolphins are found in Scottish waters

The Firth of Forth SPA & Ramsar site's complex suite of habitats, including extensive mudflats, salt marshes and dune systems are of major importance for divers, sea ducks, geese, other ducks, waders and terns during migration periods or through the winter. The area regularly supports over 86,000 individual waterfowl, including internationally important populations of over-wintering birds. Numbers of pink-footed goose, redshank, shelduck, turnstone and knot all have European significance, while of national (Great Britain) significance are red-throated diver, sandwich tern, Slavonian grebe, golden plover and bar-tailed godwit.

The **Firth of Forth Islands SPA** includes the islands of Inchmickery and the nearby Cow and Calves, Fidra, Lamb, Craigleigh, Bass Rock, the Isle of May, plus some smaller islands. During the breeding season, up to 90,000 seabirds including, gannets, puffins, guillemots, razorbills, shags, kittiwakes, fulmar, herring gull, cormorant, lesser black-backed gull, Arctic tern, common tern, roseate tern and sandwich tern may be present. Many of the seabirds, however, feed outside of the protected area either in nearby waters or further afield in the North Sea.

While the **Isle of May** is an important research centre for breeding seabirds, its waters are important too. The waters are designated a **Special Area for Conservation (SAC)** under the EU Habitats Directive. As such, it contributes to the marine Natura 2000 network being developed in the NE Atlantic. It is primarily recognised for the largest grey seal colony on the east coast of Britain – 5,000 female grey seals pup on the shores of the Isle every autumn, producing around 1,950 seal pups each year – 5 per cent of the UK population and 4.7 per cent of the EU population. The underwater reefs are also important in terms of the developing marine Natura 2000 network in NW Europe.

In addition to international sites on the Firth, there are a number of locally important sites. Aberlady Bay on the south shore between Musselburgh and North Berwick was declared a Local Nature Reserve (LNR) back in 1952. It consists of 575ha of salt marsh, dunes and grassland. While on the north shore, between Kincardine and Dunfermline, is Torry Bay, declared a LNR in 1996 to protect its intertidal mud and sand flats, salt marsh and grassland.

Isle of May

An SSSI and a national nature reserve (NNR), the Isle of May is managed by Scottish Natural Heritage (SNH) and is known as the "Jewel of the Forth". A volcanic plug with cliffs rising to 50m, it is important for seabirds, especially puffins, but the surrounding waters are also designated a protected area (see below). Along with the puffins are shags, guillemots, razorbills, kittiwakes and terns.

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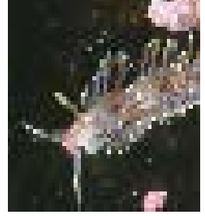

Photos © Sue SCOTT

Bass Rock

"One of the twelve wildlife wonders of the world"

Sir David Attenborough

Bass Rock, another volcanic plug, rises to over 100m and drops off into the sea to nearly 50m. Home to 100,000 gannets, Bass Rock is the largest single rock gannetry in the world and also supports thousands of guillemots, razorbills, puffins and seals. It is one of a number of sites of Special Scientific Interest (SSSI) in the Firth of Forth.

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The Island of Fidra

The island of Fidra, now an RSPB reserve, is thought to have been the inspiration for "Treasure Island" of Robert Louis Stevenson fame. It is home to guillemots, razorbills, herring gulls, puffins, peregrine falcons and kittiwakes.

Photos © Sue SCOTT

Inchmickery with the Cow & Calves and Eyebroughy

Inchmickery with the Cow & Calves and Eyebroughy are also RSPB reserves. Inchmickery is important for common eider, sandwich terns and roseate tern, while Eyebroughy is noted for its cormorants. Inchcolm is home to a large colony of seagulls and fulmars, but is also noted for its Augustinian Abbey.

CONFLICT

Following an application by the harbour authority, Forth Ports plc, to allow ship-to-ship oil transfers between vessels anchored off Methil in the Forth, the Maritime and Coastguard Agency (MCA) recently consulted on contingency plans covering oil spills resulting from the ship-to-ship transfer.

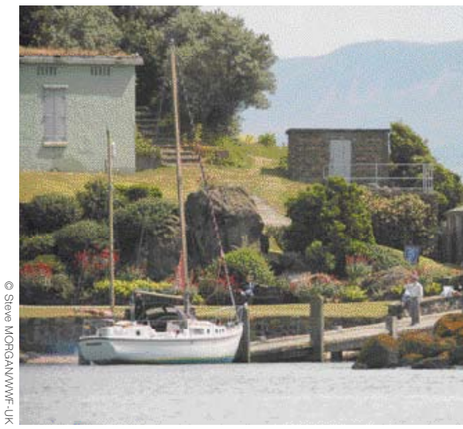
Ship-to-ship transfers of oil would increase the overall risk of oil spills by one third; establish a completely new location within the Firth for large volume transfers of oil; and result in temporary storage of vast quantities of mainly crude oil close to the internationally important Firth of Forth wetlands and the seabird islands of the Isle of May and Bass Rock. Even a small oil spill could be catastrophic to the marine environment, birdlife and to the local economy in terms of tourism revenue.

Concerns led many stakeholders including local authorities adjacent to the Forth, Scottish Natural Heritage and conservation bodies to object. However, the MCA itself can only approve or require amendments to the contingency plan and, in July 2006, announced that it intends to approve Firth of Forth oil contingency plans paving the way for ship-to-ship transfer to take place. Despite the level of objection to the proposals, including concerns about compatibility with the Habitats Directive for which the Scottish Executive has responsibility, it seems that no public body can actually stop it. No mechanism currently exists for considering whether the internationally important wildlife site of the Firth of Forth is an appropriate place for ship-to-ship oil transfers to take place.

A marine spatial plan for Scotland, backed by strategic environmental and risk assessments, could identify the most appropriate location for such operations in or near to these highly congested and internationally important waters.

Identified Potential Conflicts for Isle of May SAC

- **Lighthouse and building maintenance – use of helicopters / vehicles - disturbance**
- **Discharges of sewage – pollution, nutrient enrichment**
- **Static gear – creel / pot fishing – entanglement and damage to seabed habitats**
- **Boat maintenance & antifoulant use - pollution**
- **Commercial vessels – disturbance & pollution, especially oil discharges / spills**
- **Boat anchorages – scouring of habitats**
- **Boat moorings – scouring of habitats**
- **Charter / recreational vessels - disturbance**
- **Other recreational activities - disturbance**
- **Scuba diving - disturbance**
- **Sea kayaking - disturbance**
- **Scientific research – disturbance, direct alteration / removal / or manipulation**



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The Solution

WHILE the Firth of Forth is currently the most intensively exploited piece of Scottish coastline, it is not dissimilar to much of the rest of the Scottish coastline and coastal waters. The economy of the Firth of Forth, and of most Scottish coastal communities, is heavily dependent on the resources and services provided by the marine environment – shipping, tourism, recreation, fishing, energy production, waste disposal, etc. A multitude of government bodies and agencies have responsibilities, yet there is no single body with oversight of the area or with responsibility for delivering sustainable development, including nature conservation, for the Forth. The legislative framework is equally complex, with international commitment, European directives and regulations, Westminster regulations and Scots law all to be delivered.

Many changes are underway, with declines in some sectors such as heavy industry and white fish fisheries but at the same time expansion of other sectors such as tourism and recreation, and new sectors such as offshore renewable energy opening up. The long-term future of the Forth, and indeed the whole of Scotland's coast and coastal waters, can only be secured through careful and responsible use and management across all sectors.

Scotland needs healthy coasts and seas. Its economy relies heavily on the many industries and activities, which take place around its coasts. However, the true impact of our use of the coastal and marine resource is only now becoming apparent. Many habitats and wildlife populations are in decline, and have been for many years, fish stocks have collapsed and climatic changes are being experienced which are compounding the existing problems.

Much of the problem lies in the way we manage the coastal and marine environment. Laws have evolved to favour exploitation of resources, with conservation a late and inadequate add-on. New uses of the marine environment are coming on-stream with space in crowded waters already at a premium. In addition, the seas are governed to a varying extent by a complexity of international, European, UK and Scots law. There is a tangle of legislation, with confusion over responsibilities and no strategy or planning framework, as there is on land, to coordinate the uses of the sea. As we have seen, the Firth of Forth provides an excellent case study to illustrate some of these management complexities and conflicts.

Marine spatial planning is a way of improving decision-making, planning and spatial coherence in managing marine activities. It is a tool which, when based on strategic assessment of ecological and socio-economic resources, facilitates integrated, forward-looking and consistent decision-making. Inevitably whilst many marine activities will spatially overlap, marine spatial planning can help minimize conflicts of use, maximise synergies and help address the resultant cumulative ecosystem effects of such impacts. It can safeguard ecological processes and overall resilience, to ensure the environment has the capacity to support social and economic benefits into the future. It also provides a framework for responding to new and emerging sectors and providing a clear, easily accessible mechanism for stakeholder involvement.

There is an overwhelming body of evidence to support the view that a new cohesive approach is needed to manage Scotland's marine environment – a Marine Act for Scotland

There is an overwhelming body of evidence to support the view that a new, cohesive approach is needed to manage Scotland's marine environment. One which incorporates a strategic vision and a fresh approach to coastal and marine management, streamlining regulation, managing conflict, delivering better protection for marine and coastal wildlife while also delivering greater opportunity and certainty for sustainable development and activities.

A voluntary, non-statutory or partnership approach in Scotland, a country with a great dependence on its marine resources, to achieve these needs will not be sufficient and will inevitably suffer from the failings that characterise partnership approaches, including poor strategic vision, unstable and inadequate funding/resources, weak management and enforcement structures, and the absence of monitoring or review mechanisms.

The UK government has already committed itself to bringing forward proposals for a UK Marine Bill that will introduce within its area of responsibility a new framework for the sea, based on marine spatial planning, that balances conservation, energy and resource needs. Whilst the UK Bill will address the management of activities and developments within Scotland's territorial waters that fall within reserved powers, action is needed by the Scottish Executive to address devolved areas of responsibility. A Marine Act for Scotland would safeguard Scotland's seas and avoid them becoming vulnerable to overexploitation. Importantly, from an economic perspective, without such action it is possible that development opportunities could move to coastal areas where there is certainty and stability.

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The time has come to overhaul the existing legislative system for the management of coastal and marine resources and to develop a cohesive planning system for the coast and sea

WWF Scotland along with Scottish Environment LINK's Marine Task Force[1] is calling for the Scottish Executive to introduce a comprehensive **Marine Act for Scotland**, which can deliver an ecosystem approach through cohesive and integrated management of the coastal and marine environment, including marine spatial planning. Such a Marine Act could:

- **Establish a marine spatial planning system in Scotland's territorial waters. Such a system would be based on sustainable development, regional seas management and an ecosystem-approach, and be delivered through a comprehensive system of legally-binding plans**
- **Set out a requirement for Marine Ecosystem Objectives, to assist the delivery of the ecosystem approach to marine management by measuring the success of policies and projects according to the health of the natural environment**
- **Establish a lead Scottish decision-making 'body' or affiliated counterpart of the UK Marine Management Organisation. This should be answerable to Scottish Ministers, with its own budget and responsible for overseeing strategic and spatial planning of devolved activities in Scottish waters in close co-ordination with the UK MMO**
- **Establish a Scottish representative network of marine protected areas, selected on biodiversity conservation grounds and managed according to their ecological needs including protection for nationally important marine species and habitats**
- **Deliver legislation to achieve wider protection of marine species and habitats outwith marine protected areas**

Scotland's economic well-being is underpinned by its extensive marine resources. Through an ecosystem approach to its future management, involving marine spatial planning and protection of marine wildlife, a healthy future will be ensured for Scotland's seas for future generations.

[1] Scottish Environment Link's Marine Task Force members: Hebridean Whale and Dolphin Trust, RSPB Scotland, Marine Conservation Society, National Trust for Scotland, Scottish Wildlife Trust and WWF Scotland.

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- **ensuring that the use of renewable natural resources is sustainable**
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