

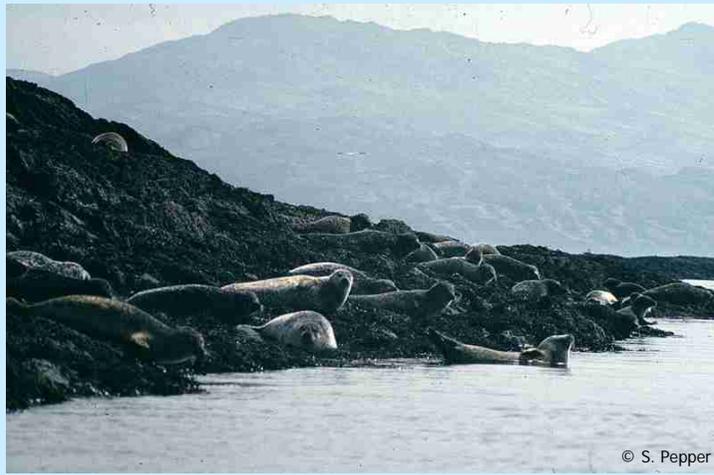


The Tangle of the Clyde

Why we must reform the management of Scotland's marine environment

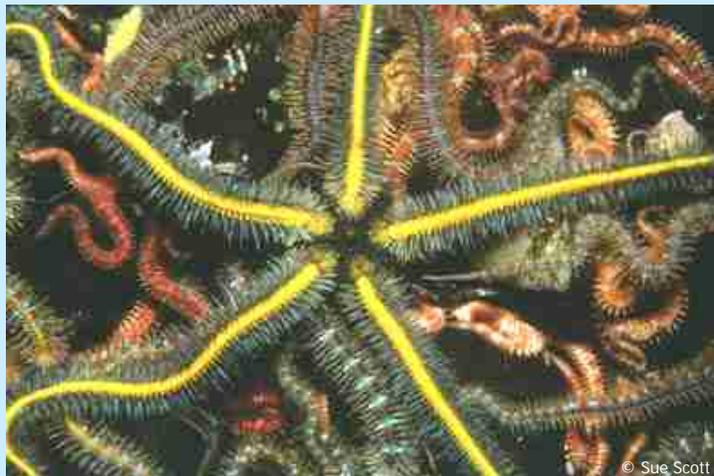


The Joint Marine Programme (JMP) in Scotland is a partnership between WWF Scotland and the Scottish Wildlife Trust aimed at ensuring the conservation of marine wildlife and a healthy marine and coastal environment for Scotland.



'The relationship between the growing realisation of the value of the marine environment and the accelerating pressures upon it has not produced a coherent response. The marine environment certainly does not lack environmental policies and regulation but these can be characterised as generally being haphazard responses to specific issues or particular stimuli (often deriving from outside the UK). Despite the considerable number of measures promoted in the last two decades, the general approach to marine conservation had been one of nonintervention in comparison to the active management framework for conservation increasingly promoted on land.'

(Defra, 2001. Review of Marine Nature Conservation Interim report)



The Tangle of the Clyde

Why we must reform the management of Scotland's marine environment

Scotland needs healthy coasts and seas. Its economy relies heavily on the many industries and activities that take place around its coasts. Fisheries, aquaculture, energy production, harbour services and shipping, recreation and tourism are among many uses of the sea that have brought prosperity to Scottish coastal towns and cities.

However, only now is the true impact of these industries on the natural environment being acknowledged. After centuries of 'free-for-all' use, Scotland's seas are in crisis – tankers are still able to travel through some of our most sensitive sea areas, fish stocks are poorly managed, beautiful and unique marine wildlife is under threat, and we are failing to make best use of the wealth of resources our seas offer.

Part of the problem lies in the way we manage the marine environment. Our laws have evolved to favour exploitation, not conservation, and in many cases encourage competition among sectors for the same finite resources. To add to the difficulty, Scotland's seas are governed to varying extents by international, European, UK and Scots law. There is no strategy or planning framework to co-ordinate the work of the many bodies with responsibility for marine management, and there are few tools to encourage a sense of 'ownership' or responsibility, or to enable local management. There is no adequate system of protected areas for marine wildlife, and what protection does exist is often rendered ineffective by the damaging activities of other users of the sea. The Firth of Clyde provides an excellent case study to illustrate some of these management failures.

There is increasing support for the view that a new, co-ordinated approach is needed to manage Scotland's marine environment, one which incorporates a strategic vision and a fresh look at management, streamlining legislation, managing conflict, delivering better protection for marine and coastal wildlife and linking national priorities with local needs.

Further action is needed from government in Scotland to deliver the additional tools needed to transform marine management. One means of achieving this would be in the form of a comprehensive Marine Act for Scotland which can deliver integrated marine management, marine spatial planning, and implement an ecosystem approach. Such a comprehensive Marine Act could deliver:

- 1. Strategy and vision:** Create a vision and strategy for the marine environment in Scotland which places the principles of an ecosystem approach at its core.
- 2. Effective legislation:** Establish effective legislation to enable the sustainable management of Scotland's marine wildlife and habitats, repealing or amending existing legislation identified as ill fit for purpose or redundant.
- 3. Marine authority:** Establish one marine authority responsible for overseeing and managing activities in the marine environment.
- 4. Alignment:** Establish a duty on all public authorities to align policies and decisions on marine strategy.
- 5. Spatial planning:** Establish a broad-scale spatial planning system for Scotland's marine environment.
- 6. Stakeholder involvement:** Provide a requirement for active involvement of stakeholders and local communities in the development of local plans.
- 7. Targets and review:** Identify targets and timelines for implementation and progress, and put in place a means of reviewing both.

Scotland's coastal and marine environment supports a myriad of species and habitats and has long been relied upon as an important economic resource. Waves and currents have carved the coast's diverse geological features, creating one of the richest and most varied areas of coast and sea in the world.

The social and economic development of Scotland has been shaped by our proximity to the sea. Most of Scotland's population live within 10km of the coast. Traditionally, our main economic benefits came from ports and shipping, and primary industries like fisheries. Many fish populations and fisheries have declined, while marine transport, aquaculture, marine leisure and tourism have increased.

The 'coastal zone', the broad strip to the landward and seaward of the tideline, continues to be one of the richest areas of Scotland's territory. Its economic and ecological value are inextricably linked. A recent study by the Scottish Coastal Forum estimated that the Annual monetary Value of the Environmental Services (AVES) generated by the 1km inland and 1km offshore coastal strip around Scotland's 9,900km (approx.) coastline is £4.5 billion (2000 prices), of which over 90% is in the offshore coastal area. The AVES for the coast in its broadest sense, encompassing 10,867 km² and including estuaries, has been valued at over £9.9 billion.

Today Scotland's marine resources are regulated at four different levels, by international conventions, by European law and policy, as well as by legislation from both Westminster and Holyrood. Traditionally, laws and policies to manage the sea have been sectoral, focusing for example on fishing or energy production and creating a 'free for all', rather than balancing competing needs. They have often been based on demands for exploitation, rather than on securing the sea's natural resources for future generations. Sadly, pollution from agriculture and urban areas, toxic waste, badly managed fisheries, climate change and habitat loss is lowering the ability of coasts and seas to meet human needs.

Growing awareness of our reliance on the sea, and of the damaging effects of this traditional approach, suggest that what is urgently needed is a fundamental reassessment of the way our marine resources are managed.

This report takes a closer look at the Firth of Clyde as an example of how Scotland's marine resources are managed, placing it against the background of wider national and international marine issues. It presents a picture of competing demands and fragmented management, and makes recommendations about what action needs to be taken in Scotland to improve this situation.

Scotland's coast and seas are unique!

Few people realise that Scotland's coasts and seas are as unique, colourful and fascinating as any in the world, and more so than many. Scotland has 14 nationally and internationally important coastal and marine habitats, ranging from tranquil lagoons, tideswept rocky reefs and towering cliffs to coral beds and 2/3 of the global resource of machair. These support an estimated 8,000 species of marine plants, invertebrates, fish, birds and mammals, believed to account for over 50% of our total biodiversity. Serpuliid reefs, formed by a marine worm, are found in Loch Creran and nowhere else in Europe, and these reefs are thought to be the best of their type in the world. Offshore there are cold water corals like *Lophelia pertusa*, which take hundreds of years to grow, and are as diverse as some tropical coral reefs, supporting more than 800 different animal species.

Scottish seabird colonies support over 5 million breeding seabirds in the summer, including half of the world's northern gannet population and the largest gannet colony in the world at St Kilda. Scotland has 77% of the European and 36% of the world population of grey seal, as well as one of the most northerly resident populations of bottlenose dolphin, 23 other species of whales and dolphins, the basking shark, the largest fish of northern seas, and the mighty leatherback turtle.

Use and protection of Scotland's Marine Resources

Fisheries

Scottish fisheries are one of the main industries reliant on the sea, employing around 14,000 people. 60% of UK fish landings in 2002 were in Scotland, generating around £328m. The three largest fishing ports in the UK are in Scotland at Peterhead, Lochinver and Fraserburgh. In 2001, the UK fleet landed 738,000 tonnes of fish, but the sea fish landed in the UK by UK-registered vessels decreased by 36% between 1995 and 2000. Quotas are being reduced further to preserve dwindling fish stocks.

Aquaculture

The rapid expansion of fin and shellfish aquaculture in Scotland over the last two decades has brought socio-economic benefits, particularly to remote rural areas of the north-west and the islands. Production figures for 2002 were 145,609 tonnes of salmon and 6,659 tonnes of rainbow trout and around 3000 tonnes of cultivated shellfish. The industry generates annually more than £500m turnover and accounts for over 50% of Scottish food exports. There has been increasing disquiet, however, over the environmental impacts of finfish farming. The Scottish Strategic Framework for Aquaculture is working to reduce these impacts, but there is no clear framework to balance fishfarming interests with other legitimate uses of the marine environment.

Coastal development

Around 70% of the Scottish population live within 10km of the coast, concentrating particularly around the busy Firths of the central belt. Recent action to curb pollution has improved coastal water quality. However, industries, domestic sewage, litter and nutrients from agriculture continue to pollute coastal waters. The cost of pollution to marine species and to other marine users, like fishermen, is unknown.



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Diving on Coastal Reefs

Energy

Petrochemical extraction makes a large contribution to the UK economy. Environmental impacts of oil and gas include pollution from shipping or pipelines, and the effects of combustion on global warming. Renewable energy from wave, tide and wind power is under development, and applications are pending for marine energy production. The development of marine renewable energy is crucial in our efforts to tackle climate change but a strategy is needed to assess the environmental impact of this sector and balance the needs of energy production with those of other marine uses, like fishing and navigation.

Ports and shipping

Marine transport is essential for trade and industry, and to link islands and remote areas. Recent figures show that annually around 9.6 million people and 2.3 million vehicles travel on Scotland's ferries. Navigation and shipping are economically important, but can cause environmental pollution and introduce invasive species. In 2001 waterborne freight passing through Scottish ports totalled 124 million tonnes, an increase of 29% on 1991. 97% of Scottish shipping traffic in 2001 passed through eleven major ports. Between 1980 and 1999, however, oil pollution incidents reported in the open sea increased from 80 to 403, and in ports from 43 to 71. Many shipping lanes pass through sensitive areas such as the Minch, representing a serious environmental risk. As navigation is a reserved matter, however, it is difficult for Scotland to address this risk.



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Commercial Fishing

Protecting Scotland's wildlife and landscape

Landscape designations like National Scenic Areas, help to maintain the beauty of Scotland's coasts, and there is legislation to protect landward habitats and species. Internationally important marine habitats have some legal protection through European law, particularly the Habitats and Species and Birds Directives. Geographical coverage and actual protection of EU sites is limited, however, and there are few powers to protect them from damaging activities. Incredibly, despite Scotland's unique range of marine wildlife, there is still no legal basis for designating and managing areas for nationally important marine habitats and species.

Most legislation for protecting sites and species was designed for use on land. The list below outlines some of the tools available, and their weaknesses for use at sea.

Sites of Special Scientific Interests (SSSIs) and National Nature Reserves (NNRs) are designed for land; although 34 of 73 NNRs in the UK are on the coast they do not extend below high water.

Marine Nature Reserves are available in principle, but have failed in practice due to difficulties managing the damaging operations of other users. Only three have been designated in the UK with none in Scotland.

- European marine Special Areas of Conservation (SACs) can be designated in any part of the UK Continental Shelf, from intertidal areas out to 200nm. However they are limited in that there are few powers to influence the activities of other interests. Conservation byelaws, for example, cannot interfere with functions of other relevant authorities. There has also been inadequate funding to take forward management measures.

- European Special Protection Areas (SPAs) for birds were designed for land but can extend to territorial waters. None has yet been designated at sea. As with SACs there are few powers to influence the activities of other users.

- Marine National Parks can be established in Scotland under the National Parks (Scotland) Act, for the purposes of furthering sustainable management, using an environmental protection focus as the basis for supporting socio-economic interests. While two terrestrial parks have been established there are as yet no marine parks.

- Despite the demonstrated merits of No Take Zones (NTZs) as a fisheries management tool there are currently no statutory NTZs in Scotland.

In order to continue to reap the economic benefits of the seas, Scotland needs to secure not only the protection of nationally and internationally important habitats and species, but also the functioning of the entire marine ecosystem, with its web of intricately related predators and prey. This can best be achieved through measures which will enable users to manage the sea sustainably, working within environmental thresholds, taking into account competing sectoral interests and fostering marine stewardship.



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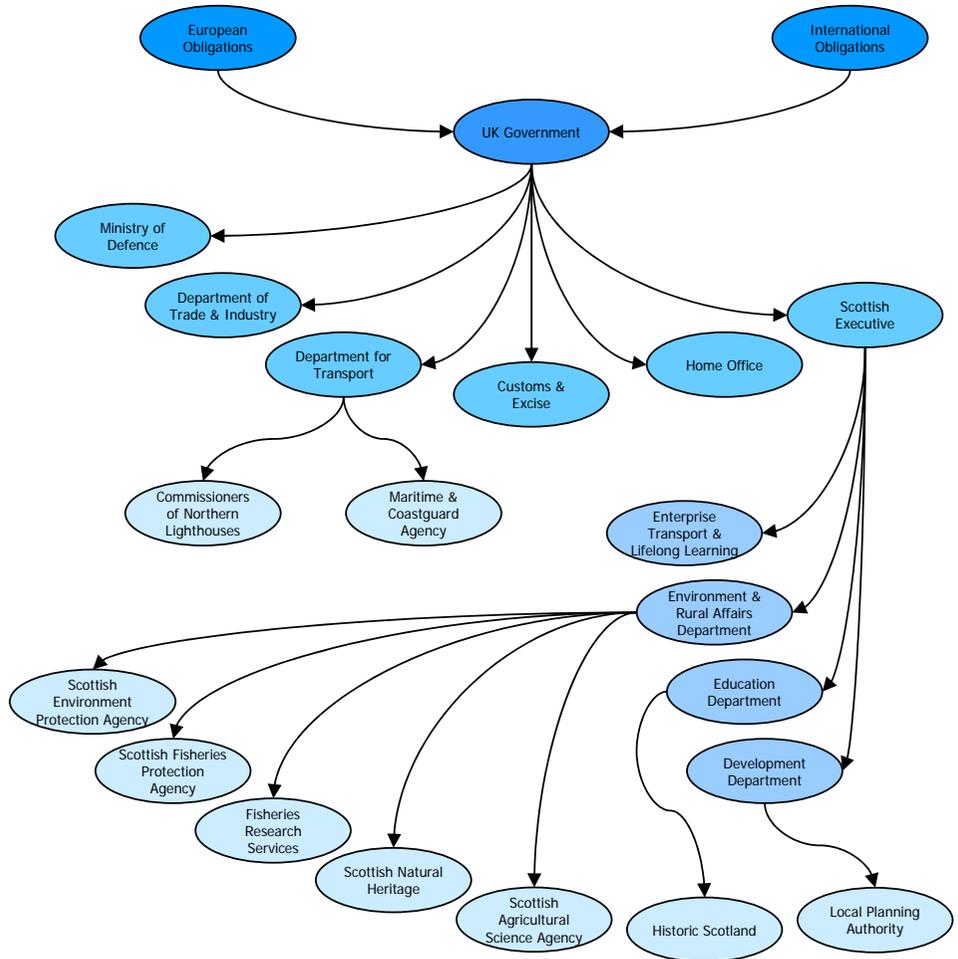
Watersports

UK Marine Legislation

Regulation and management of Scotland's coast and seas is fragmented, with no coherent regulatory or planning framework to balance the interests of competing sectors or to overcome our traditional 'free for all' approach. At least 13 UK bodies have some marine responsibilities, some out to three nautical miles (nm), some within the six nm limit of Scottish waters, some out to the 12 nm boundary of UK territorial waters, and some out to the 200 nm continental shelf. Their competencies often overlap or compete. At least 85 Acts of Parliament relate to marine and coastal activities. The illustrations opposite show some of the bodies in Scotland involved in marine management.

There is also a range of marine activities which are reserved by the UK government. For example, Scottish local authorities can grant permission for structures below the low tide mark, the Scottish Executive regulates certain issues such as inshore fisheries, fishfarming and tourism, conservation and pollution. However, Westminster has reserved powers over uses like shipping and navigation, oil and gas and offshore fisheries. The result is a confusing mass of authorities and legislation, whose activities are not co-ordinated. There are few tools to encourage a sense of 'ownership' or responsibility for marine resources, or to enable local management. Without an overarching strategy or planning framework, it is extremely difficult to prioritise or co-ordinate the needs of different sectors, or to make decisions for the long-term future of the marine environment.

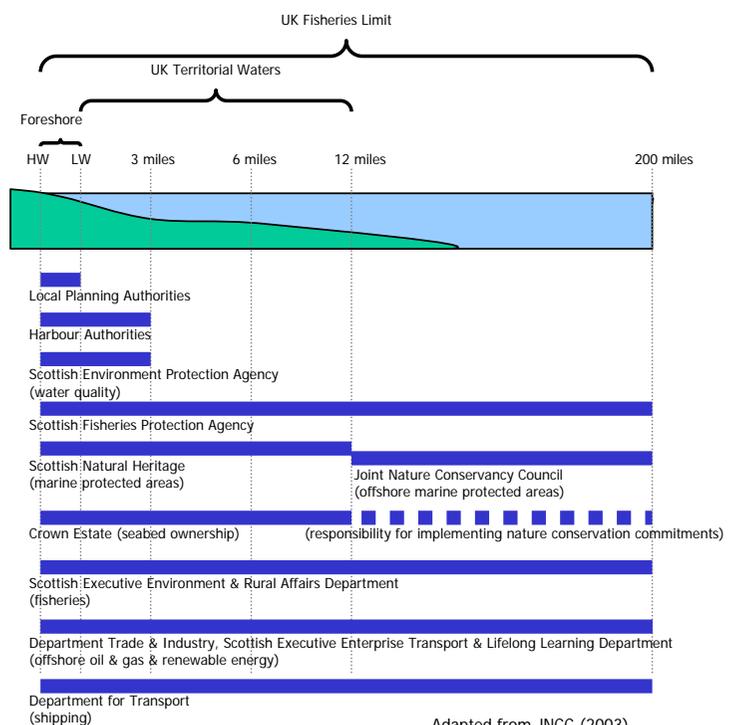
Governmental Marine Responsibilities in Scotland



UK Marine Jurisdictions

Recreation and tourism

Marine and coastal leisure and tourism contribute greatly to the Scottish economy, with one small sector such as whale watching on the west coast of Scotland worth as much as £11.8m a year. Recreation and tourism depend on a high quality environment, with clean beaches and bathing waters, and abundant marine wildlife. However, large-scale tourism development or irresponsible behaviour by tourists and tour operators can lead to pollution or disturbance of wildlife. It is essential that exploitation of marine resources does not compromise or destroy the very assets that attract millions of tourists to Scotland's coasts and seas each year.



Adapted from JNCC (2003)

THE FIRTH OF CLYDE – A CASE STUDY

The Firth of Clyde provides an excellent example of the difficulties involved in managing a wide range of interests and uses. The Clyde is not unique, and the issues it raises are shared by much of Scotland's coastline. The following three illustrations show in map form:

- some of the natural environmental features in and around the Firth
- some of the human demands on the area
- how the area is currently regulated

Marine Wildlife and Habitats in the Firth of Clyde

From river and coast to open sea, the rich tidal mudflats, shallow brackish estuaries, islands and deeper waters of the Firth of Clyde are home to an abundance of plants and animals and are valued by local communities for recreation and tourism, as well as for fishing and aquaculture. Key Clyde features include:

- 17 seabird species breed in the Firth of Clyde
- Major shellfish fishing and cultivation industries
- Grey and common seals, dolphins, whales, porpoises, basking sharks
- The only UK record of the Warty Sea Squirt
- Loch Fyne is 70km long and 200m deep, the longest and deepest sea loch in Scotland

Certain areas enjoy legal protection in recognition of the international importance of the habitats and species they support.

Three European Special Protection Areas (SPAs), including an internationally-important Ramsar wetland, act as havens for birds on the Inner and Outer Clyde:

- The Inner Clyde SPA and Ramsar site protects redshank and other waders
- The Black Cart SPA flows into the Clyde and supports many whooper swans
- Ailsa Craig SPA in the Outer Clyde supports thousands of breeding seabirds

There are several 'Sites of Special Scientific Interest' (SSSIs) protecting nationally important coastal wildlife, and Marine Consultation Areas (MCAs), identifying sites with rich marine wildlife.

The beautiful scenery of parts of the Clyde is recognised through several National Scenic Areas (NSAs) and Regional landscape designations (RLDs). Local 'Preferred Conservation Zones' (PCZs) also identify areas of scenic or environmental interest.

While this list might suggest that most special landscapes and wildlife are covered by these designations, marine site protection on the Clyde shares shortcomings with that in the rest of Scotland:

- There is negligible enforcement of legal protection for nationally important marine habitats and species
- There is no national overview of the marine areas, habitats and species that need protection, allowing a streamlining of designations.
- The seas are constantly moving, as are many marine species, and they are therefore vulnerable to damage from far afield and across man made boundaries.



Basking Shark - a regular visitor to the Clyde

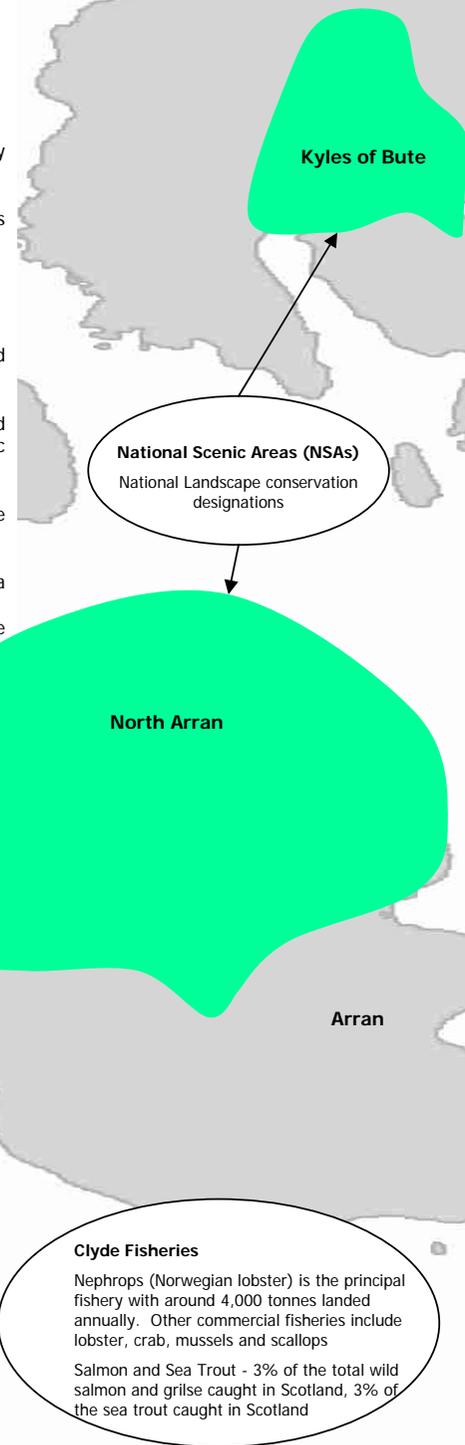


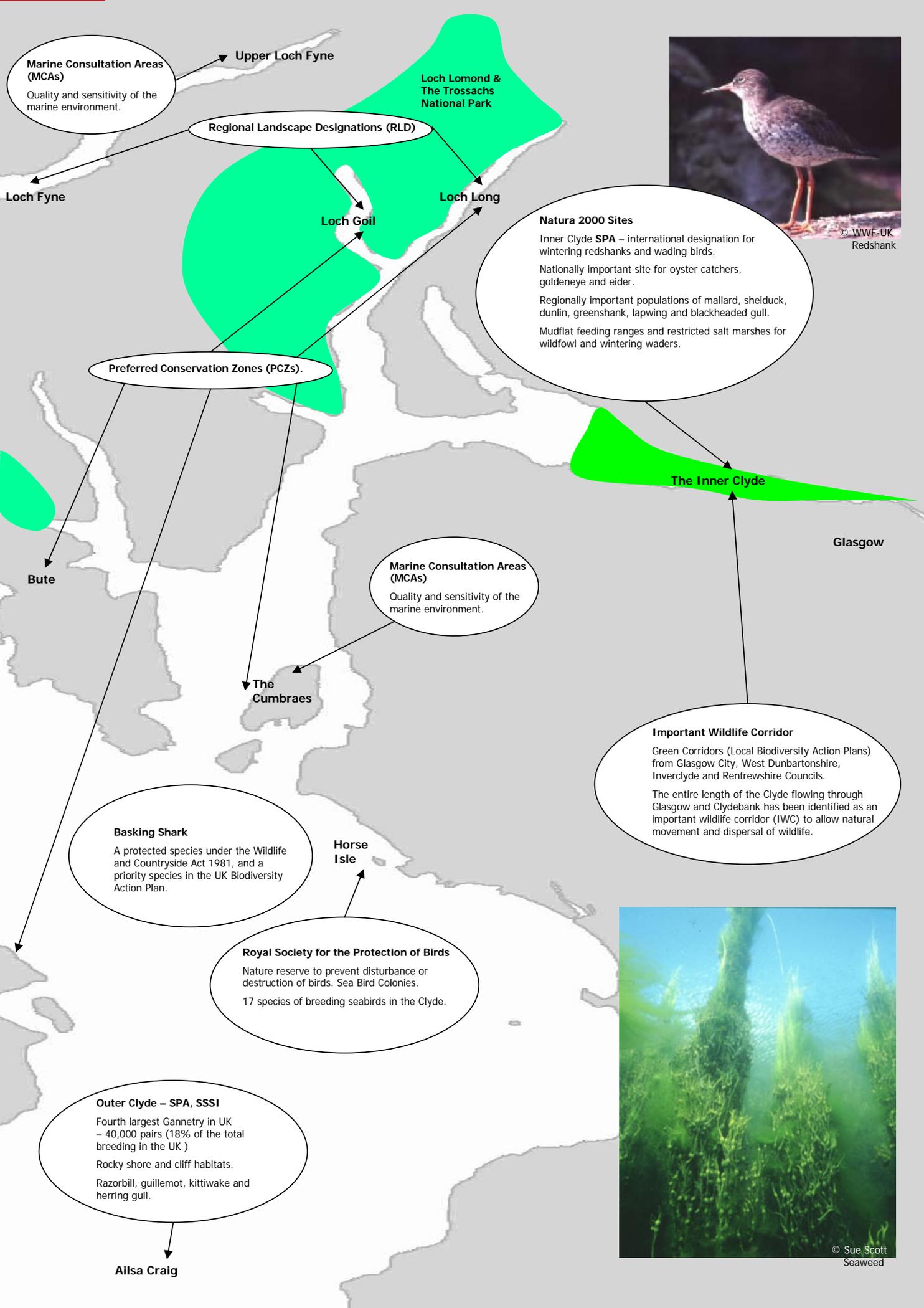
© Sue Scott
Nephrops (Norwegian lobster)

Internationally important marine species and habitats have some legal protection through international legislation. However there is neither

- A legal basis for designating and managing areas for nationally important marine species and habitats, nor

- A broader legislative and policy framework that provides for sustainable management and addresses the 'free for all' approach to the sea, taking into account competing sectoral interests and fostering broader marine biodiversity conservation.





Marine Consultation Areas (MCAs)
Quality and sensitivity of the marine environment.

Regional Landscape Designations (RLD)

Natura 2000 Sites
Inner Clyde SPA – international designation for wintering redshanks and wading birds.
Nationally important site for oyster catchers, goldeneye and eider.
Regionally important populations of mallard, shelduck, dunlin, greenshank, lapwing and blackheaded gull.
Mudflat feeding ranges and restricted salt marshes for wildfowl and wintering waders.



© WWF-UK
Redshank

Preferred Conservation Zones (PCZs).

Marine Consultation Areas (MCAs)
Quality and sensitivity of the marine environment.

Important Wildlife Corridor
Green Corridors (Local Biodiversity Action Plans) from Glasgow City, West Dunbartonshire, Inverclyde and Renfrewshire Councils.
The entire length of the Clyde flowing through Glasgow and Clydebank has been identified as an important wildlife corridor (IWC) to allow natural movement and dispersal of wildlife.

Basking Shark
A protected species under the Wildlife and Countryside Act 1981, and a priority species in the UK Biodiversity Action Plan.

Royal Society for the Protection of Birds
Nature reserve to prevent disturbance or destruction of birds. Sea Bird Colonies.
17 species of breeding seabirds in the Clyde.

Outer Clyde – SPA, SSSI
Fourth largest Gannetry in UK – 40,000 pairs (18% of the total breeding in the UK)
Rocky shore and cliff habitats.
Razorbill, guillemot, kittiwake and herring gull.



© Sue Scott
Seaweed

Ailsa Craig

How we use the Firth of Clyde

Over the past 250 years the Firth of Clyde has witnessed great changes. Shipbuilding and heavy industry, once dominant, have been replaced by a mixed modern economy, although traditional industries such as shipping, ferries, fishing and military interests remain important.

Fisheries and aquaculture

The Outer Clyde still supports various fisheries, principally shellfish and some white fish. White fish are no longer as numerous as they were, with white fish landings to Clyde ports decreasing by 86% between 1987 and 2001. Shellfish now account for 91% of fish landings, with a value of £15.6m in 2001. The Norwegian lobster, *Nephrops norvegicus*, is the most important species currently fished in the Clyde. Aquaculture, mainly salmon farming, has expanded rapidly in the area over the last 20 years, and both salmon and shellfish farms are numerous in the sea lochs of the Firth.

Coastal development

Large-scale riverside commercial and domestic developments in the Inner Firth include financial institutes, bio science, optoelectronics, contact centre management, software development, retail, creative industries, construction and communications technologies. There is a marine research station in the middle of the Firth of Clyde at Millport. The value of Glasgow's manufactured exports rose by 12.7% (1998/99) to stand at £374.6m, while Scotland's rose only 0.1% over the same period. There are around 10,600 businesses and the city has a workforce of more than 500,000 in the immediate metropolitan area.

The waste from coastal developments continues to be an issue, although sewage sludge from Glasgow is no longer dumped at sea. Agricultural fertilisers and urban sewage throughout the catchment cause nitrate, phosphate and bacterial pollution in coastal waters, and have in the past reduced bathing water quality.

Energy

The Clyde has a nuclear power station at Hunterston and there is a BP oil terminal at Finnart on Loch Long.

Ports and shipping

Clydeport, the port authority, manages the four principal Atlantic-facing ports in Scotland – Glasgow, Greenock, Hunterston and Ardrossan. These handle approximately 7.5 million tonnes of cargo each year and many regular international shipping services as well as local Clyde cruise ships.

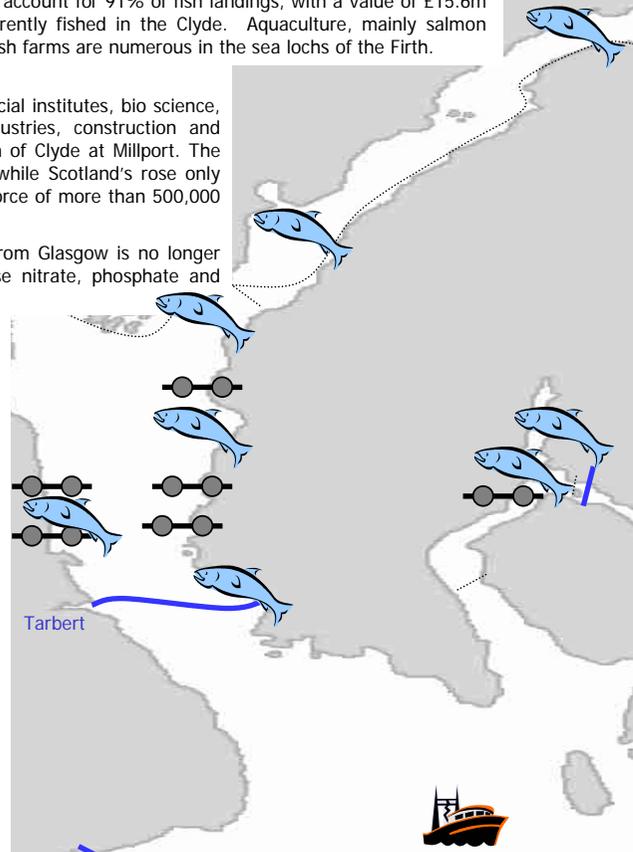
Numerous ferry routes operate on the Clyde to the islands in the Firth, between ports on the mainland, and to Ireland. The route between Dunoon and Gourock operated by Western Ferries carried over 1,000,000 passengers in 2002 alone.

Recreation and tourism

The coast and its beaches are used for sailing, diving and bathing. Glasgow has the fastest rate of growth for foreign visitors of all UK tourist destinations. In 1999 domestic tourism generated £182m and overseas tourism £193m.

A tangle of legislation

The competing pressures on the Firth of Clyde are tremendous and need to be managed in a co-ordinated way. Unfortunately there is no legislative framework to enable this co-ordination and to secure the Firth's natural and economic resources for the future. Instead, as illustrated below, there is a plethora of sectoral, often unrelated or conflicting legislation, administered by a range of authorities whose activities are not co-ordinated, making effective, integrated management of the coastal and marine environment extremely difficult.



Tourism and Recreation

Control of Leisure Sailing:
Merchant Shipping (Vessels in Commercial Use for Sport or Pleasure) Regulations 1998

Control on Bathing and Near-shore Recreation:
Local Authorities
Countryside Act 1968
Public Health (Amendments) Act 1907
Public Health Act 1936
Public Health Act 1961
Local Government (Miscellaneous Provisions) Act 1976
Local Government Act 1972
Local Government (Scotland) Act 1973
Civic Government (Scotland) Act 1982
National Parks (Scotland) Act 2000



Kayaking

Wave, Tide & Wind Power Generation

Electricity Act 1989
Coast Protection Act 1949
Transport & Works Act 1992
Food and Environment Protection Act 1985 (Part II)
The Electricity Works (Environmental Impact Assessment) Regulations 2000
Strategic Environmental Assessment Directive (SEA)

Shipping and Navigation

Control of Shipping & Pollution:
The Merchant Shipping and Maritime Security Act 1997
Merchant Shipping and (Oil Pollution Preparedness Response and Co-operation Convention) Regulations 1998
Merchant Shipping (Port Waste Reception Facilities) Regulation 1997
The Pilotage Act 1987
Dredging for Navigation:
Coastal Protection Act 1949
Harbour Works (Environmental Impact Assessment) Regulations 1999
Ballast Water Discharge:
International Maritime Organisation (IMO) – Guidelines for the control and management of ships
New convention in 2004 – International Convention for the Control and Management of Ships Ballast Water and Sediments
Antifouling:
Food and Environment Protection Act 1985
Refuse:
Merchant Shipping (Prevention of Pollution by Garbage) Regulations 1998

Campbeltown

Key:

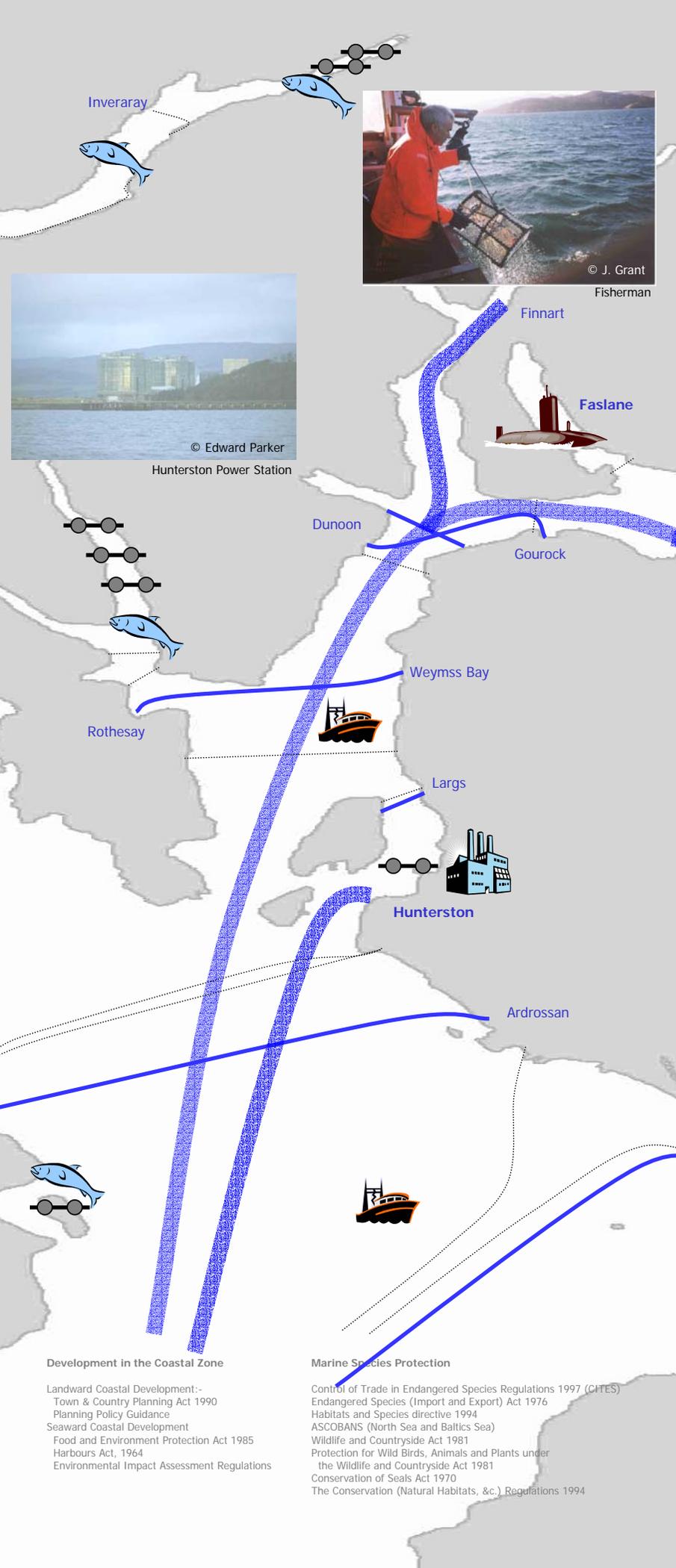
- Ferry Routes
- Main Shipping Routes
- Submarine Cables
- Fish Farms
- Shellfish farms
- Military
- Power Station
- Fishing Grounds

Military Activities

Military Lands Act 1892
Military Lands Act 1900
Land Powers (Defence) Act 1958
Dockyard Ports Regulation Act 1865
The Protection of Military Remains Act 1986

Sand and Gravel Extraction

The Coast Protection Act 1949
Food & Environment Protection Act 1985
Government View Procedure
Town & Country Planning (Scotland) Act 1997
proposed Environmental Impact Assessment and Habitats (Extraction of Minerals by Marine Dredging (Scotland)) Regulations



Site Protection Activities

- International
 - United Nations Convention on the Law of the Sea (UNCLOS)
 - The Convention on Biological Diversity (1992)
 - Ramsar Convention
- European legislation
 - Opsar Convention
 - Special Protection Area (SPA)
 - Special Areas of Conservation (SAC)
- UK Legislation
 - National Nature Reserve (NNR)
 - Local Nature Reserve (LNR)
 - Areas of Special Protection
 - Site of Special Scientific Interest (SSSI)
 - Marine Nature Reserves (MNR)
 - National Parks
 - Water Framework Directive transposed into Scottish Law by the Water Environment and Water Services (Scotland) Act 2003
 - RSPB, NTS and SWT reserves

Aquaculture

- Diseases of Fish Act 1937 (amended by the Diseases of Fish Act 1983)
- EIA (Fish Farming in Marine Waters) Regulations 1999
- Water Environment and Water Services (Scotland) Act 2003
- Control of Pollution Act 1974 amended by Water Resources Act 1991

Submarine Pipelines and Cables

- Coastal Protection Act 1949
- The Crown Estate Act 1961
- Pipe-lines Act 1962
- Transport and Works Act 1992
- Petroleum Act 1998
- Food and Environment Protection Act 1985
- Telecommunications Act 1984
- Offshore Petroleum Production and Pipe-Lines (Assessment of Environmental Impacts) Regulations 1999

Port Glasgow

Coastal Engineering

- Environment Act 1985
- Flood Prevention (Scotland) Act 1961
- Land Drainage (Scotland) Act 1958
- The Environmental Impact Assessment (Scotland) Regulations 1999
- Local Authorities
- Scottish Executive
- Coastal Protection Act 1949

Control Over the Introduction of Non-native Species

- The Wildlife and Countryside Act, 1981
- Import of Live Fish Act, 1980
- Plant Health (Great Britain) Order 1993

Sea Fisheries

- Inshore Fisheries Legislation:
 - Sea Fisheries Regulation Act 1966
 - Sea fisheries (Wildlife Conservation) Act 1992
 - Environment Act 1995
 - Sea Fish (Conservation) Act 1967 (amended by Sea Fisheries (Wildlife Conservation) Act 1992)
 - Inshore Fishing (Scotland) Act 1984
 - Salmon and Freshwater (Protection) (Scotland) Act 1951
 - Sea Fisheries (Shellfish) Amendment (Scotland) Act 2000
 - Diseases of Fish Acts 1937 and 1983
- Offshore Fisheries Legislation:
 - Common Fisheries Policy
- Shellfisheries:
 - Sea Fisheries (Shellfish) Act 1967

Cultural Heritage Interests

- Historic Wrecks in the Marine Environment:
 - Protection of Wrecks Act 1973
 - Merchant Shipping Act 1995
 - The Protection of Military Remains Act 1986
 - Ancient Monuments and Archaeological Areas Act 1979
 - National Heritage Act 2002
- Listed Buildings:
 - Planning (Listed Buildings and Conservation Areas) Regulations 1990
 - Transport and Works Act 1992

Offshore Oil and Gas

- Oil Exploration and Production:
 - Petroleum Act 1998
 - Petroleum (Production) (Seaward Areas) Regulations 1988
 - Coastal Protection Act 1949
- Pollution Control: **Ayr**
 - Prevention of Oil Pollution Act 1971
 - The Merchant Shipping (Oil Pollution Preparedness Response and Co-operation Convention) Regulations, 1998

Inputs of Contaminants in the Marine Environment

- Food and Environment Protection Act 1985
- Pollution Prevention and Control Regulations 2000
- Water Resources Act 1991
- Environmental Protection Act 1990
- Water Environment and Water Services (Scotland) Act 2003
- Merchant Shipping (Prevention of Pollution by Garbage) Regulations 1988

Development in the Coastal Zone

- Landward Coastal Development:-
 - Town & Country Planning Act 1990
 - Planning Policy Guidance
- Seaward Coastal Development
 - Food and Environment Protection Act 1985
 - Harbours Act, 1964
 - Environmental Impact Assessment Regulations

Marine Species Protection

- Control of Trade in Endangered Species Regulations 1997 (CITES)
- Endangered Species (Import and Export) Act 1976
- Habitats and Species directive 1994
- ASCOBANS (North Sea and Baltics Sea)
- Wildlife and Countryside Act 1981
- Protection for Wild Birds, Animals and Plants under the Wildlife and Countryside Act 1981
- Conservation of Seals Act 1970
- The Conservation (Natural Habitats, &c.) Regulations 1994

Inveraray

Hunterston Power Station

Rothesay

Hunterston

Ardrossan

Gourock

Dunoon

Faslane

Finnart

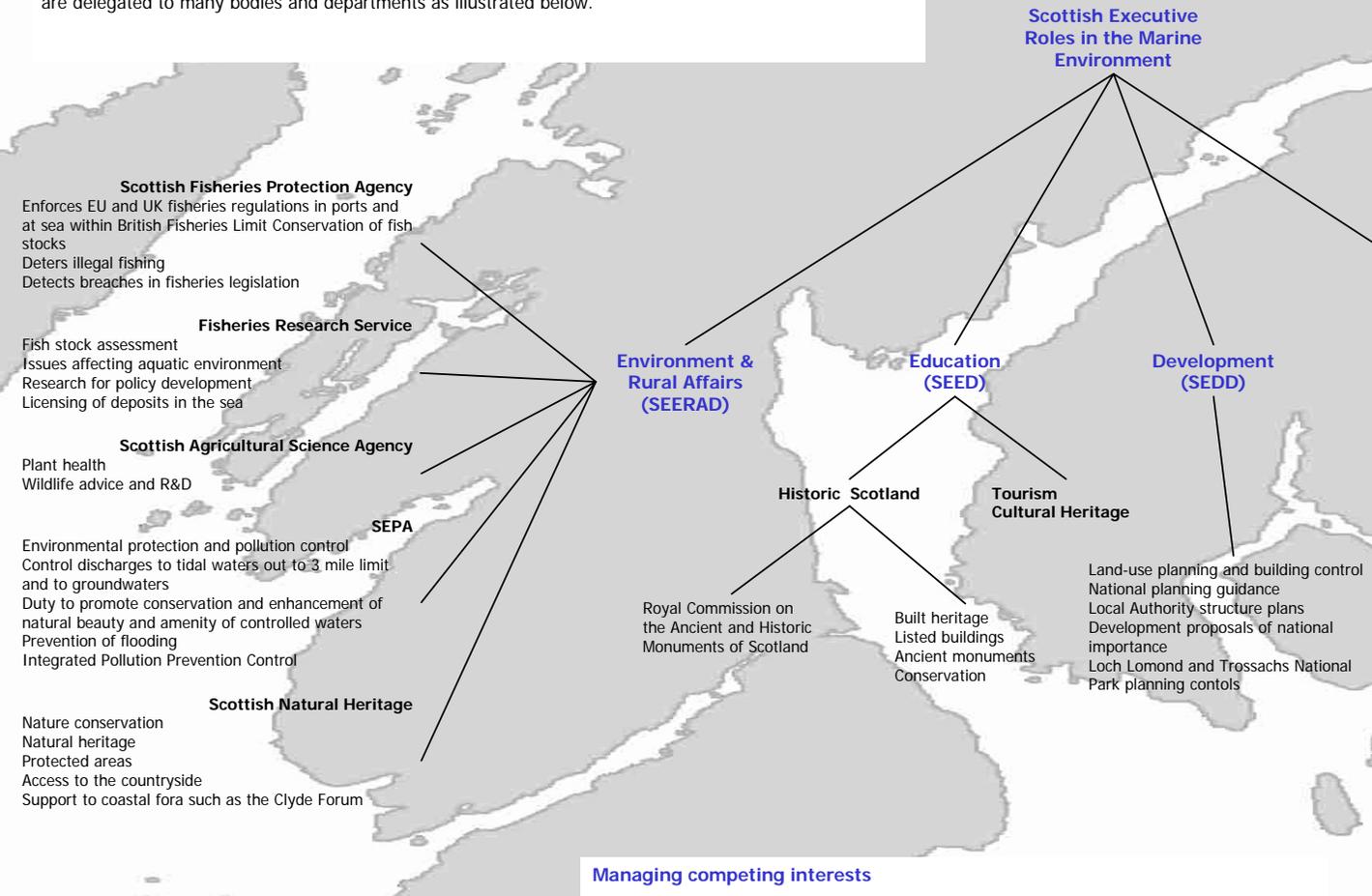
Fisherman

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Regulatory Authorities in the Firth of Clyde

The main organisations with responsibility for regulating and managing activities in the Firth of Clyde are the Scottish Executive, the UK Government, Local Authorities and Port Authorities. These responsibilities are delegated to many bodies and departments as illustrated below.



Managing competing interests

With no clear management body or legislative framework there is no way to co-ordinate or prioritise the interests of the many sectors using the Clyde. Where there is a mismatch between UK and Scottish interests, it may be difficult for the Scottish Executive to influence, for example the activities of the Department of Transport or the Ministry of Defence to meet the needs of the local community.

The salmon farming industry, illustrated opposite, expanded rapidly over two decades in the absence of any strategic planning to take account of the needs of the environment or of other user groups. Populations of wild salmon and sea trout are believed to have suffered as a result of interbreeding with farmed fish and sea lice infestation, with implications for the wild fish angling economy. The Scottish Executive's 2003 Strategic Framework for Aquaculture is an attempt to address some of these problems in retrospect, but the regulating bodies tend to take a sectoral approach. There is still no national overview of which areas are appropriate for, or should be kept free of fish farms, for example for nature conservation, amenity or tourism.



© S. Pepper

Mussel Farming



© S. Pepper

Salmon Farming



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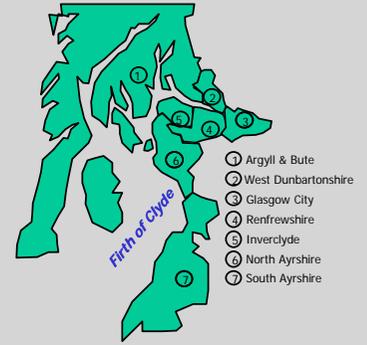
Herring Shoal

Harbour Authorities

Clydeport, the port authority, was established in 1992 from the privatised Clyde Port Authority. It covers 450 square miles of river, estuary and sea and is responsible for many issues reserved to Westminster, including safe navigation, port security, HM Customs and Harbour Master duties. There are also some smaller ports operated separately within the area, such as Tarbert and Ardrishaig.

Local Authorities

There are seven local authorities with responsibility for the Firth of Clyde area. Since local government reorganisation in 1996 the strategic overview previously taken by Strathclyde Regional Council no longer exists. Consequently, North and South Ayrshire Councils come together to prepare their strategic plan for the two council areas (the Ayrshire Joint Structure Plan) and the others listed above (except Argyll and Bute Council) have a similar joint strategic plan - the Glasgow and Clyde Valley Structure Plan. Argyll and Bute Council is preparing its own Structure Plan.



Local authorities have very limited jurisdiction over activities below the tideline, and currently lack the powers, expertise and resources to have a real influence on local issues or balance local interests, for example in local fisheries, aquaculture, oil and gas or shipping.

UK Government Responsibilities

Westminster's reserved responsibilities on the Firth of Clyde include: Ministry of Defence military activities at Faslane naval base and Coulport, as well as regular military exercises in the area.

- Customs and Excise patrols of the coastline and port inspection.
- Home Office responsibility for the police.
- Department of Transport regulation of shipping and responsibility for the coastguard and lighthouses.
- Department of Trade and Industry regulation of oil and gas, linked to the BP terminal on Loch Long.
- Various international commitments on fishing and nature conservation.

Enterprise Transport & Lifelong Learning (SEETLLD)

Transport Division

Roads, shipping, ports
Transport policy
Marine consents

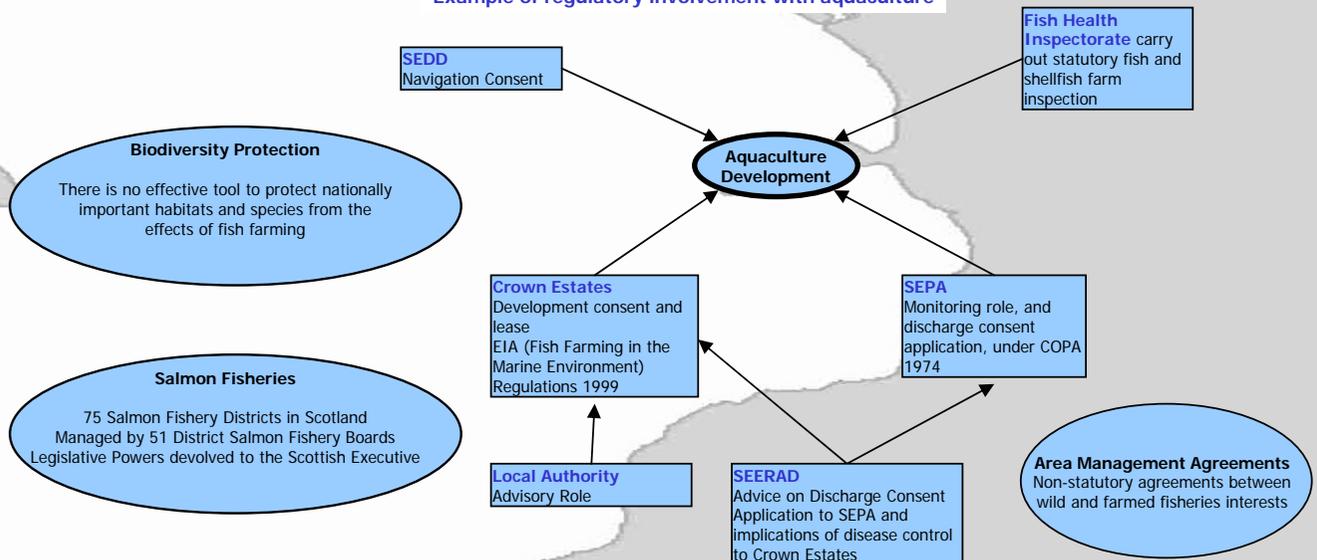
Energy - matters of energy devolved by Westminster Advises Scottish Executive Ministers on energy issues
Renewable energy

The Firth of Clyde Forum

One attempt at trying to co-ordinate activities in the Clyde was the creation of the Firth of Clyde Forum in 1994, a voluntary partnership established to promote integrated approaches to managing the environmental, economic and community resources of the Clyde. Membership is drawn from the seven local authorities around the Clyde, statutory agencies, the Crown Estate, Scottish Water, representatives from business and industry, fisheries interests, wildlife groups, universities, communities and individuals with an interest in sustainable management of the Clyde. One current important function of the Forum is to provide a framework in which the seven authorities can look strategically at how the whole Firth of Clyde is managed.

Despite the existence of the Forum, achieving key management priorities in the Clyde has been slow. This may be partly due to the reorganisation in 1996 of Strathclyde Regional Council and the consequent mothballing of the Forum for a number of years and partly to do with the voluntary nature of the Forum. Were its members to be given a duty of responsibility and adequate funding to achieve the Forum's objectives, this may change.

Example of regulatory involvement with aquaculture



Conclusion - Where does this leave us?

The economy of the Firth of Clyde and the surrounding area, like all coastal areas of Scotland, is heavily dependent on the resources and services provided by the marine environment, from its shipping routes to its fishing grounds and landscape. An imperfect system of site protection safeguards some of the Clyde's unique habitats and species, but the long-term future of the marine environment can only be secured through careful and responsible use across all sectors.

The changes that have taken place on the Clyde, the decline of white fish fisheries, the expansion of aquaculture, the move away from heavy industry, and the development of a complex modern economy with a growing tourist market, reflect changes in many of Scotland's coasts and firths. Some of these changes are a result of technological advances, but too many, like the decline of traditional fisheries, have been caused by the mismanagement of primary natural resources. Meanwhile, there is a growing economy based on the enjoyment of coastal wildlife and scenery.

The legislation that governs activities in the Clyde tends to be sectoral, and has grown from the drive for exploitation of natural resources, rather than their long-term management. Managing the Clyde is complicated by the fact that important issues like ports, shipping and navigation are reserved to Westminster, while other, closely related issues are administered by the Scottish Parliament. Many separate government bodies and departments are responsible for different aspects of management, and there is no way of ensuring that their decisions are co-ordinated, or that they make sense for other marine users.

Competition for space and resources arises among sectors, for example fixed and mobile gear fisheries, tourism and amenity and coastal development, shipping and recreational sailing, fish farming and fisheries. Traditional legislative and management structures cannot balance the needs of competing sectors, or manage the environment for the future. As a result natural resources are being irreversibly lost or not realising their full economic potential, for local communities, for the Clyde or for Scotland as a whole.



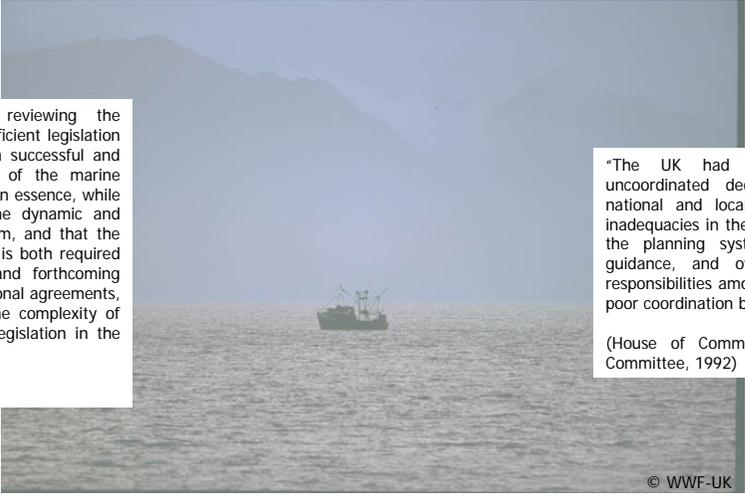
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"The overriding view after reviewing the legislation is that the UK has sufficient legislation but it lacks the coherence for a successful and sustainable cross-sector control of the marine system and its human activities. In essence, while marine workers acknowledge the dynamic and inter-related nature of the system, and that the holistic and ecosystem approach is both required and advocated by all recent and forthcoming pieces of legislation and international agreements, these cannot be delivered by the complexity of the marine administration and legislation in the UK."

(JNCC, 2003)

"The UK had suffered centuries of uncoordinated decisions and actions at national and local levels; that there are inadequacies in the legislation, anomalies in the planning system, a lack of central guidance, and overlapping policies and responsibilities among a host of bodies with poor coordination between them."

(House of Commons Environment Select Committee, 1992)

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The way forward

There is an overwhelming body of evidence to support the view that a new, co-ordinated approach is needed to manage Scotland's marine environment, one which incorporates a strategic vision and a fresh look at management, streamlining regulation, managing conflict, delivering better protection for marine and coastal wildlife and linking national priorities with local needs.

In October 2003 at WWF's Oceans Recovery Campaign (ORCA) seminar in Edinburgh the Deputy Minister for the Environment, Allan Wilson, announced his intent to consult on the best strategy for protecting and enhancing Scotland's marine and coastal environments.

The Minister's announcement was warmly welcomed by the Joint Marine Programme in Scotland and this report makes a clear case for why the solution the Minister seeks needs to be a radical one and deliver the tools required to transform marine management. WWF Scotland and the Scottish Wildlife Trust believe that the best way of achieving this would be in the form of a comprehensive Marine Act for Scotland which can deliver integrated marine management, marine spatial planning, and implement an ecosystem approach. Such a comprehensive Marine Act could deliver:

- 1. Strategy and vision:** Create a vision and strategy for the marine environment in Scotland which places the principles of an ecosystem approach at its core.
- 2. Effective legislation:** Establish effective legislation to enable the sustainable management of Scotland's marine wildlife and habitats, repealing or amending existing legislation identified as ill fit for purpose or redundant.
- 3. Marine authority:** Establish one marine authority responsible for overseeing and managing activities in the marine environment.
- 4. Alignment:** Establish a duty on all public authorities to align policies and decisions on marine strategy.
- 5. Spatial planning:** Establish a broad-scale spatial planning system for Scotland's marine environment.
- 6. Stakeholder involvement:** Provide a requirement for active involvement of stakeholders and local communities in the development of local plans.
- 7. Targets and review:** Identify targets and timelines for implementation and progress, and put in place a means of reviewing both.

References

Defra, 2001. *Review of Marine Nature Conservation - Interim Report.*

House of Commons Environment Select Committee 1992. *Coastal Zone Protection and Planning*, Second Report, HMSO.

JNCC, 2003. *Deficiencies in the Current Legislation relevant to Nature Conservation in the Marine Environment in the United Kingdom*, Report by Institute of Estuarine and Coastal Studies, University of Hull

Scottish Coastal Forum, 2001. *An initial assessment of the socio-economic and environmental benefits from ICZM in Scotland*, Report by Firm Crichton Roberts.

Scottish Executive, 2001. *A Coastal Management Trust for Scotland.*, Report by Firm Crichton Roberts for the Central Research Unit, Edinburgh.



Scotland needs healthy coasts and seas. Its economy relies heavily on the many industries and activities that take place around its coasts. Fisheries, aquaculture, energy production, harbour services and shipping, recreation and tourism are among many uses of the sea that have brought prosperity to Scottish coastal towns and cities.

However, only now is the true impact of these industries on the natural environment being acknowledged. After centuries of 'free-for-all' use, Scotland's seas are in crisis – tankers are still able to travel through some of our most sensitive sea areas, fish stocks are poorly managed, beautiful and unique marine wildlife is under threat, and we are failing to make best use of the wealth of resources our seas offer.

Part of the problem lies in the way we manage the marine environment. Our laws have evolved to favour exploitation, not conservation, and in many cases encourage competition between sectors for the same finite resources. To add to the difficulty, Scotland's seas are governed to varying extents by international, European, UK and Scots law. There is no strategy or planning framework to co-ordinate the work of the many bodies with responsibility for marine management, and there are few tools to encourage a sense of 'ownership' or responsibility, or to enable local management. There is no adequate system of protected areas for marine wildlife, and what protection does exist is often rendered ineffective by the damaging activities of other users of the sea. The Firth of Clyde provides an excellent case study to illustrate some of these management failures.

There is increasing support for the view that a new, co-ordinated approach is needed to manage Scotland's marine environment, one which incorporates a strategic vision and a fresh look at management, streamlining legislation, managing conflict, delivering better protection for marine and coastal wildlife and linking national priorities with local needs.

Further action is needed from government in Scotland to deliver the additional tools needed to transform marine management. One means of achieving this would be in the form of a comprehensive Marine Act for Scotland which can deliver integrated marine management, marine spatial planning, and implement an ecosystem approach. Such a comprehensive Marine Act could deliver:

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Scotland's seas are in crisis – tankers are still able to travel through some of our most sensitive sea areas, fish stocks are poorly managed, wild species and habitats are under threat and we are failing to make best use of the wealth of resources our seas offer.

A large part of why we are failing the marine environment is down to the poor management currently in place – legislation which is outdated or not fit for purpose, regulatory authorities which don't communicate effectively, and a lack of planning and vision for how we want to manage our seas.

Using the Firth of Clyde as a case study this report identifies:

- i) the huge range of sometimes conflicting uses made of our seas;
- ii) the legislation and governance which is currently in place; and
- iii) how this could be improved.

It is recommended that the Scottish Parliament introduce a comprehensive Marine Act for Scotland which will streamline the present legislative and governance systems. This would help to balance our uses of the marine environment and reduce the pressures from human activities.

A comprehensive Marine Act will bring efficient and effective management of UK seas and coastal areas, in the long term benefiting the coastal communities that thrive on healthy seas. It will also allow us to plan for the growing pressures of man's use of the sea, and ensure that we halt the loss of biodiversity and instead secure the livelihoods of industries like fishing, ecotourism and energy procurement for generations to come.

The health of our seas and coasts - our marine heritage - is vital for the survival of a myriad of marine habitats and species and in turn the human communities which rely on them.



Joint Marine Programme

The Joint Marine Programme (JMP) in Scotland is a partnership between WWF Scotland and the Scottish Wildlife Trust aimed at ensuring the conservation of marine wildlife and a healthy marine and coastal environment for Scotland.

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