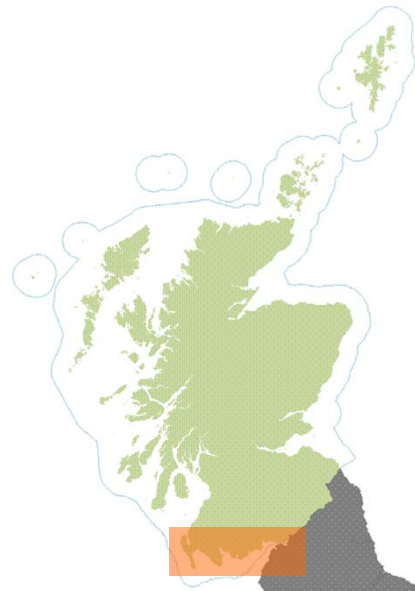


6. SOUTH WEST

The South West Region includes one Scoping Area of Search

The Scoping Areas of Search is:

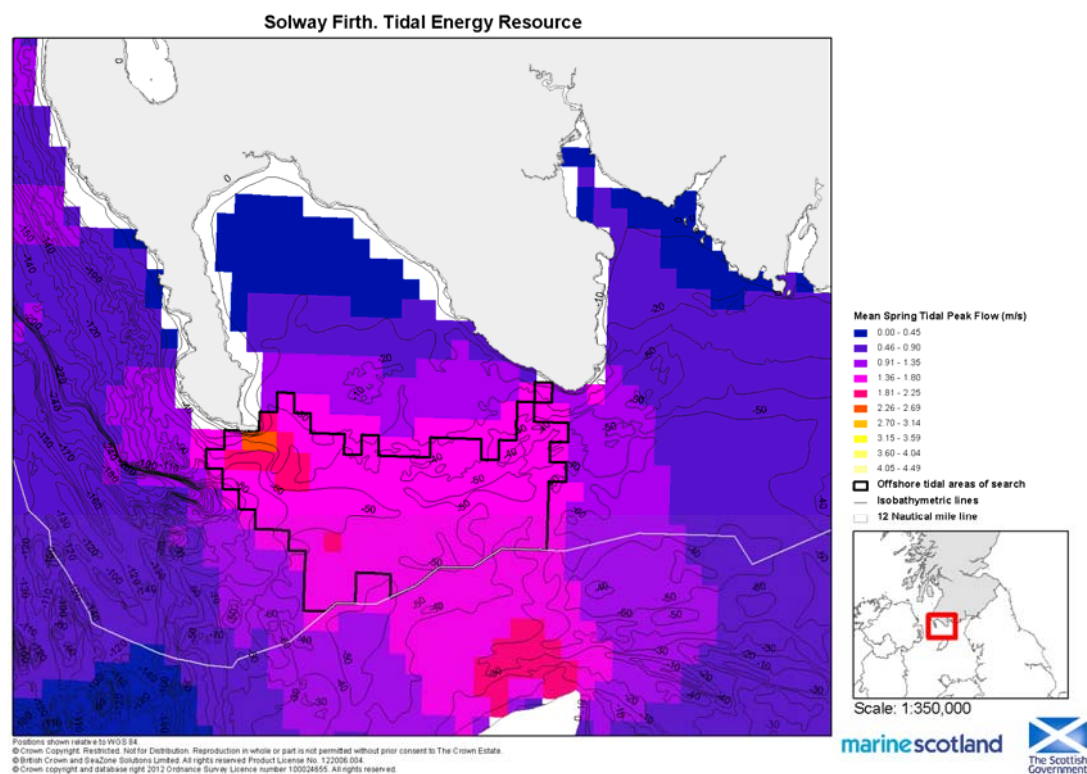
- Solway Firth



6.1 Resource

6.1.1 Tide resource is moderate in the Solway Firth area of search with the mean annual power density reaching $0.59 \text{ kWatt m}^{-2}$. The mean annual neap power density is $0.33 \text{ kWatt m}^{-2}$ and the same measure for spring tide is $2.38 \text{ kWatt m}^{-2}$. The mean spring peak tidal flow is 1.65 ms^{-1} . The tidal range for neap tides shows a mean of 2.67 m and the spring shows a mean of 4.93 m.

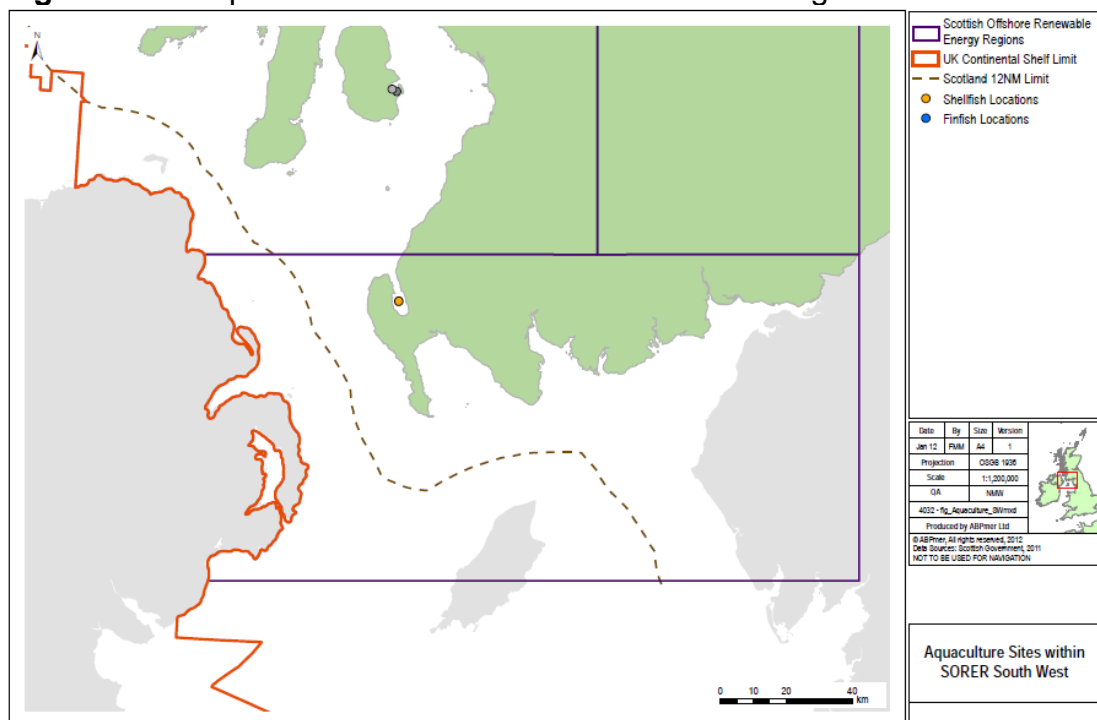
Fig.6.1 Solway Firth (Area of Search) Tidal Energy Resource



6.2 Aquaculture

- 6.2.1 Marine aquaculture sites within the South West Region are shown in Figure 6.2. The figure reveals that there is only one shellfish aquaculture site located within this region. No finfish sites occur are present.

Fig.6.2 Aquaculture activities in the South West Region

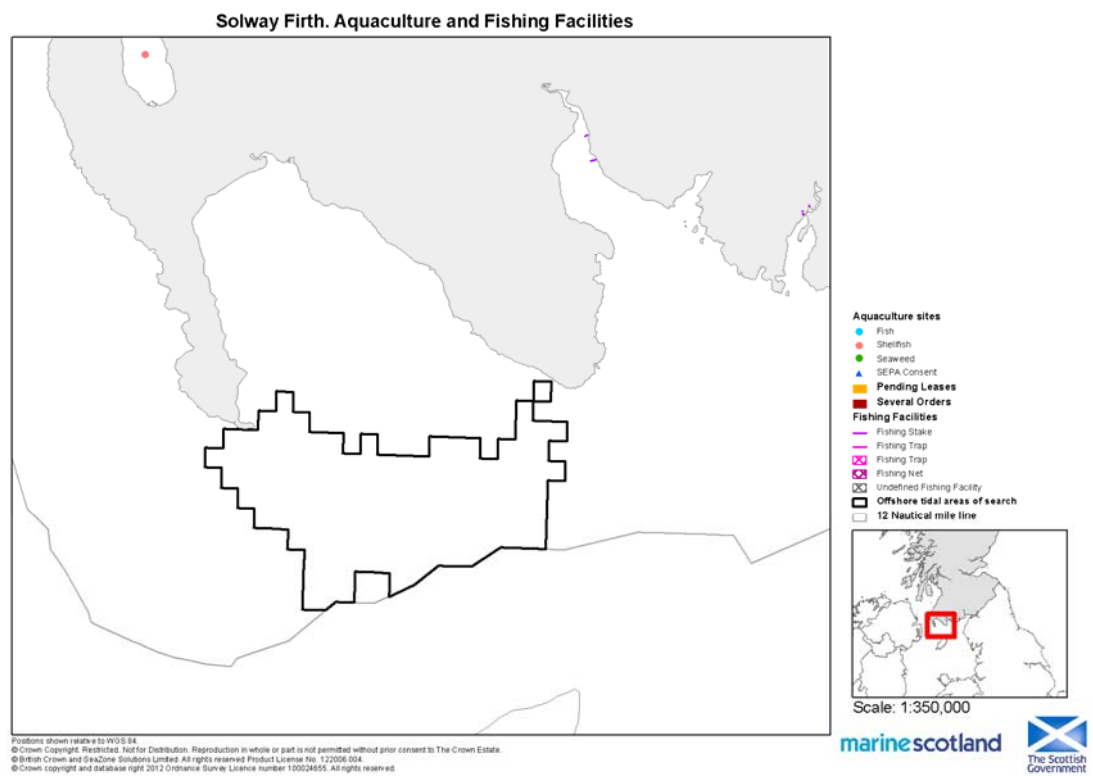


- 6.2.2 The Aquaculture Industry in South-West Scotland is believed to employ 9 full-time and 5 part-time staff.

Solway Firth

- 6.2.3 There are no aquaculture facilities within the area of potential development. A native oyster fishery is present in Loch Ryan to the north.

Fig.6.3 Aquaculture activities in the Solway Firth (Area of Search)

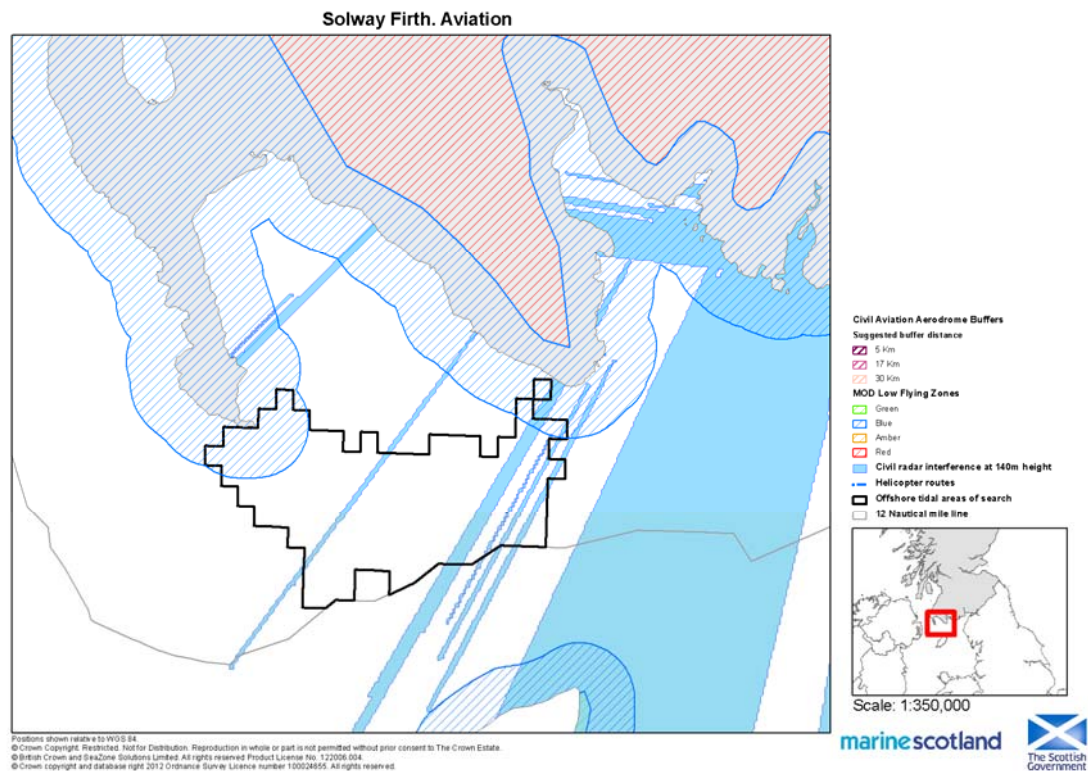


6.3 Aviation

6.3.1 At present, there is no commercial aviation activities operating in the South-West Scotland Region.

6.3.2 Figures 6.4 below details the related buffers and zone classifications for aviation activities using air space within this region.

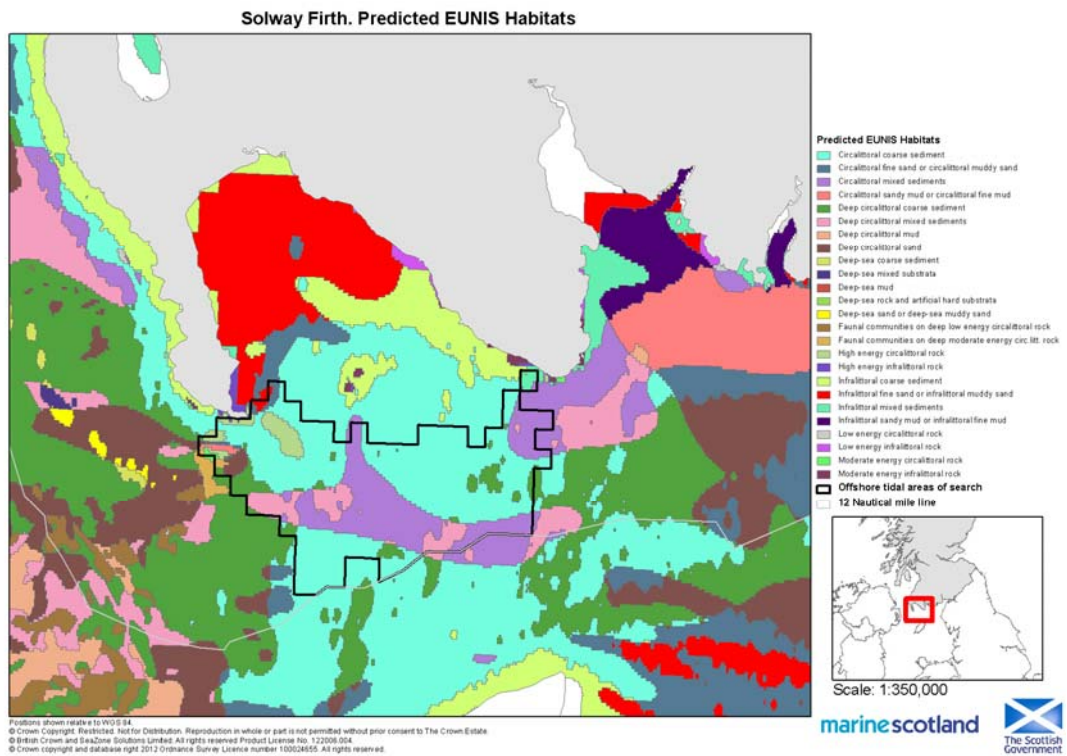
Fig.6.4 Aviation activities in the Solway Firth (Area of Search)



6.4 Bathymetry and Seabed

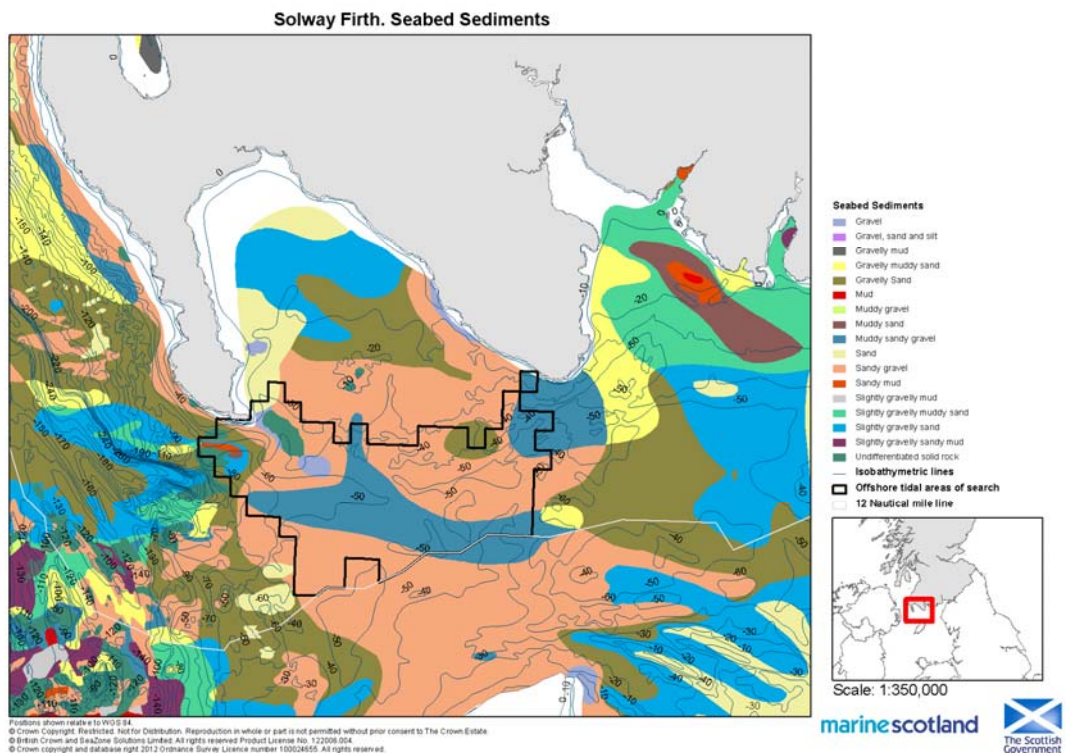
- 6.4.1 This area south of the Solway Firth Luce Bay and Wigtown Bay shows shallow bathymetry of 20-60 m deepening in an east-west direction. The westernmost tip of this area then deepens rapidly, reaching depths of 140 m.
- 6.4.2 Sediments in this area get coarser in an east-west direction with sand giving way to gravelly sand and sandy gravel with some small muddy and rocky patches towards the western side of the area where the water gets deeper. The protected sands of the mouth of Luce Bay open to sandy gravel and muddy sandy gravel in the middle of this area of search.

Fig.6.5 Solway Firth (Area of Search) Seabed Sediments



6.4.3 Predicted habitats from the EUNIS data also show habitats of finer sediment at the eastern part of the search area with coarser sediments towards the middle of the area. The westernmost point displays a variety of habitats in a small extent which include some small rocky patches in deeper water.

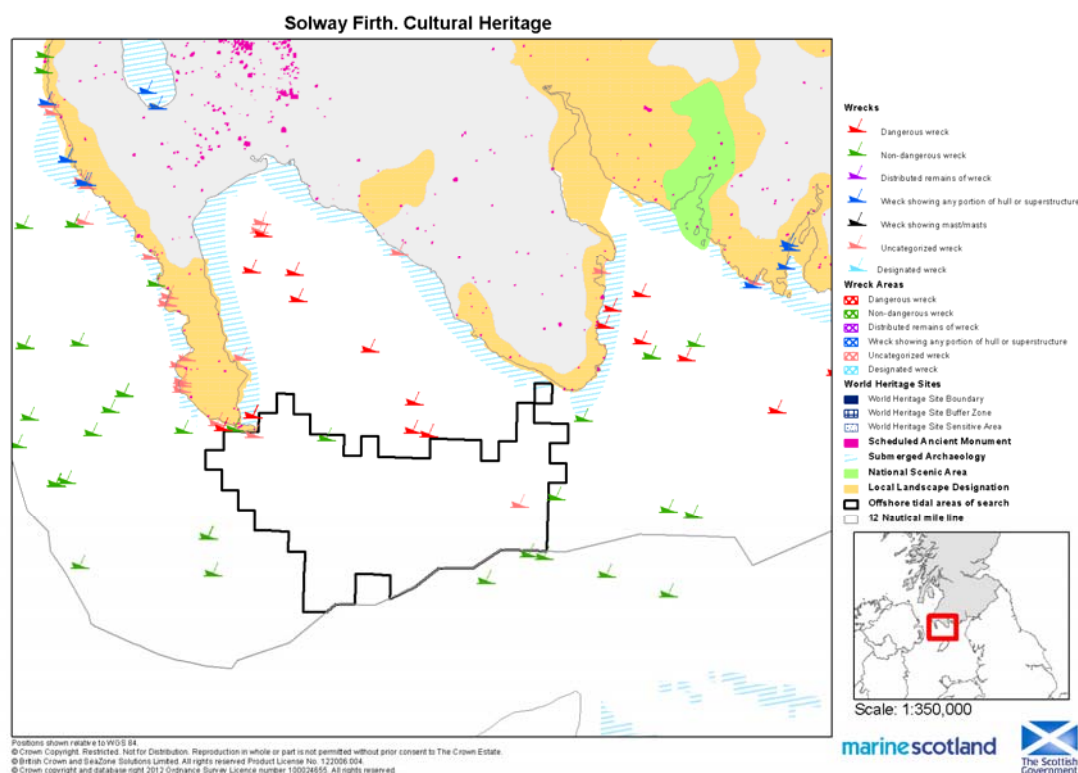
Fig.6.6 Solway Firth (Area of Search) Seabed Predicted EUNIS Habitats



6.5 Cultural Heritage

- 6.5.1 The area includes a few wreck sites, including one uncategorised wreck and a number of non-dangerous wrecks. There are numerous further wreck sites within the wider region. The possible location of the wreck site of Valhalla has been recorded in the National Monuments Record of Scotland. Around the coast there are areas where there is a likelihood of submerged archaeology, and this overlaps with a small corner of the eastern end of the area of search. The World Heritage Site and its buffer zone (Hadrian's Wall) are not shown on this map, but they lie to the east of the area (with the buffer zone extending part of the way down the Cumbrian coast) and impacts on them may therefore need to be considered.
- 6.5.2 Onshore, the map shows many individual and clustered scheduled monuments on or close to the coast, including numerous forts and chapels, such as the cluster of remains at the Isle of Whithorn. In addition to the mapped data, there are numerous listed buildings on and close to the coast, including lighthouses (e.g. the Category A listed Mull of Galloway lighthouse). Any assessment of the suitability of sites would need to take into account impacts on these designated sites and their setting.
- 6.5.3 Figure 6.7 shows the location of key cultural heritage assets in the Solway Firth (Area of Search).

Fig.6.7 Key Cultural Heritage Assets in the Solway Firth (Area of Search)

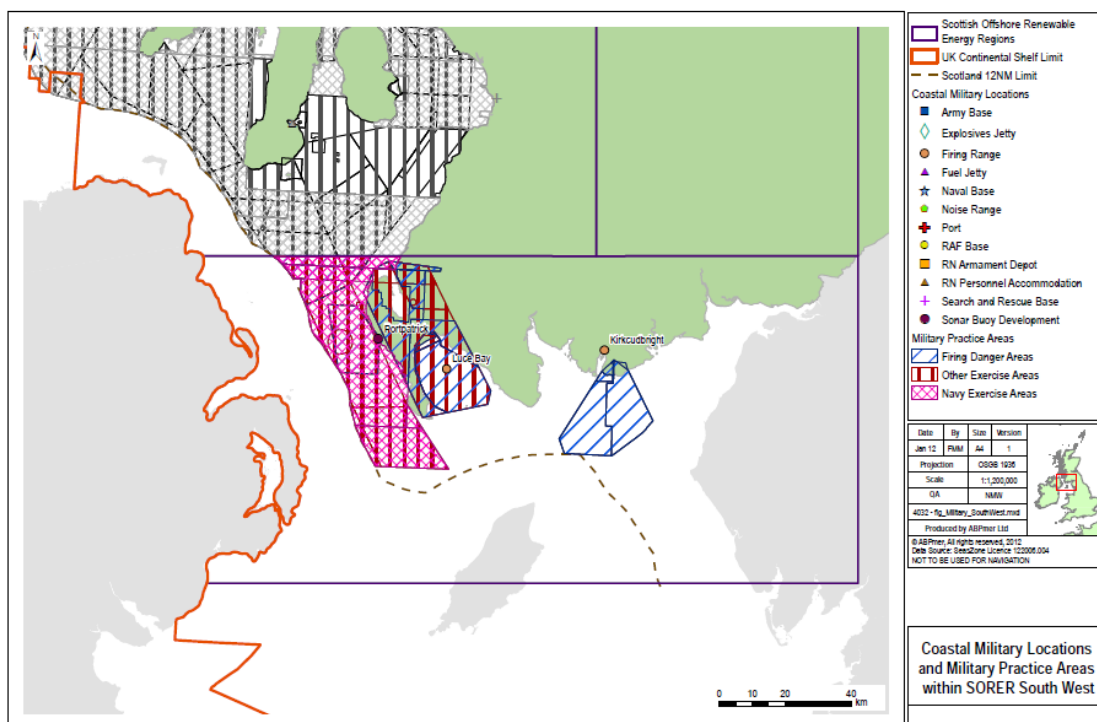


6.6 Defence

6.6.1 The coastal military locations which occur within this region are shown in Figure 6.8. Military interests in this region include:

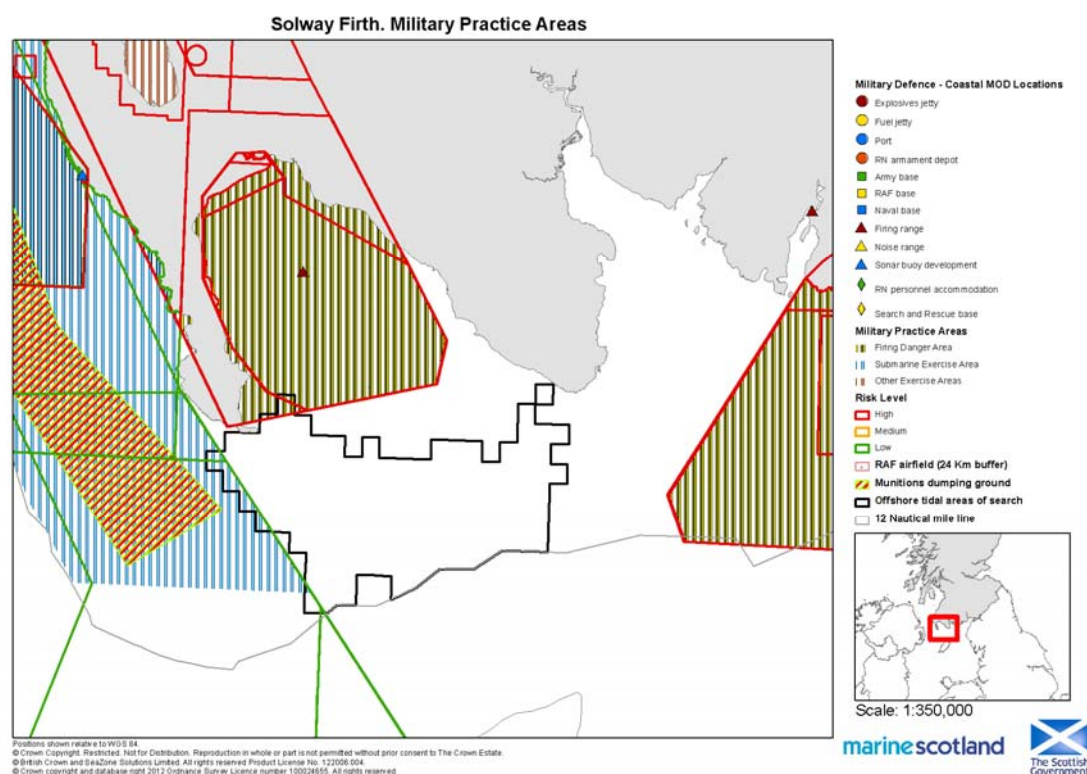
- An MOD Air Traffic Radar facility at West Freugh former RAF station;
- Luce Bay Gunnery and Bombing Range used by the RAF and the Fleet Air Arm (FAA) (currently protected by Bylaw but under review);
- Kirkcudbright Training Area on the North coast of the Solway Firth providing field fire and dry training exercise;
- Dundrennan official weapon test site, a triangular sea area East of Luce Bay, South of Kirkcudbright at the entrance to the Solway Firth;
- Portpatrick port; and
- A Royal Navy SXA, which extends along the Western edge of this SORER.

Fig.6.8 Defence activities in the South West Region



6.6.2 Figure 6.9 below show the known defence activities which take place in the Solway Firth (Areas of Search).

Fig.6.9 Defence activities in the Solway Firth (Areas of Search)



6.6.3 In terms of employment, defence activities account for around 310 employees in the South-West Region.

6.7 Environment

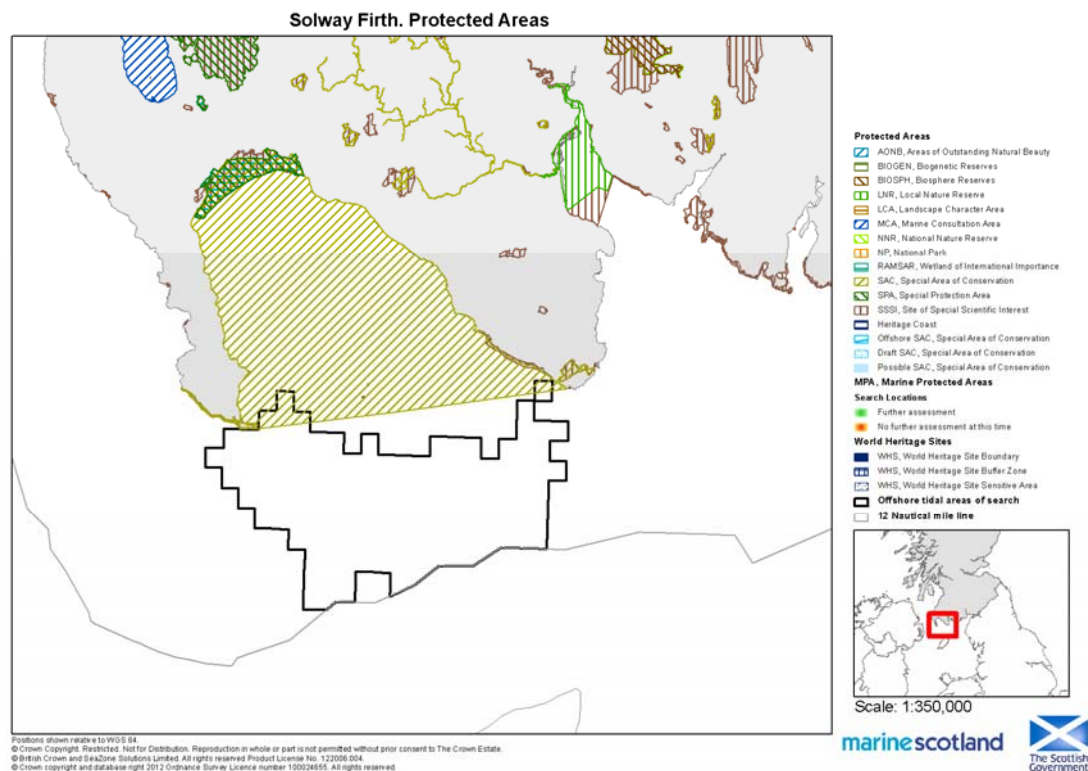
Designated Sites

6.7.1 The following designated sites are of potential relevance to development in the South West region:

- The Upper Solway Flats and Marshes is designated as an SPA and Ramsar site for the bird species it supports. Further west, Loch of Inch and Torrs Warren at the northern end of Luce Bay is also protected as an SPA as a result of support for Hen harrier and Greenland white-fronted goose. Further north and inland, Loch Ken and the River Dee Marshes, and Glenapp and the Galloway Moors also have SPA status.
- In terms of the SACs, Luce Bay and Sands SAC is protected for its coastal and inshore habitats and its support for Great crested newts. Overlapping with the SPA and Ramsar site, the Solway Firth SAC is designated for its estuarial and coastal habitats, and for its support for River lamprey and Sea lamprey. In addition, the River Bladnoch SAC is designated for its Atlantic salmon whilst the Mull of Galloway SAC is of international importance for its vegetated sea cliffs.
- There several further SACs inland of a smaller scale, protected for a range of habitats including blanket bog, which are less likely to be impacted by any development proposals within this region.

- There are additionally numerous SSSIs and more local nature conservation designations in the region, including some with particular relevance to development offshore. This includes the Cree Estuary SSSI (notified for a range of features including Smelt, Pink-footed goose, coastal geomorphology, and saltmarsh and mudflats), Wigtown Bay Local Nature Reserve,
- A proposal to extend the Cairnmore of Fleet, Merrick Kells and Silver Flowe Biosphere Reserve to form the wider Galloway and Southern Ayrshire Reserve is under consideration. This status would be in recognition of its combined landscape, wildlife, and cultural heritage value, and is recognised as a means of sustainable management marketing of environmental quality. The areas identified for the extended designation are based on catchments and are linked with the water environment. Development impacts in the Solway Firth are therefore potentially relevant to this area. A core area, buffer zone and transitional area is identified for buffer zones, with increasing levels of flexibility to accommodate development and other activities, and their impacts.
- In Cumbria, St. Bee’s Head is designated as a Heritage Coast and there are several SSSIs and more local natural heritage designations on the coast.
- On the Isle of Man there are 17 Areas of Special Scientific Interest (one of which also being a National Nature Reserve). Ballaugh Curragh is a Ramsar site, as a result of its interest for birds.

Fig.6.10 Designated sites in the Solway Firth (Area of Search)



Landscape Designations – Regional Overview

- 6.7.2 There are three National Scenic Areas within Dumfries and Galloway which all have a strong coastal relationship. Local landscape designations also extend over much of the coastal area. The area of search identified at scoping lie to the south west of the mainland. Development proposals within these areas of search would need to take into account potential impacts on the special qualities of the relevant areas from the following:
- 6.7.3 The **Nith Estuary** is focused around the wide tidal estuary with extensive sands, mudflats and saltings. The special qualities include the contrast of the *working farmed landscape against the backdrop of hill and estuary*, and the *landmark of the rising granite hill of Criffel*. The *interaction of land, sea and sky* is a dominant feature of the landscape, and the *speed and reach of the tide* adds to the rate of movement within the landscape. There is also a strong *interplay between natural and cultural landscapes with a great diversity of habitats and wildlife* and the use of *locally distinctive stone* in vernacular buildings and dykes. The *merse and estuary provide a detailed patterns* within the landscape, and there is *constant movement* of water, vegetation, sky and birdlife. The sea and estuary is a *peaceful landscape but with a long and troubled history*, and provide a *rich variety of colour, light, texture and scale*, and *distinctive sound and smell*. Local landmarks contribute to the identity of the area including the summits of Criffel and Ward Law. Distant views across the Solway Firth to the Lake District add depth to the landscape.
- 6.7.4 The **East Stewartry Coast** is an area of complex landscape comprising many different landscape character types. The special qualities are identified as *a working landscape of great beauty*, the *variety of the coastline*, particularly the lack of development which contributes to the wild feel. The *woods, fields, dykes and hedges* create a strong agricultural landscape, and there is *use of locally distinctive stone* in buildings and dykes. There is a strong *sense of calm and enclosure* reinforced by the small scale nature of the bays and beaches. The landscape has a history of being important for tourism, and continues in this role, described as both '*Scottish Riviera*' and the '*Secret Coast*'. The *dynamic nature of the coast* is highlighted by its *contrast with the static inland landscape*, and the *presence of the sea is strong, although not always visible*. The complex landscape provides a rich variety of texture, colour, light and scale and the *sight and sound of birdlife* is a key feature of the landscape. *Local landmarks* provide focal points which reinforce the *identity of the area* including Rough Island and Hestan Island. Although the views are frequently enclosed, there are places where distant views can include the *wide horizon of the Cumbrian Fells and the Irish Sea*.
- 6.7.5 **Fleet Valley** NSA includes the coastal element of Fleet Bay and the inland upland valley. The special qualities are identified as the *charm of the compact working landscape* which combines coastland, farmland, woodland and upland. The landscape also has *sense of timelessness arising from a rich heritage* reflected in the field patterns of the *traditional boundaries of*

dykes and hedgerows, houses, historical and archaeological sites and ruins. The settlement of Gatehouse is a picturesque and historic centre. There is a gradation from coastal islands to upland hills and an abundance of trees and woodlands add to the texture of the landscape. Within Fleet Bay the variety and influence of water contributes to the rich variety of colour, light, texture and scale. There are a number of local landmarks which contribute to the identity of the area. Seaward, there can be distant views out of the Fleet Valley to the Isle of Man, and inland to the Merrick.

- 6.7.6 Regional Scenic Areas (RSA) were identified in a technical paper which accompanied the approved Dumfries and Galloway Structure Plan¹. This provides a description of the landscape of each of the RSA. There are five Regional Scenic Areas with a coastal association which are described in the following paragraphs.
- 6.7.7 **Rhins Coast** includes the rocky coastlines of the Rhins peninsula and the eastern shore of Loch Ryan in the north. It includes the whole of the narrow peninsula leading to the Mull of Galloway where the dominant presence of the sea creates a unique and special character. Inland views of the coast tend to be limited in the undulating topography. The coast is characterised by cliffs, raised beaches, rocky foreshores with small rocky and sandy bays. The landscape is relatively inaccessible and sparsely populated, although popular for tourism.
- 6.7.8 **Mochrum Lochs** is a combination of inland scattered lochs amidst an undulating topography and the coastal expression of this distinctive moorland landscape.. The landscape has an open, exposed, wild feel with a distinctive character, although relatively small in extent and more limited in its coastal aspect.
- 6.7.9 **Machars Coast** RSA includes the rocky coastline around the head of the Machars peninsula which has visual envelope with the sea. The landscape comprises smooth undulating hills and valleys and improved pasture, with rocky knolly areas. The coastline comprises steep, low, grassy cliffs, raised beaches and rocky foreshores with occasional sandy coves. The landscape is sparsely populated and the coastline relatively inaccessible. As on the Rhins, the coastal influence is lost behind intervening horizons within around a kilometre of the shore.
- 6.7.10 The **Galloway Hills** extends to the coast and includes the Fleet Valley National Scenic Area and its setting. The RSA also includes the Cree estuary, and the estuary landscapes are included both for their own inherent landscape characteristics and because of their scenic juxtaposition with the uplands.

¹ Identification of Regional Scenic Areas Dumfries and Galloway Structure plan Technical Paper No. 6 Accompanies the Dumfries and Galloway Structure Plan approved by the Scottish Ministers 10 December 1999 <http://www.dumgal.gov.uk/CHttpHandler.ashx?id=359&p=0>

6.7.11 **Solway Coast** is an extensive RSA from the Fleet estuary to the Nith estuary, and which encompasses the Stewartry Coast and Nith Estuary NSAs. The inland boundaries of the designation reflects the visual influence of the sea, and recognises the importance of wider views. There is a diverse mixture of coastal landscape types including rocky coastlines of cliffs, raised beaches and isolated covers, backed by smooth undulating open landscapes. The coastal estuary landscapes are dramatically juxtaposed with the flat exposed landscapes of the coastal flats around the Nith estuary. Views across the Solway to the Cumbrian mountains and the Isle of Man contribute to the scenic quality of the area.

Marine mammals, Basking Sharks and Seals

6.7.12 This area of search contains relatively low numbers and diversity of marine mammals. The area shows greatest importance to harbour porpoise. Other cetacean species that are present occasionally are the short beak common dolphin, possibly Risso's dolphin or white beaked dolphin but reported encounter rates with low these and other cetaceans are low.

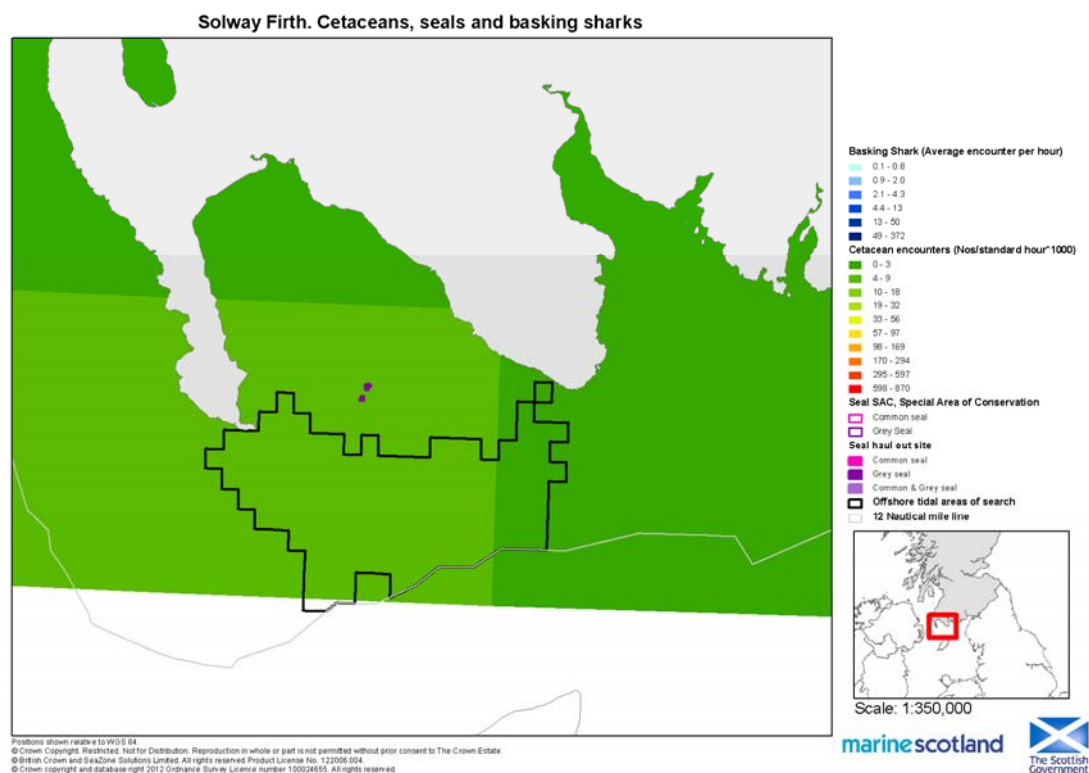
6.7.13 No hotspots for basking sharks exist either within the area of search or within a 20 NM radius of it. Sightings have been recorded around the coastal areas of Luce and Wigtown Bay in small numbers for the last 25 years. A cluster of sightings in 2005-2006 is recorded in the east part of the tidal area of search.

6.7.14 Within a 40 NM radius of the Solway area of search there are four SACs with marine components, Solway Firth, Luce Bay and Sands, Strangford Lough and Drigg Coast. The latter two fall within Northern Irish and English jurisdiction respectively.

6.7.15 Luce Bay and Solway Firth are designated for habitat features like large shallow inlets, mudflats and shifting sand dunes amongst others. No SAC sites have been created for seals.

6.7.16 However, two seal haul-out sites have been identified in the general vicinity of the area of search, neither of them within its boundaries. One of these is north of the central part of the area of search at Little Scares, immediately outside of Luce Bay and the other lies within the Solway Firth at the outer sandbanks. Both of these sites are used for grey seals.

Fig.6.11 Cetaceans, Seals and Basking Sharks in Solway Firth (Area of Search)



Seabirds

- 6.7.17 In this, the South west area there is one SPA that comprises a freshwater loch and an area of sand dunes. Both components of the SPA support, in winter, important numbers of Greenland White-fronted Goose, 534 individuals, and wintering Hen Harrier, 8 individuals, (JNCC).
- 6.7.18 There are areas of high importance to a variety of species of seabirds during their breeding and overwintering seasons in the Solway Firth area. The ESAS data indicates that this region is not of high importance in terms of total numbers of individuals but in proportional terms it is for some species. Species that show a high proportion of their total numbers during breeding season and may require particular attention in the EIA process are greater cormorant, black headed gull, common gull, sandwich tern and manx shearwater and, to a lesser degree, northern gannet and razorbills.
- 6.7.19 Outside the breeding season, all the proportions per species within this area are reduced with the exception of black headed gulls which concentrate their numbers inshore towards Luce Bay. The ESAS data also shows an increase in the proportion of herring gull winter population, also mostly within Luce Bay.
- 6.7.20 IBAs have been established inshore at Luce Bay at Loch of Inch and Torrs with the pupose of protecting wintering geese.

- 6.7.21 The IBA at Loch Ryan supports important numbers of wintering waterbirds. These lochs hold the largest inland great cormorant colony in Great Britain. Another IBA can be found at Mochrum and Castle Lochs, up to 60 different bird species breed within the SSSI also established at this location. Wigtown bay IBA supports large numbers of wintering wildfowl and waders.
- 6.7.22 The IBA at the upper Solway flats is important for wintering wildfowl and waders, supporting 127,800 wintering and 70,900 passage waterbirds on a regular basis.
- 6.7.23 RSPB reserves exist at coastal locations like Mull of Galloway, Mersehead and the Crook of Baldoon within Wigtown Bay.

Fig.6.12 Seabirds, Important Bird Areas and RSPB Reserves in Solway Firth (Area of Search) (Winter)

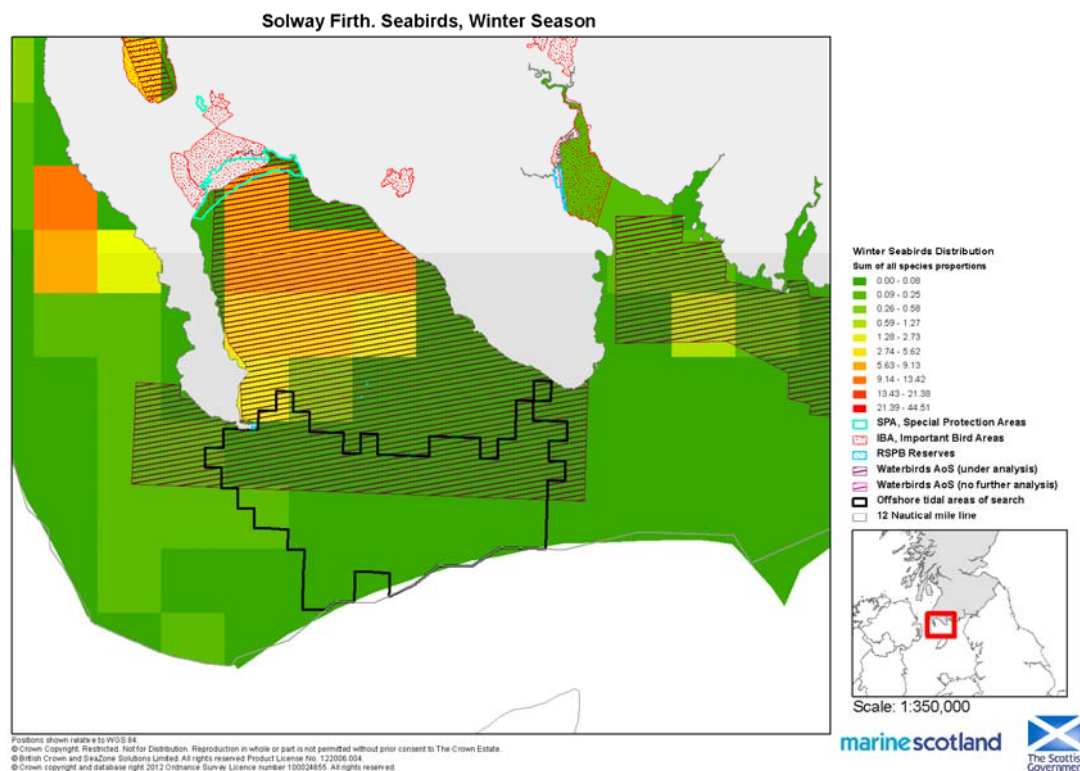
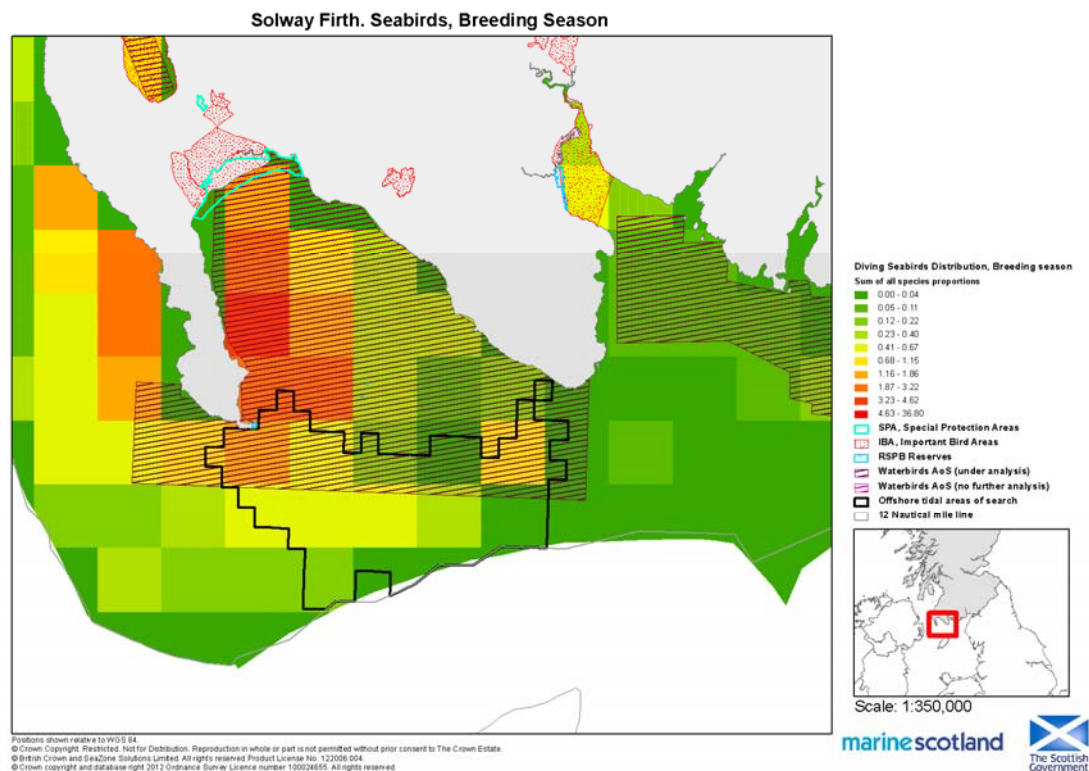


Fig.6.13 Seabirds, Important Bird Areas and RSPB Reserves in Solway Firth (Area of Search) (Breeding)



6.8 Fishing

Commercial Fisheries Regional Overview

- 6.8.1 Landings caught by UK vessels within the South West SORER had an average annual value of £17.7 million (4.6% of the Scottish total) and an average annual live weight of 18,100 tonnes (4.2% of the Scottish total) for the ten year period from 2001 to 2010.
- 6.8.2 The majority of the value and volume of landings from within the South West SORER are shellfish, however, there is a difference between the main species caught in inshore waters (within 12 nm from the coast) and offshore waters (greater than 12 nm from the coast). Inshore, landings of scallops accounted for 92% of the total catch value in 2010 whilst 'other shellfish' (excluding Nephrops) made up 24% of the total catch value. Offshore, landings of Nephrops accounted for 72% of the total catch value in 2010, 9% were scallops and 18% were other shellfish.
- 6.8.3 In 2010, 11% of the value of landings from inshore waters was taken by vessels 10m and under in length, whilst 18% was landed by vessels over 10m and under 15m and 70% was landed by vessels 15m and over. Offshore, 70% of the total value was taken by vessels 15m and over in length.

- 6.8.4 For inshore waters, 72% of the total catch value was caught by dredges and 12% by pots; whereas for offshore waters, 54% was caught by Nephrops trawls and 19% by dredges and pots combined.
- 6.8.5 The main fishing ports in this region are Annan, Drummole, Kirkcudbright, Portpatrick and Stranraer.
- 6.8.6 Fisheries dependent employment (which includes direct employment in the fish catching, farming and processing sectors and indirect employment and induced impacts as a result of the demand for goods and services required by the fisheries sector) is estimated to account for between 2 and 10% of total employment (Baxter et al., 2011).

Area of Search Interactions

- 6.8.7 In the Solway area in the south west the scallops, both king and queen are the fishery that contributes most of the value landed. Luce Bay and Wigtown Bay to the north of have fertile scallop fishing grounds also but the main grounds in this region lie south of the Isle of Man outwith Scotland's jurisdiction.
- 6.8.8 Demersal and nephrops stocks are targeted to a negligible level within the tidal area of search. Of more relevance in the spatial extent of the tidal area of search are the lobster catches.
- 6.8.9 Seasonal pelagic fishing activity also can be seen from the 2010 VMS data. This fishing activity also lies to the south west part of the Solway tidal area of search. This extent of this fishery, known as the "Manx" herring fishery overlapped very little with the tidal area of search as shown in the VMS data for 2010..

Fig.6.14 Fishing Intensity in the Solway Firth (Area of Search)(Scallop Dredge, Demersal – Mobile Gear, and Nephrops – Mobile Gear)

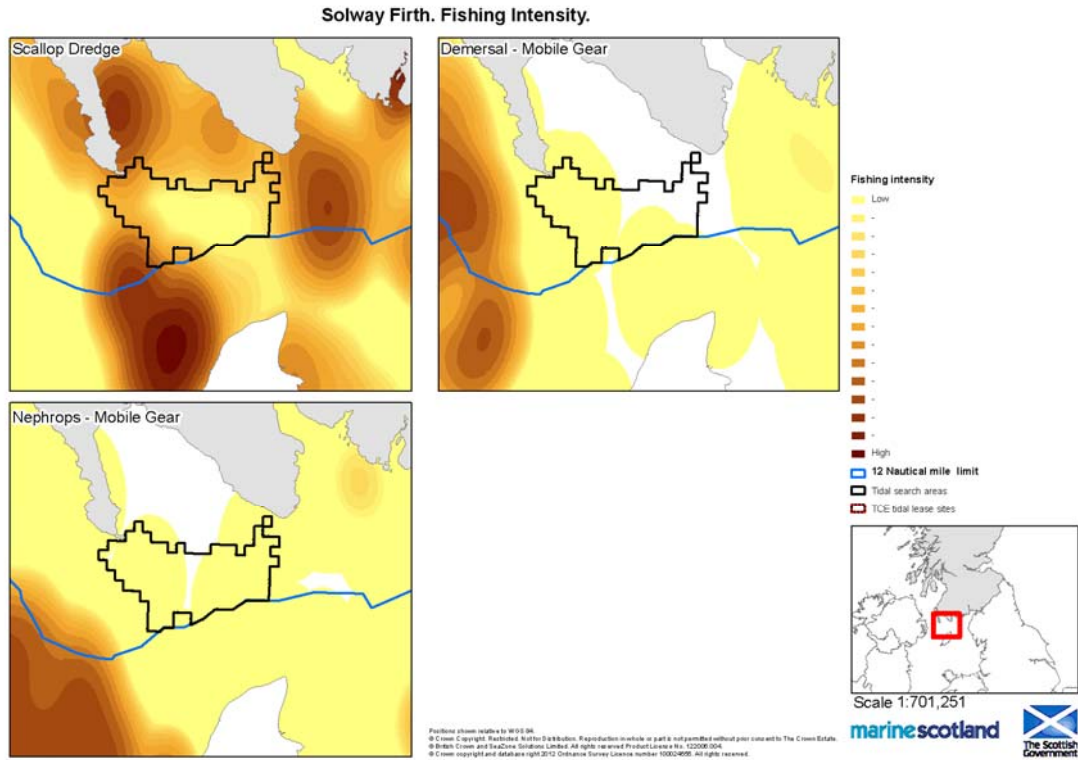


Fig.6.15 Fishing Intensity in the Solway Firth (Area of Search)(Pelagic, Demersal – Static Gear, Nephrops - Creels)

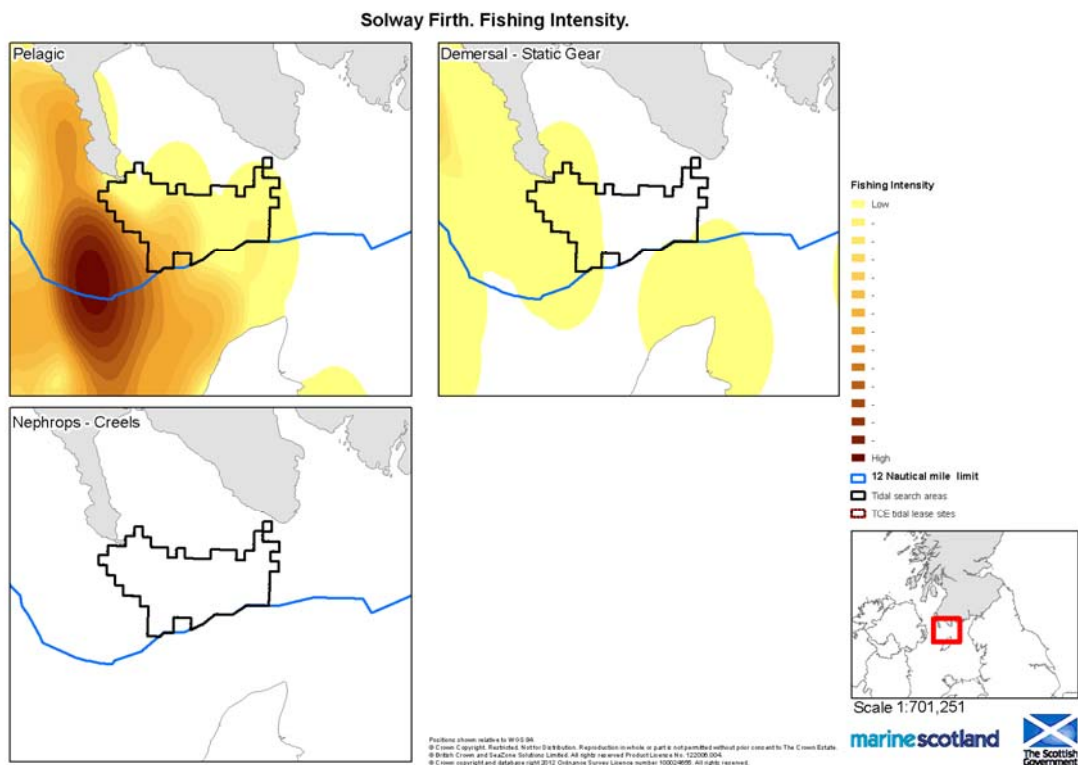


Fig.6.16 Fishing Intensity in the Solway Firth (Area of Search)(Brown Crab – Creels, Lobster – Creels, Squid)

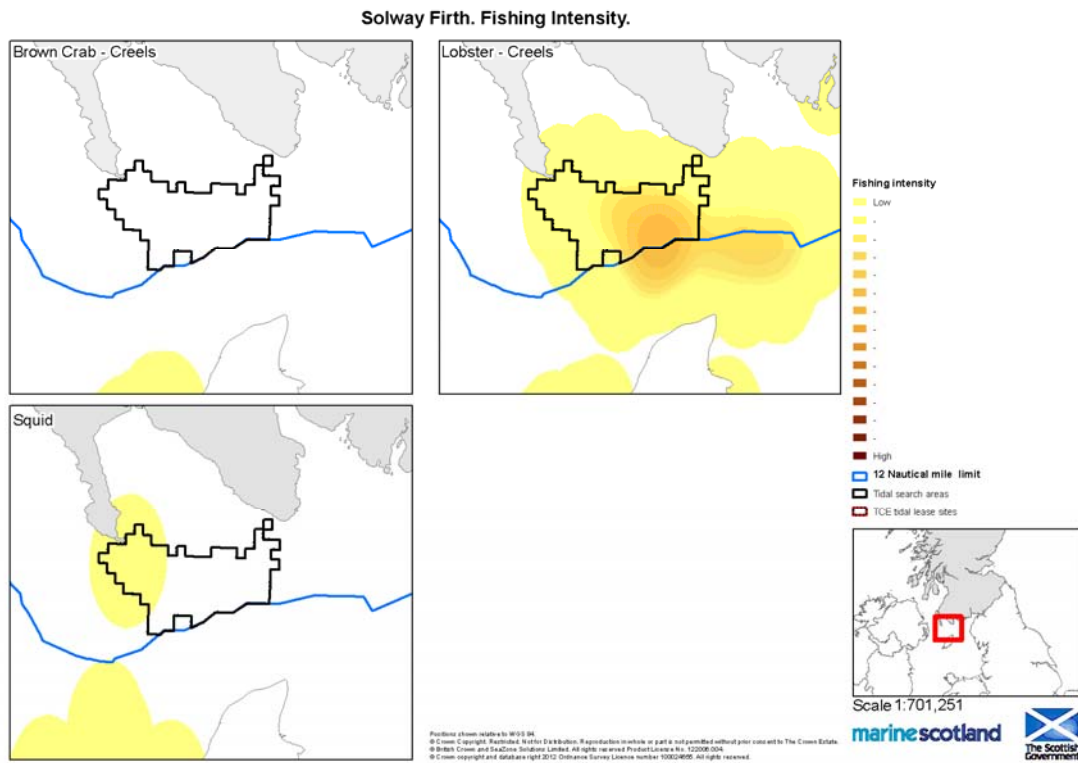


Fig.6.17 Inshore Fisheries in the Solway Firth (Area of Search) (Mobile Gears)

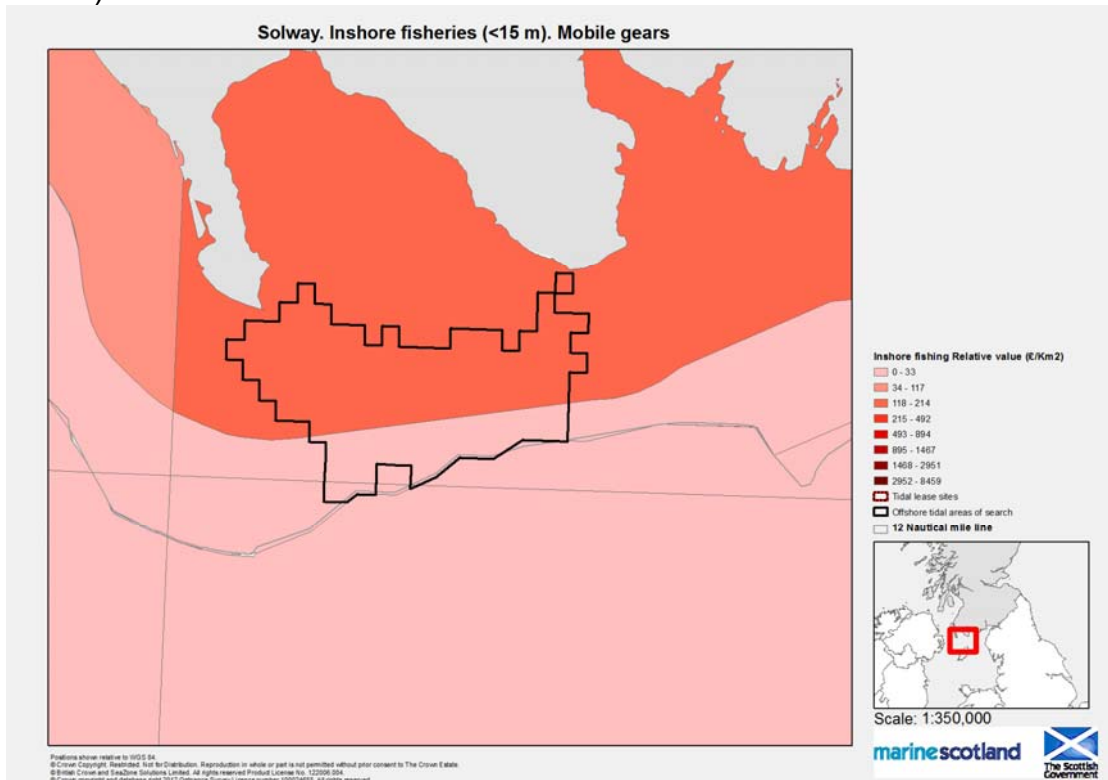
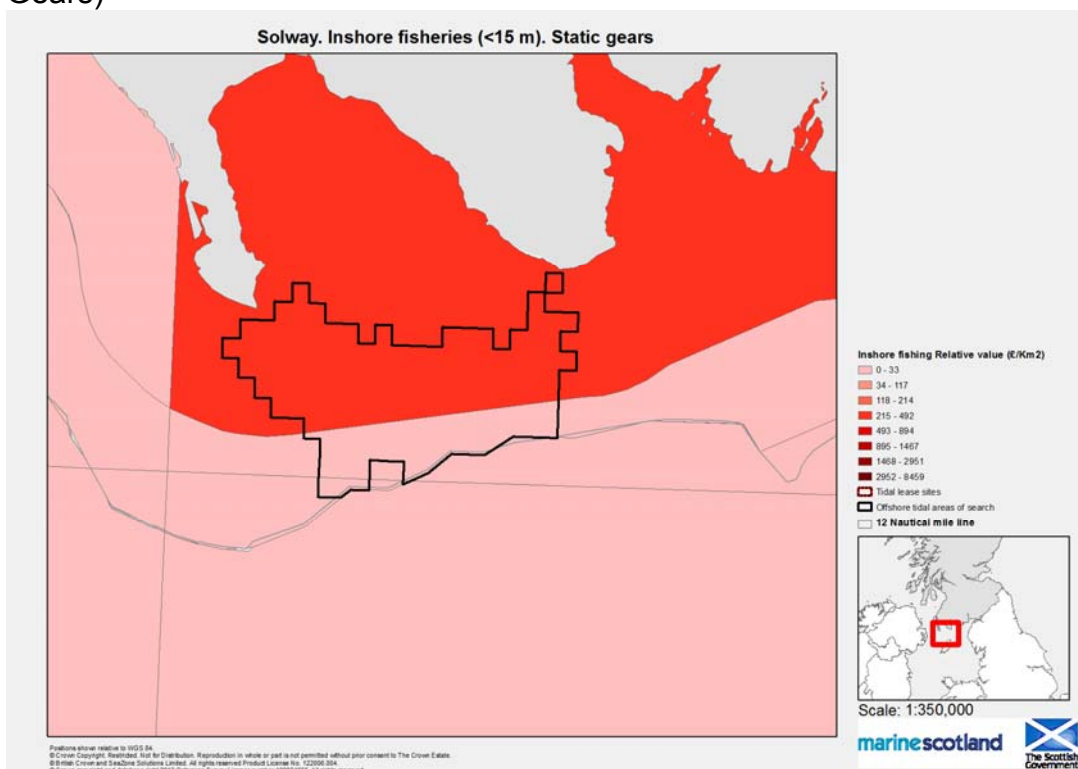


Fig.6.18 Inshore Fisheries in the Solway Firth (Area of Search) (Static Gears)



Fish processing activities

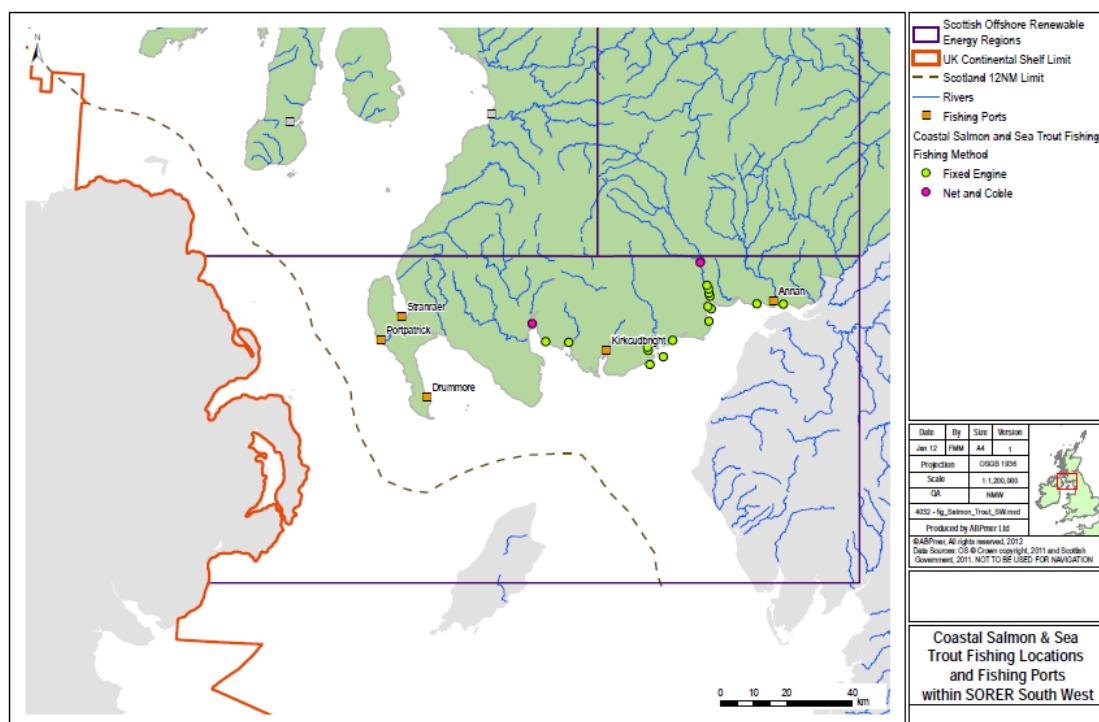
6.8.10 There is a high concentration of fish processing activities in Annan on the Northern shore of the Solway Firth. Young’s Seafood employ up to 600 people at two sites in the town and these numbers increase in the autumn to cover the seasonal demand for products, especially smoked salmon for the festive season (Liptrott, 2011). The largest concentration of employment is also found in the Annan area with 16% of processing employment. This equates to around 800 full-time and 90 part-time employees.

Wild salmon and sea trout

6.8.11 There are two net and coble and 16 fixed engine netting sites in the South West SORER along the Northern coast of the Solway Firth (see Figure 6.19).

6.8.12 The main rod and line fishing rivers in this region are the Border Esk, Annan, Nith, Urr, Cree and Bladnoch. (Gray J., 2009).

Figure 6.19 Salmon and Sea Trout Fishing Locations in South West Region

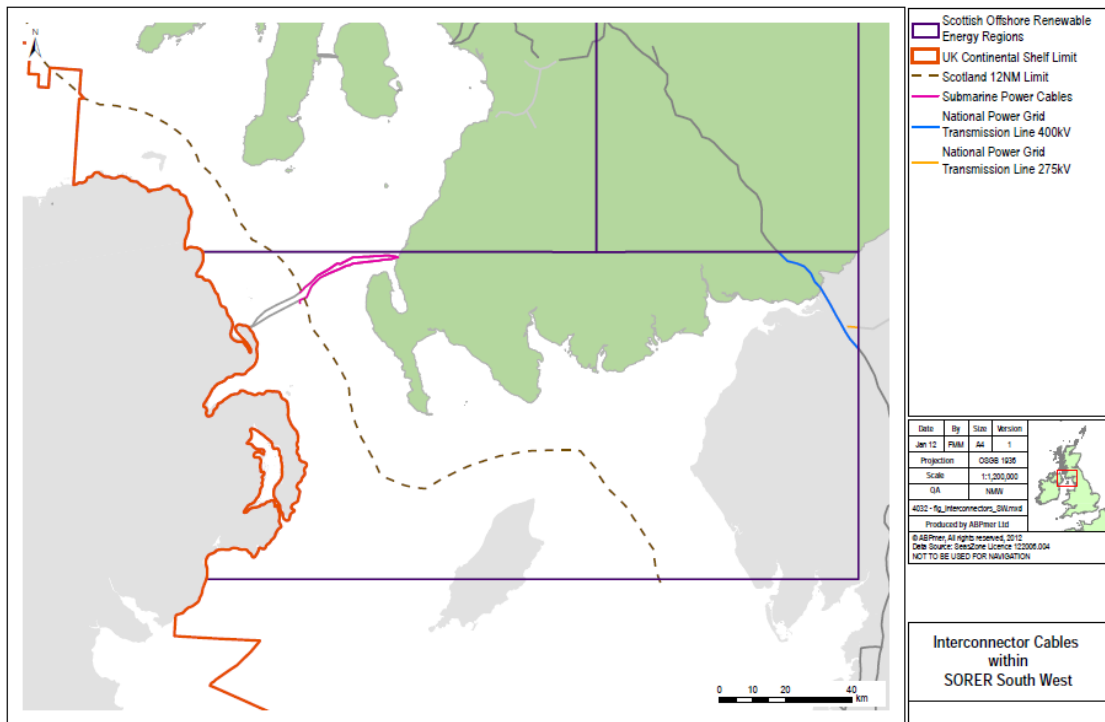


6.9 Infrastructure and Grid Provision

Existing

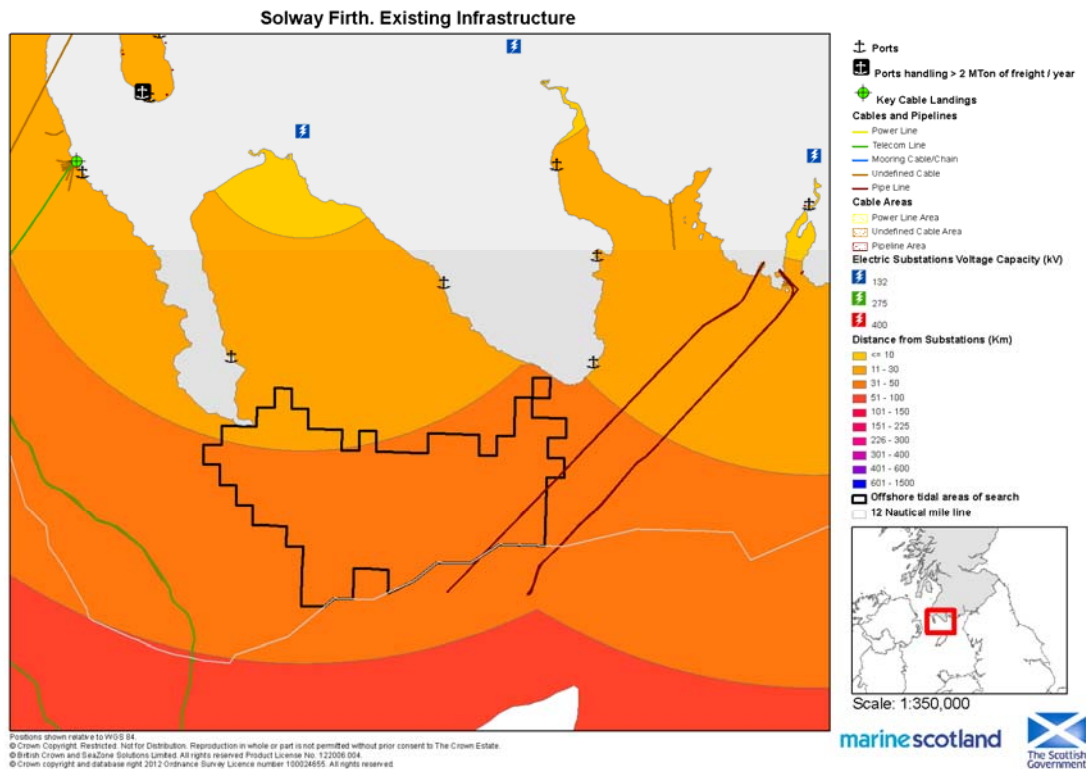
- 6.9.1 The South-West Region does not host any major power stations.
- 6.9.2 The only subsea power interconnector in the region is an international interconnector between Scotland and Northern Ireland (the Moyle Interconnector), which originates in Auchencrosh, Ayrshire and connects to Ballycronan More in Islandmagee, County Antrim, Northern Ireland. (Figure 6.20)

Figure 6.20 Interconnector cables in the South West Region



6.9.3 Figure 6.21 below provide an indication of the existing infrastructure for power connectivity in relation to the Solway Firth Areas of Search.

Fig.6.21 Existing Infrastructure in the Solway Firth (Area of Search)



Future

6.9.4 The potential infrastructure and grid provision with in the South West Region are:

- Possible link to ISLES project;
- Connect to SPT link – Western HVDC Hunterston to North Wales; and
- Connect onshore and on to South West Scotland Transmission Line.

Table 6.1 Current Stage of Planning for potential infrastructure projects (South West region)

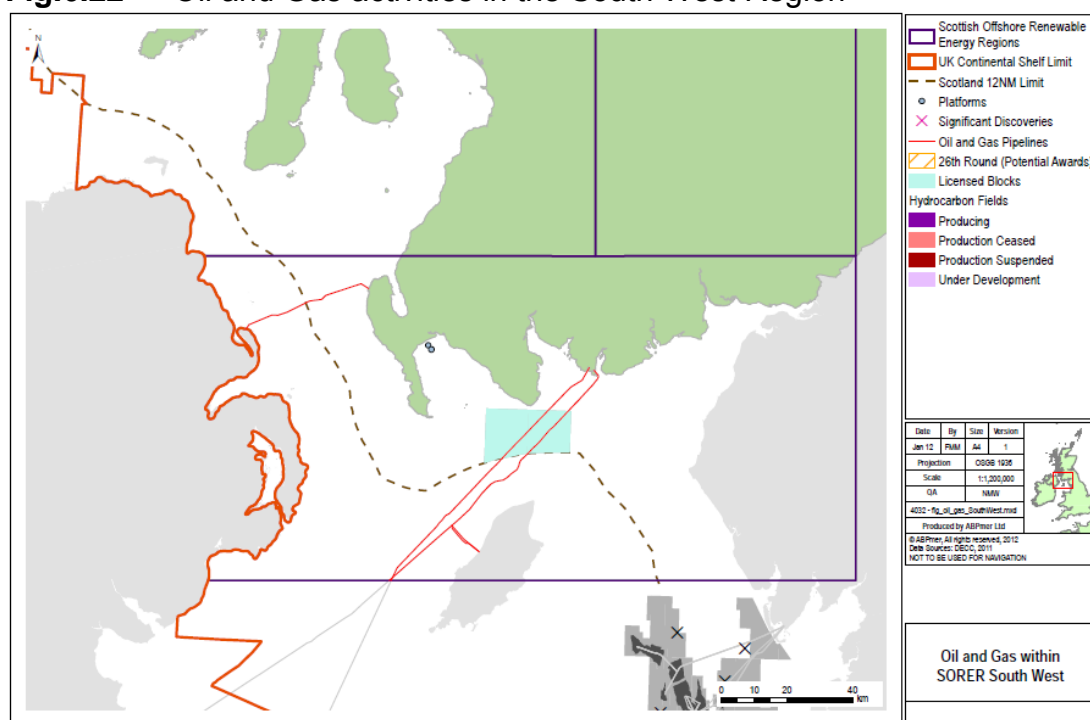
Project	Current Stage of Planning
ISLES project	<p>ISLES is an EU INTERREG IVA-funded, collaborative project between the Scottish Government, the Northern Ireland Executive and the Government of Ireland. Scotland is the lead partner. A recent study has assessed the feasibility of an offshore interconnected transmission network and subsea electricity grid to support renewables generation in coastal waters off western Scotland and in the Irish Sea. It concluded that:</p> <ul style="list-style-type: none"> • there are no technological barriers to the development of an ISLES network; • there is sufficient onshore network capacity in the UK for the connection of ISLES on the scale; • two zones proposed for offshore development: Northern ISLES (2.8 GW resource is realistic) and Southern ISLES (3.4 GW is achievable); and • there are no significant environmental constraints that cannot be adequately mitigated. Further environmental assessment will, however, be undertaken in the next phase of the project.
SPT link Hunterston to North Wales	<p>Included in ENSG but not subjected to environmental assessment Referred to in EGPS but not assessed in detail.</p> <p>SPT Networks is leading this project. The HVDC cable will provides for an additional 200MW of capacity. It comprises over 400km of HVDC cable and converter stations at Hunterston, North Ayrshire in Scotland and at Connah's Quay in Flintshire, north Wales. It will be constructed and operational by late 2015. It allows for two way transmission (north and south)</p> <p>A full environmental assessment of the project was undertaken. http://www.westernhvdclink.co.uk/</p>
South West Scotland	Included as a national development in NPF2 and assessed in principle in its SEA.

<p>Transmission Line</p>	<p>Included in ENSG but not subjected to environmental assessment EGPS</p> <p>SPT Networks is working with East Ayrshire and South Ayrshire Councils on consent for the reinforcement and intends to submit an application to the Scottish Government for consent under Section 37 of the Electricity Act. Reinforcement work could be complete by 2013. Projects making uses of this reinforcement would be connected in 2014</p>
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6.10 Oil & Gas

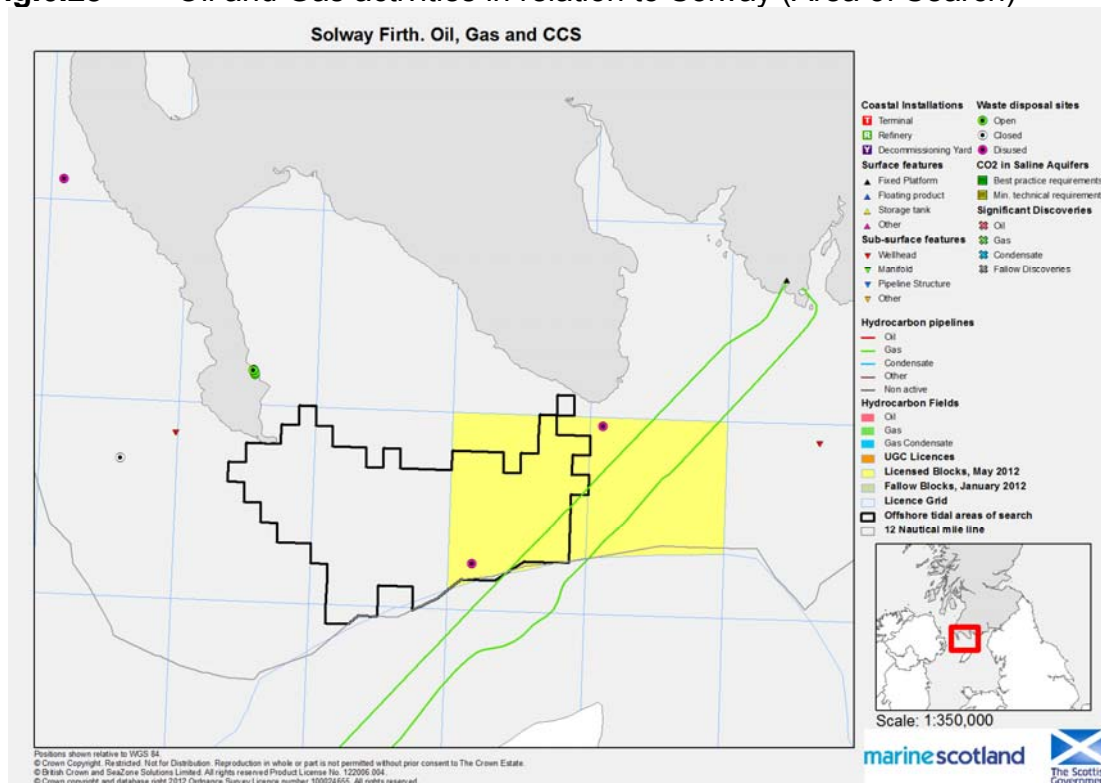
6.10.1 The Oil and Gas related activity in this region comprises of a licensed area in the Solway Firth and three interconnector pipelines which take gas across the Irish Sea. There are no producing hydrocarbon fields or hydrocarbon fields under development in this region. (Fig.6.22)

Fig.6.22 Oil and Gas activities in the South West Region



6.10.2 Figs.6.23 below contain the known activities in relation to oil and gas in relation to the Solway (Areas of Search).

Fig.6.23 Oil and Gas activities in relation to Solway (Area of Search)



6.11 Planning Issues

Dumfries and Galloway

6.11.1 Seascapes sensitivity guidance states that where proposals are close to the shore and could be viewed in combination with onshore developments and landscapes, the guidance within the DGWLCS on character types will be taken into account. In the case of developments further from the shore, it also acknowledges that this guidance may be less relevant. Reference is also made to the IPP’s policies on development proposals in areas with different levels of sensitivity and capacity and work by SNH on seascape capacity and sensitivity (2005).

6.11.2 The Interim Planning Policy policies on development proposals are based on mapping of sensitivity to windfarm development but may have some relevance to tidal developments. Map 2 of the IPP identifies areas requiring significant protection, including Luce Bay and part of the Solway estuary and Policy WEP1 explains that development in these areas will only be supported in certain circumstances, including where they will not adversely affect Natura sites, and will not have unacceptable landscape or visual impacts (cumulatively or individually). Although the focus of the guidance is on onshore wind, it is useful to note that areas around the coast are mapped as being either unsuitable for development, or of limited potential.

6.12 Ports and Harbours

- 6.12.1 **Cairnryan** is a key port in this region, supporting the ferry link from Scotland to Northern Ireland. The nearby harbour at Stranraer is the subject of redevelopment to provide mixed uses, following the relocation of the ferry to Loch Ryan. Its use now focuses on leisure activities. New port facilities at Loch Ryan and associated transport infrastructure improvements were included a national development within the 2nd National Planning Framework. The combined facilities were explored as a medium term site within N-RIP, to support operations and maintenance and the marine sector and will be considered further to support wave and tidal sectors in Phase 2 of N-RIP.
- 6.12.2 Stena Line and P&O at Cairnryan have regular sailings to Belfast and Larne in Northern Ireland, providing an important freight and passenger link within this region. Cairnryan shows a fluctuation of tonnages ranging from a peak of 3.2 million tonnes in 2005, to a low of 2 million tonnes in 2001. Stranraer has a more even profile with tonnages steadily falling between 1998 and 2005 then remained static at circa 1.1 to 1.2 million tonnes up to 2009.
- 6.12.3 Other key locations include Girvan, Port William, Kirkcudbright (supporting commercial fishing, yachting and recreational boating at its marina), Isle of Whithorn (commercial fishing and pleasure craft), Garlieston (some fishing and recreation) and where small scale fishing, recreational boating and tourism are generally supported.
- 6.12.4 Dumfries and Galloway Council's response to the scoping consultation noted the importance of Cairnryan and the smaller harbours and quaysides across the region, and highlighted opportunities for the deployment of windfarm installations at Kirkmabreck Quarry Quay and Cairnryan Harbour.

Figure 6.24 Ports and Harbours in the South West Region

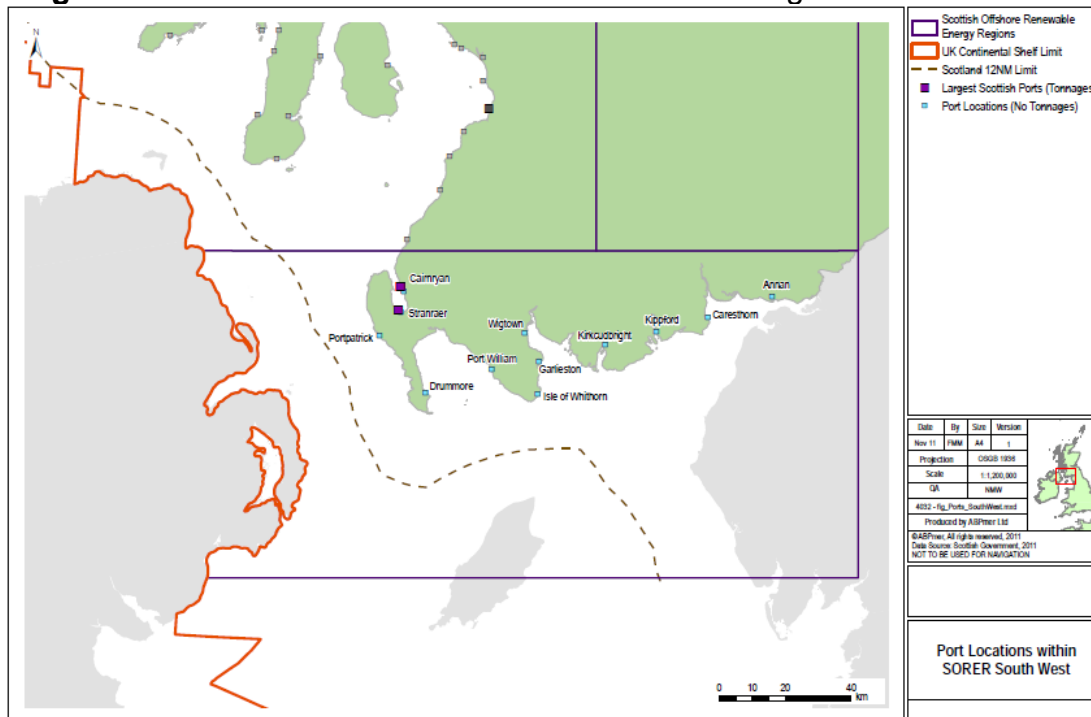


Table.6.2 Ports & Harbours in South West Region

Port	Operator	Type
Annan		Trust
Cairnryan	P and O European Ferries (Irish Sea) Ltd	Private
Carsethorn	Nith Navigation Commission	Trust
Drummore	Drummore Harbour Trust Ltd	Private
Garlieston	Dumfries and Galloway Council	Local Authority
Isle of Whithorn	Dumfries and Galloway Council	Local Authority
Kippford		Unknown
Kirkcubright	Dumfries and Galloway Council	Local Authority
Port William	Dumfries and Galloway Council	Local Authority
Portpatrick		Private
Stranraer	Dumfries and Galloway Council	Local Authority
Wigtown	Dumfries and Galloway Council	Local Authority

(Source: Marine Scotland, 2011a)

6.13 Recreation

Recreational Angling

- 6.13.1 The Solway Firth in the South-West is used extensively for sea angling, particularly charter fishing. The Dumfries and Galloway region, particularly Luce Bay and the Mull of Galloway, have relatively sheltered waters, good shore access and a variety and reasonable abundance of sea fish.
- 6.13.2 The majority of the people undertaking sea angling in this region (79%) are visitors from the rest of the UK (Radford et al 2009), who provide an important source of income for the local economy. Sea angling is estimated

to be worth about £25 million per year to the Solway area (Scottish Sea Angling Conservation Network, 2010a).

6.13.3 With respect to specialist and competition anglers, Scotland offers the prospect of catching tope in Luce Bay. Tope are worth about £10 million per year to several communities in Dumfries and Galloway (UKMMAS, 2010). An annual shark ‘tagging’ event held over one weekend in mid June in this region was attended by about 220 sea anglers in 2010. The event contributed around £41,000 into the local economy via expenditure on bait, food, drink, boat hire etc in 2009 (Scottish Sea Angling Conservation Network, 2010a).

6.13.4 The total estimated sea angling activity, expenditure, number of jobs supported and associated income from sea angling in the Dumfries and Galloway regions (geographically defined as the Local Authority area of the same name; which falls within the South West SORER) was as follows:

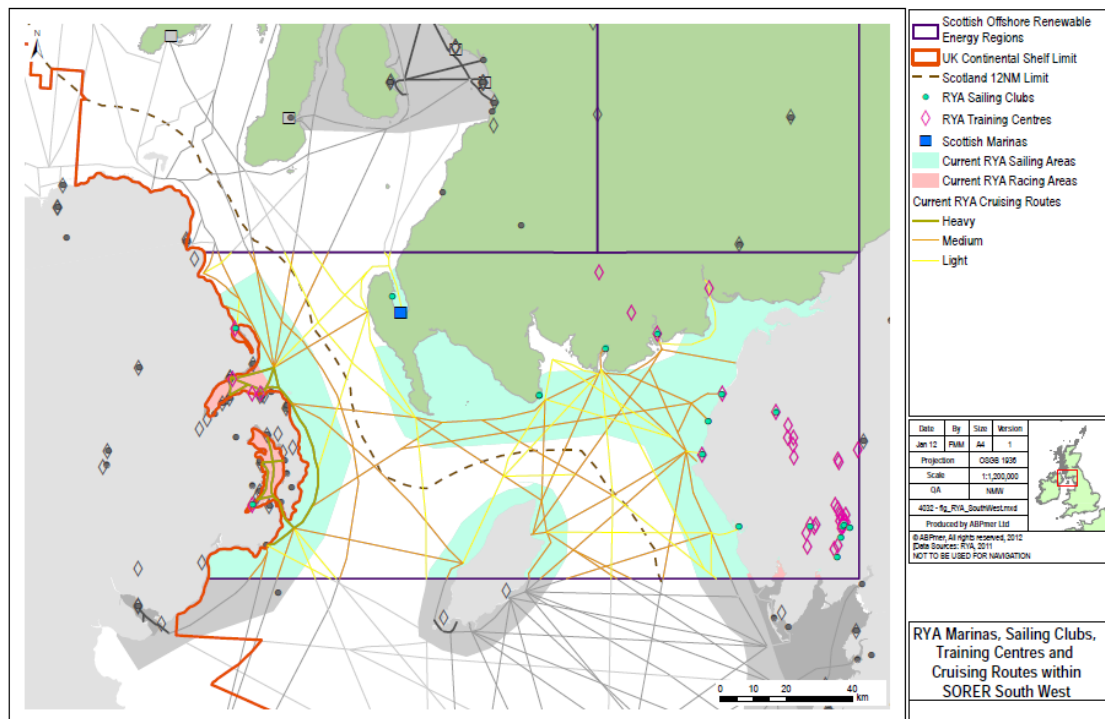
- Number of resident sea anglers = 3,224;
- Annual sea angler days spent in region = 233,080;
- 49% of the total sea angling activity was shore angling, while boat and charter activity comprised 32% and 19% of the total respectively;
- Total annual sea angler expenditure = £25.3million;
- 47% of the total expenditure was spent on shore angling; and
- Jobs supported = 534.

6.13.5 As noted previously the ONS employment figures are not specific to water sports or associated activities and in fact include a number of sporting activities, therefore the number of employees directly working in this industry are unknown.

Recreational Boating

6.13.6 Sailing activity in the South West Region is shown in Figure 6.25. The figure highlights that sailing areas occur along virtually the whole of the coastline in this region. There are a large number of medium usage routes within the Solway Firth and the North Channel.

Figure 6.25 Sailing activity in the South West Region

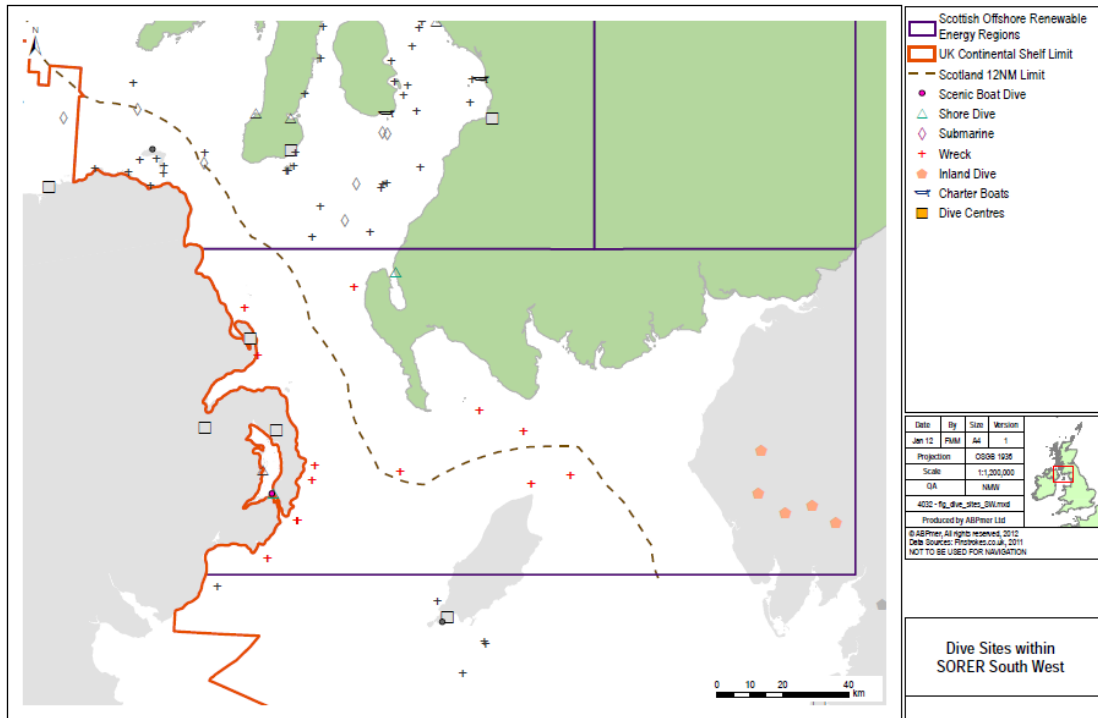


- 6.13.7 A report on the economic impact of sailing specifically for the Clyde Estuary area found that expenditure associated with sailing was estimated at £28m annually. Of this, £16.4m was generated by the permanent berth holders and £7.2m by the 2,000 boats using moorings in the area. Including indirect benefits, within the Clyde Estuary, an indicative total impact of £40.7m per year was estimated with a GVA of £12.2m (Scottish Enterprise, 2006).

Scuba Diving

- 6.13.8 Poor visibility generally inhibits scuba diving in the inner part of the Solway Firth although a limited amount of scuba diving is undertaken further West around Luce Bay (Figure 6.26).

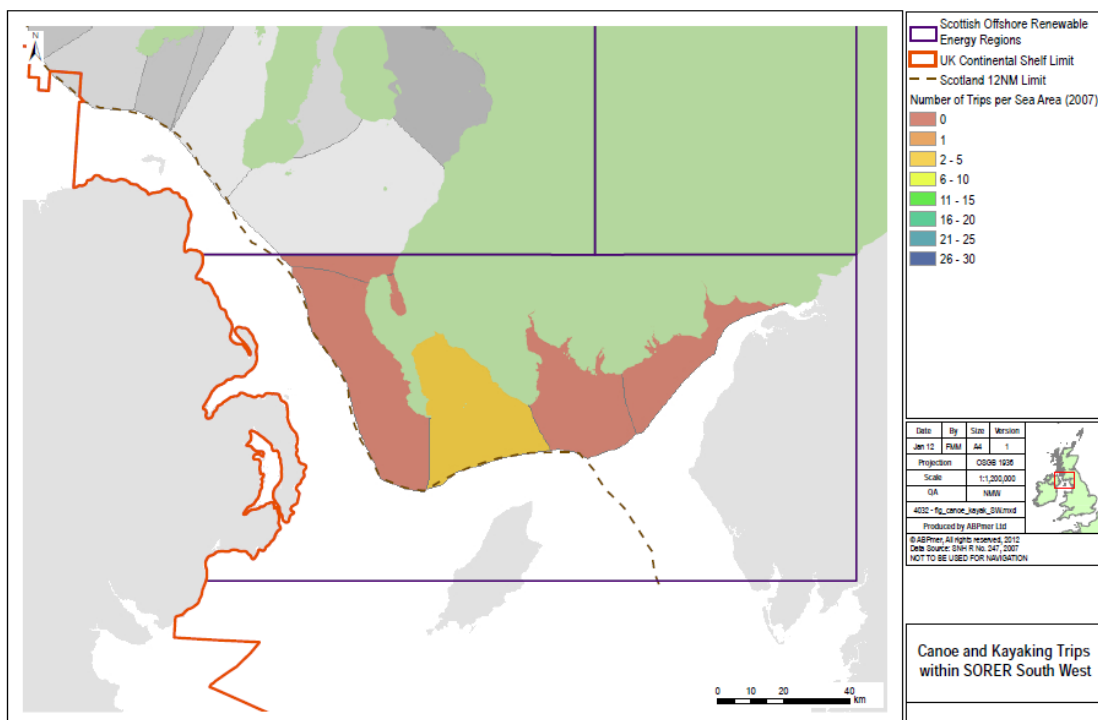
Figure 6.26 Recreational diving activities in the South West Region



Sea Kayaking and Small Boating Activities

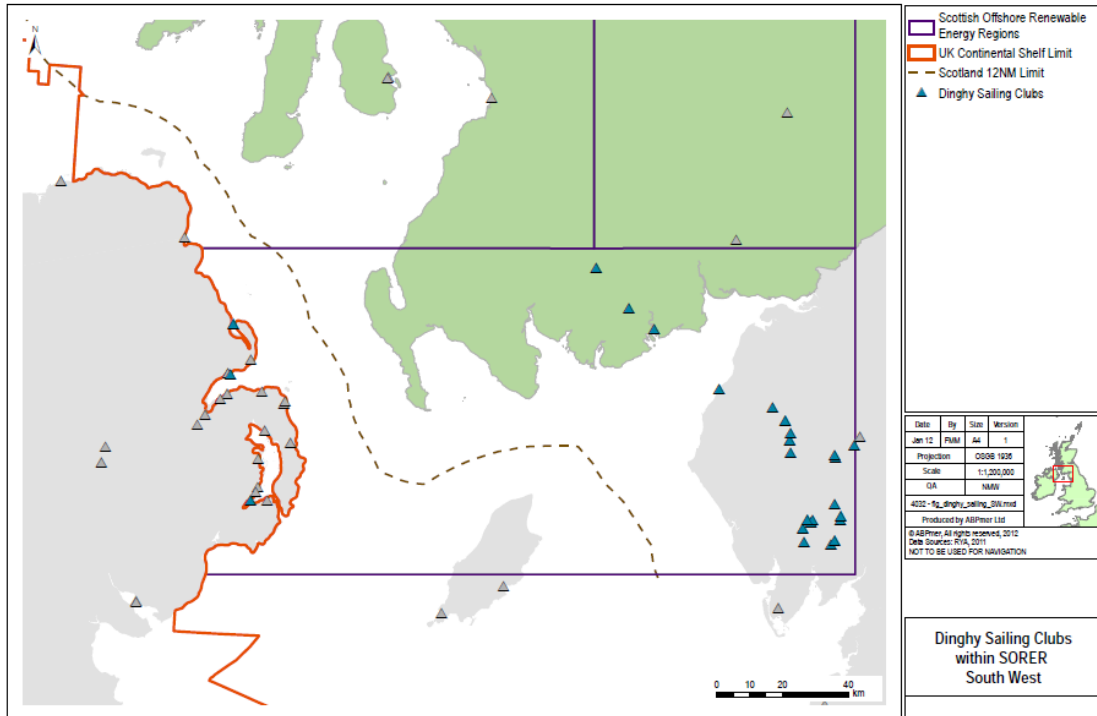
6.13.9 Sea kayaking is undertaken in the South West Region although the area is not as popular as some other locations in Scotland such as around Mull and the Firth of Lorn (Land Use Consultants, 2007)(Figure 6.27).

Figure 6.27 Kayaking and Small Boat Activities in the South West Region



6.13.10 Several coastal dinghy sailing clubs are present in the South West Region around Kirkcudbright Bay (Figure 6.28).

Figure 6.28 Dinghy Sailing Clubs in the South West Region

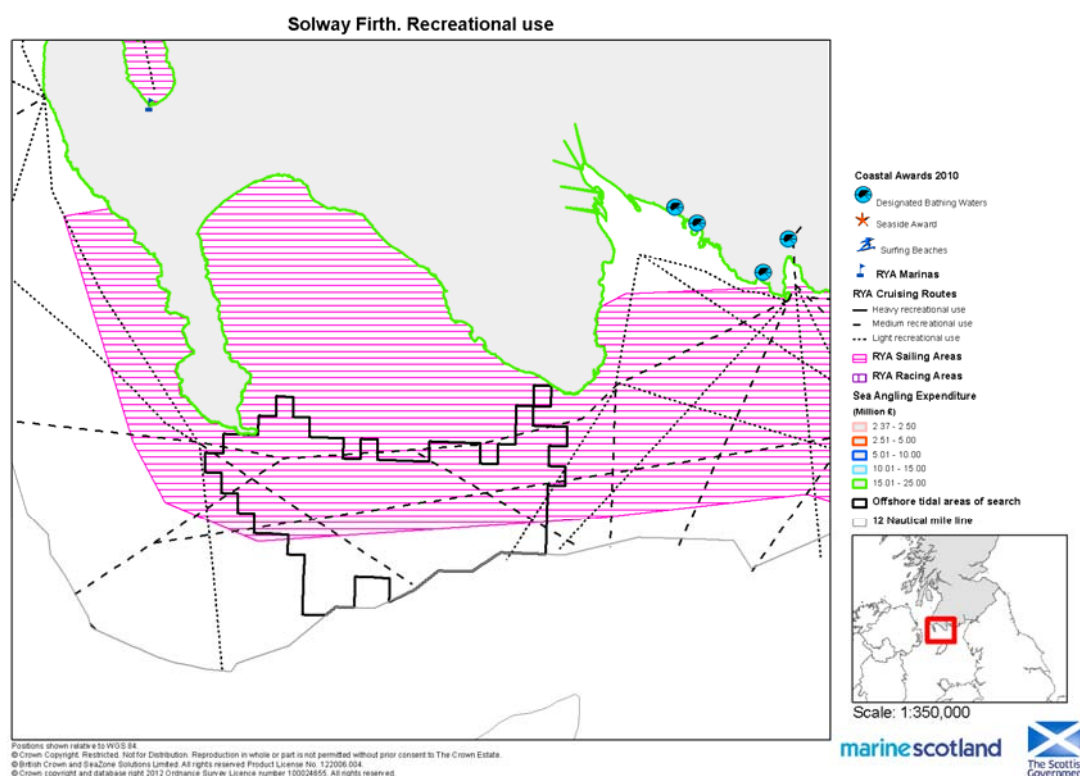


Surfing and Windsurfing

6.13.11 No specific surfing or windsurfing locations were identified within the South West Region for the purpose of this guidance

Areas of Search

6.13.12 Figs.6.29 below identify the recreational activities taking place in the Solway Firth Area of Search.

Fig.6.29 Recreational activity in the Solway Firth (Area of Search)

6.14 Shipping

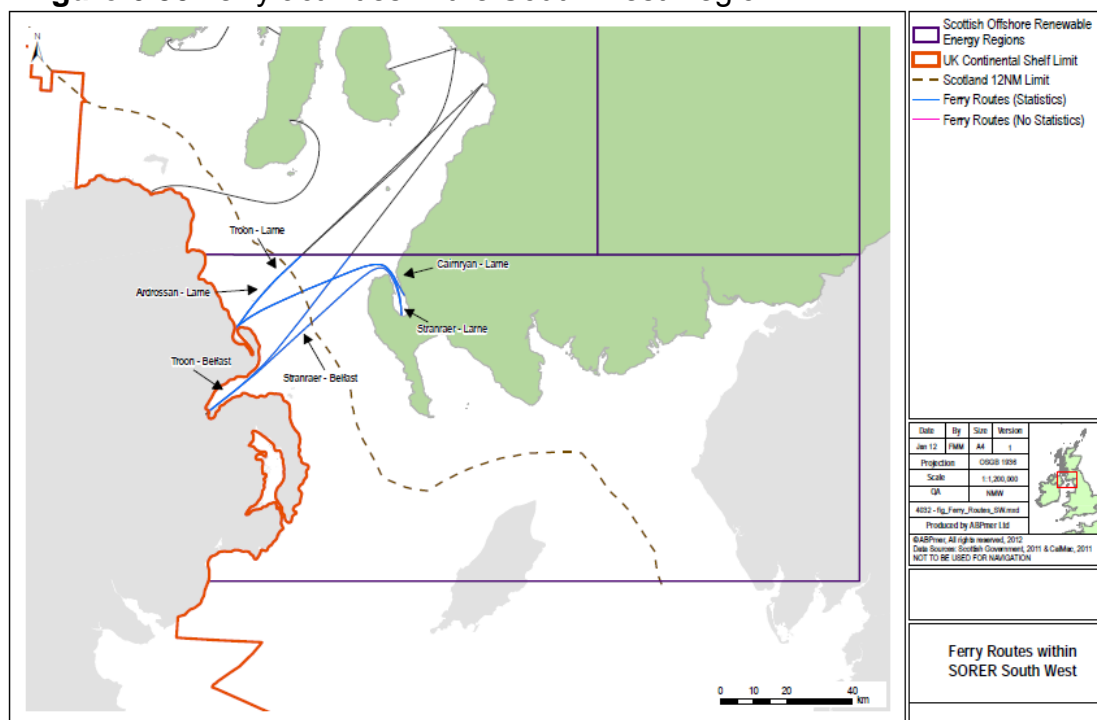
6.14.1 The South West coast of Scotland from Solway to the Rhinns of Galloway starts at the most Eastern part of the Solway as low lying shoreline with shallow waters, numerous drying banks and shifting sands. Shipping traffic in the area is minimal with mainly small coastal cargo vessels, fishing vessels and local day boats from the harbours along the Scottish shores of the Solway Firth. As the coast runs West it becomes mainly rocky and indented by bays rising to steep cliffs at the Mull of Galloway, along the Rhinns edging to the North Channel (between Scotland and Ireland) which is deep and unobstructed for shipping, but experiences strong tidal flow. This is a busy area for shipping with both Northbound and Southbound traffic from the Irish Sea, Isle of Man and English ports transiting around Ireland or Northwards to Scottish ports. The Northern end of this region is the location of the two major ports of Cairnryan and Stranraer, which provide RoRo and passenger services to Ireland. Fishing occurs throughout the area. There are also a number of leisure users who sail between Loch Ryan and the Firth of Clyde, with a smaller number using Loch Ryan as a transitory stop between the Hebrides, the Solway Firth and Isle of Man (GLA, 2010).

6.14.2 Loch Ryan to Irish port traffic provides an intensity of sea area use, which was at a peak in 1998 of around 8,800 vessels arrivals, but has reduced to an average of 4,700 arrivals since 2005.

6.14.3 This region supports a number of ferry routes, all of which link Scottish ports to locations in Ireland, and provide for both Roll-on/roll-off (RoRo) and

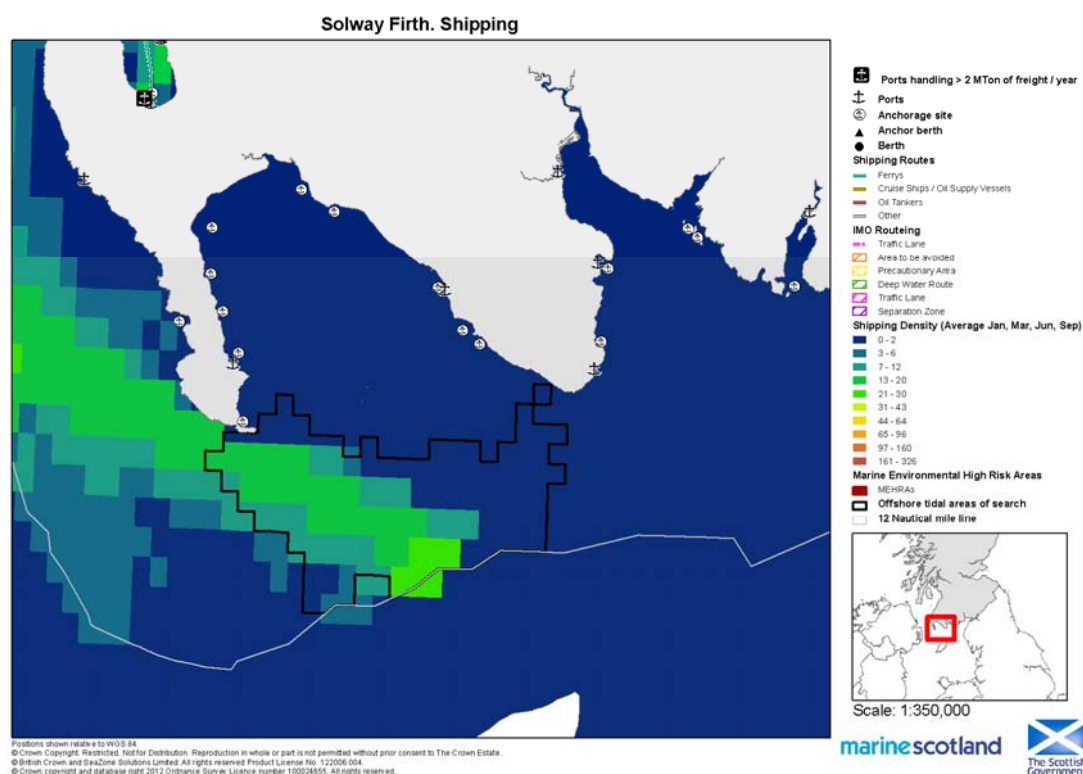
passenger services. These links provide direct economic trade routes with knock on positive benefits for employment and businesses in the ferry route support chain.

Figure 6.30 Ferry activities in the South West Region



Area of Search

- 6.14.4 To the northeast of the Solway tidal area of search there are busy ferry routes between the Scottish mainland and Northern Ireland.
- 6.14.5 To the east of this area of search lies a heavily used shipping route that extends southwards from east Northern Ireland and includes ferry and cargo routes. These shipping lanes and routes do not intersect with the area of search.
- 6.14.6 The Belfast-Birkenhead line and the Belfast-Douglas line cross through the proposed area of search. Both these ferry routes intersect the Solway tidal area of search at its western part in a south east direction. Ferry traffic was calculated at approximately 1000 to 2500 movements per year (JNCC Irish sea pilot, 2003).

Fig.6.31 Shipping Activities in the Solway (Area of Search)

6.15 Social Considerations

6.15.1 The total population in South West Region is 148,000. The population of the South West is significantly greater in the older age bands (50-54 to 90+), but is lower than the national average for ages between 0 and 44. The overall average age in the South West Region is 42 years old (three years greater than the national average). Some of the significant differences seen may be explained by the relatively small population in this region. There has been a gradual decline in the number of people of working age (by 4.9%, from 46,100 in 1996 to 43,800 in 2010) and the number of children (by 16.2%, from 15,100 in 1996 to 12,700 in 2010). In contrast, the number of people of pensionable age has increased by 22.6%, from 17,300 in 1996 to 21,200 in 2010.

6.15.2 Median gross weekly earnings for full-time employees in Dumfries and Galloway were £356.80 in 2001, increasing by 24.2% to £443.10 in 2010. This compares with a national increase of 40% and national average weekly income of £478.39 in 2010. This shows that weekly income in the South West is around 7% lower than the national average.

6.15.3 The greatest number of jobs in this region are associated with Sectors Q (human health and social work activities) accounting for 21% of the total for 2010, and Sector G (wholesale and retail trade) accounting for 19%. Other industry sectors accounting for around 10% of jobs are manufacturing (C) (10%) and education (P) at 9%. Agriculture, forestry and fishing makes up 1% of all jobs, while accommodation and food service activities (I) account

for around 8%. Jobs in arts, entertainment and recreation (R) make up 2% of all jobs in the South West.

- 6.15.4 The percentage of the population in Dumfries and Galloway that rated their health as good or very good was 87.3% in 2001/2002, this increased to 88.8% in 2007/2008.
- 6.15.5 There are 51 SIMD coastal datazones in the South West Region, 50% of all datazones. No coastal zones are in the 10% most deprived across all the indicators. There are only slight differences in the number of coastal datazones in the South West that fall into the most affluent 10%, except for health where only 4% of coastal zones are in the most affluent 10% in the coastal zones compared with 8% overall. The average rank suggests that the coastal datazones are slightly more affluent for education, skills and training, employment and income (even though none of the coastal datazones fall into the 10% most affluent whereas 1% do overall), but slightly more deprived for housing. Overall, therefore, there are a few areas of deprivation in the South West, but none of these are coastal areas. Most of the coastal areas are neither affluent nor deprived, although there are a few areas that fall into the 10% most affluent areas.
- 6.15.6 The drive time to a college of Further or Higher Education in the South West Region is estimated at an average of 55 minutes.
- 6.15.7 Mean house prices in the South West, at £142,512 were around 8% lower than the national average in 2010. Since average earnings are around 7% lower than the national average, the affordability of housing is likely to be around the average price to earnings ratio of 3.4, possibly slightly lower.
- 6.15.8 The percentage of people living in the South West Region that rated their neighbourhood as good or very good was 59.3% in 1999/2000. By 2007/2008, this had increased to 62.4% (an overall increase of 3.1%), but is a decrease from a high of 66% in 2003/2004.
- 6.15.9 The average electricity consumption (per household) in the South West Region was 5.8 MWh in 2009 (compared with an overall estimated average per household for Scotland of 5.7 MWh). A reduction in MWh consumed per household of 0.5 MWh was seen between 2005 and 2009 in Dumfries and Galloway. Those households where the highest income earner (HIH) is 60+ are more likely to be in fuel poverty than the whole population in 2007/2009. At 56.6%, this is higher than the national average of 45.9% for this group. The percentage of HIH 60+ in fuel poverty has also increased between 2005/2008 and 2007/2009.

Future Trends

- 6.15.10 Table 6.3 summarises the statistics and trends discussed above to give an indication of the likely future changes by indicator, comparing national with local trends (where data are available). There is much greater uncertainty

over trends for the time period of 30 to 50 years and, in both cases, it is assumed that future trends follow recent and historic trends.

Table.6.3 Summary of future trends in South West Region

Indicator	National		Regional		Evidence for Trend
	10-20 years	30-50 years	10-20 years	30-50 years	
Average age	↑	↑	↑	↑	Estimate of proportion of the population that is of pensionable age between 2001 and 2010
Working age population	↑	→	↓	↓	Recent trends suggest a decrease in the proportion of working age people; the proportion of children is also decreasing suggesting this may be a longer-term trend
Income	↑	↑	↑	↑	Recent trends suggest slight increase over time, but income is lower than national average
Health	↑	→	↑	↑	Recent trends suggest slight increase in perception of health
Perception that neighbourhood is a very good place to live	↕	↕	→	→	Regional trends suggest fluctuations (increases followed by decreases)
Housing quality	↑	↑	↑	↑	Housing quality, as measured by percentage of housing failing the SHQS, is improving, although the definition used in the standard has changed over time, making this difficult to confirm
Energy consumption	↓	↕	↓	→	Recent trends suggest potential for continued slight decline, in longer term is more uncertain
Fuel poverty	↑	→	↑	→	Recent trends show an overall increase even though the Scottish Government policy is that there should be no fuel poverty in the medium to long-term. Disability and long-term sick has shown small decrease
<p>Key: ↑: indication of upward trend ↓: indication of downward trend ↕: uncertain trend could be up or down →: no significant change up or down expected</p>					

6.16 Supply chain

6.16.1 The N-RIP Stage 2 Report includes the following port in the South West Region which initial assessments suggest may be suitable to develop wave and tidal supply chain activities:

- Stranraer/Cairnryan

6.16.2 In addition, opportunities for to facilitated the deployment of offshore renewable energy installations have been identified at Kirkmabreck Quarry Quay.

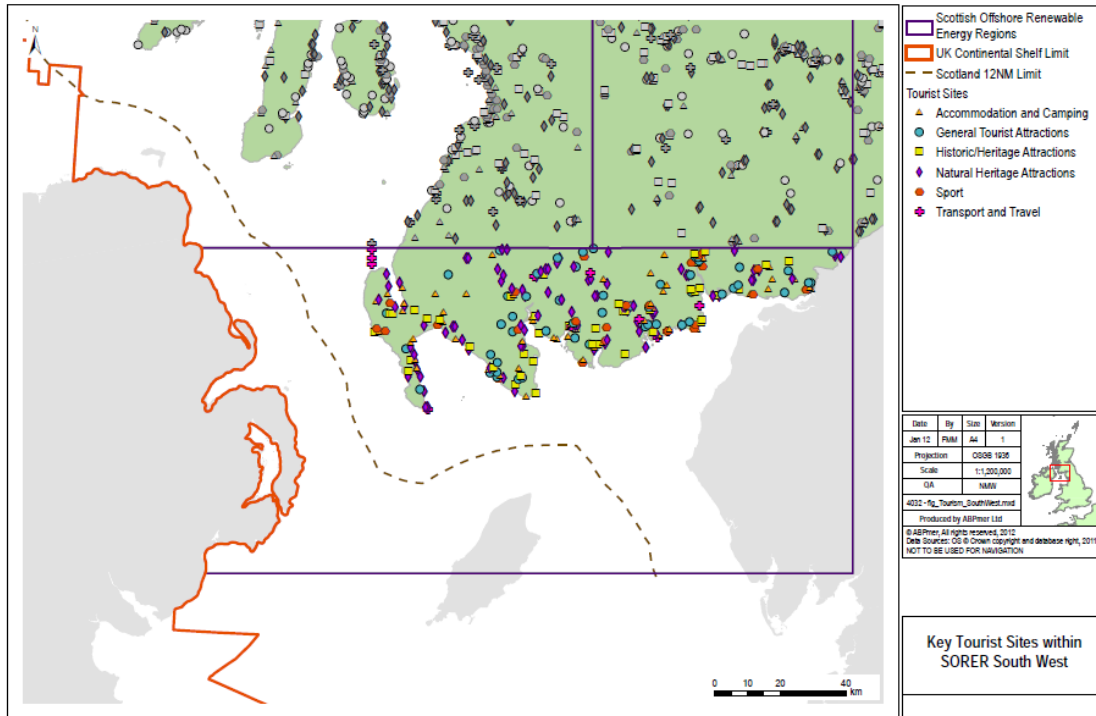
Dumfries and Galloway Council

6.16.3 The Council chairs the Renewable Energy Strategic Framework Steering group attended by representatives from the renewable energy industry and key agencies such as Scottish Enterprise, Skills Development Scotland and local business forums. Through funding provided by the ERDF funded South of Scotland Business Competitiveness Project this group is currently looking at commissioning research into the specific supply chain opportunities, barriers and market failures for local businesses in this sector.

6.17 Tourism

6.17.1 Tourist sites in South West Scotland appear to be more spread out than in other regions, however there are various types of attraction present as shown in Figure 6.32. South West Scotland additionally has numerous sites for accommodation and camping, both inland and on the coast. Transport and travel are also provided in the region (e.g. ferry services). With regards to wildlife tourism, there are two designated marine Special Areas of Conservation, namely; Luce Bay and Sands and Solway Firth. With growing recent interest in ecotourism, it is surmised that these areas may help attract tourism to this region, however no current statistics are available.

Figure 6.32 Key tourist sites within the South West Region



6.17.2 Although there are fewer coastal and maritime cultural heritage assets in South West Scotland than elsewhere (see Figure 6.33), thus indicating that there may be fewer opportunities for conflict between tourism and offshore renewable energy generation, the region does have several designated bathing waters. These are concentrated in the Kirkcudbright area, as indicated by Figure 6.33.

Figure 6.33 Cultural and Maritime Heritage Assets in South West Region

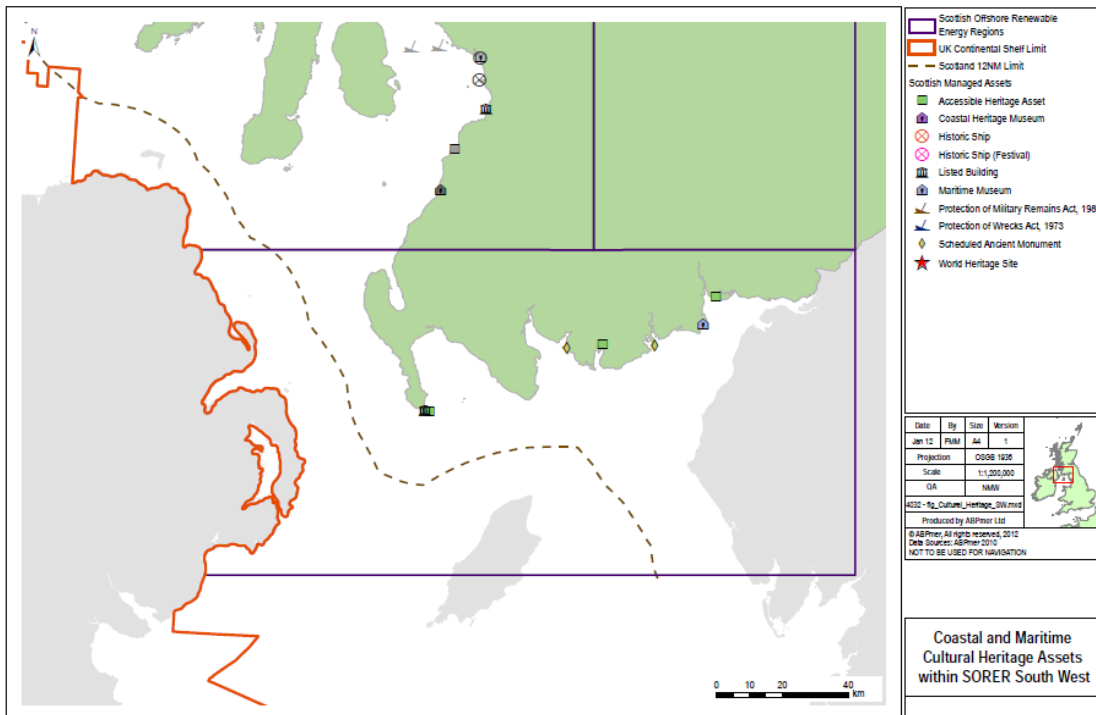
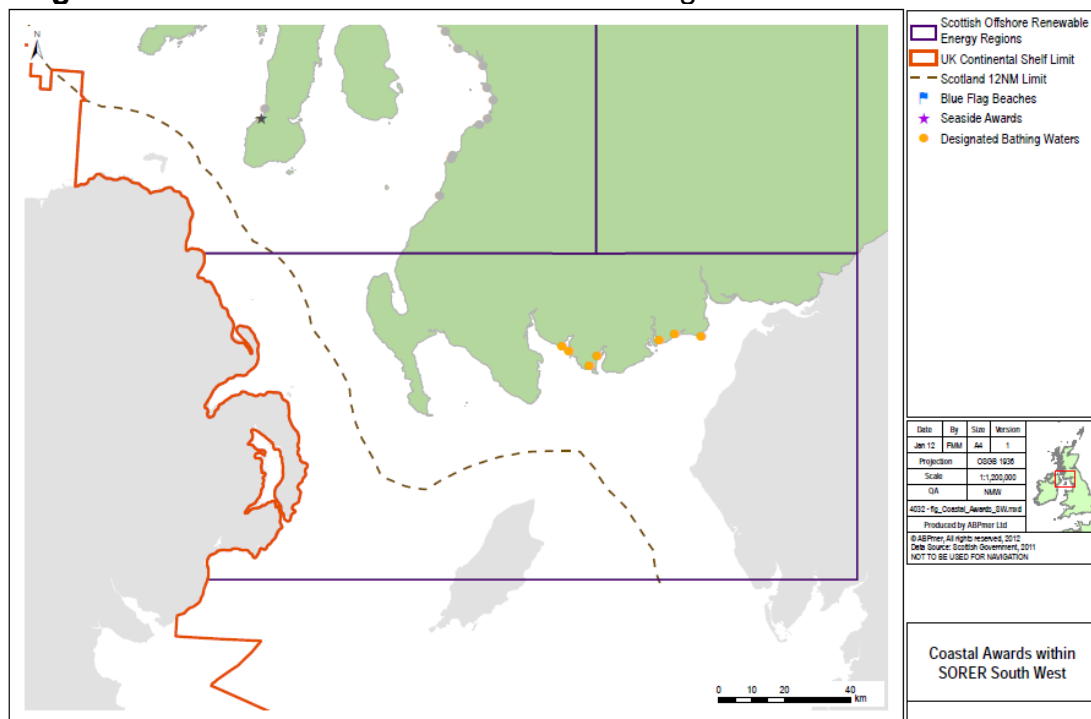


Figure 6.34 Coastal Awards in South West Region



6.17.3 In terms of visitor numbers data from VisitScotland indicate that in 2009, UK visitors made around 750,000 trips to Dumfries and Galloway, stayed for 2.6 million nights and had an estimated expenditure of £119 million. In the same year, visitors from overseas made around 57,000 trips, stayed for 1.2 million nights and spent £24 million.