

Economy - Ports and Shipping

Baseline/issues: North West Plan Areas 10 11

(Please note that the figures in brackets refer to the SA scoping database. This is available on the MMO website)

- Shipping routes within the Irish Sea are composed of North-South routes along the Irish Sea and connecting routes to Ireland. Most notable are Holyhead and Liverpool to Dublin, Heysham and Liverpool to the Isle of Man and Belfast (Economy_439)
- There are IMO Traffic Separation Schemes in the plan area near the entrance to Liverpool and Mersey Ports (Economy_447)
- According to Department for Transport statistics, there are four major ports in the North West plan area: Fleetwood, Heysham, Liverpool and Manchester. Liverpool is ranked 6th busiest port in the UK and the main activities are containers, bulk cargo, general cargo, ship fabrication & repair. The new deep water container terminal will double port capacity in Liverpool (Economy_377)

Baseline/issues: South West Plan Areas 8 9

- There is an inshore shipping route along the South coast linking two way traffic to a point off Land's End, from which two distinct traffic routes can be seen heading in a North-South orientation for traffic transiting into the Irish Sea. Clearly defined routes can be seen into the Severn Estuary, and vessels bound for Milford Haven in Pembrokeshire (Economy_437)
- There is an IMO Traffic Separation Schemes in the plan area around the Isles of Scilly (Economy_446)
- According to Department for Transport statistics, there are three major ports in the South West Plan area: Bristol, Falmouth and Plymouth. None of these are in the top ten list of busiest ports but ferry services to the Isles of Scilly from Penzance are important (Economy_383)
- Her Majesty's Naval Base Devonport and Dockyard is a major component of the UK's strategic defence capability (Economy_289)
- South West has 22% of English ports handling mainly passenger and fishing traffic (Economy_324)
- There have been some issues in relation to dredging activity at HMNB Devonport and disposal of material at the Rame Head South disposal site. The issue is focused on the effects of contamination on a nearby Marine Conservation Zone. Characterisation work is taking place through CEFAS and Marine Licensing. Two licences have been agreed over the next two years to dispose at that site so disposal can carry on (Economy_588)

Summary of the legislative / policy context

Shipping is predominantly regulated internationally and navigational safety is paramount. There are various laws / practices including principles laid down in the [United Nations Convention on the Law of the Sea](#) (UNCLOS) and [International Regulations for Preventing Collisions at Sea 1972](#) (COLREGS). COLREGS set out navigation rules in order to prevent collisions between two or more vessels. IMO Traffic Separation Schemes are designated shipping lanes for the safe navigation of vessels in busy and intensively used shipping areas (Economy_432)

[The National Policy Statement for Ports \(2012\)](#) provides the framework for decisions on new port development. The NPS allows judgments about when and where new developments might be proposed to be made on the basis of commercial factors by the port industry or port developers operating within a free market environment; and ensures all proposed developments satisfy the relevant legal, environmental and social constraints and objectives. In the [Marine Policy Statement](#) the Government seeks to encourage sustainable port development to cater for long-term forecast growth in volumes of imports and exports by sea thus contributing to long-term economic growth and prosperity. The Government has a Ports Strategic Partnership which sets out the joint priorities to achieve a thriving ports industry (Economy_12)

The Marine Policy Statement highlights the fact that increased competition for marine resources may affect the sea space available for the safe navigation of ships. Marine plan authorities and decision makers should take into account and seek to minimise any negative impacts on shipping activity, freedom of navigation and navigational safety and ensure that their decisions are in compliance with international maritime law (Economy_422). The [Maintenance Dredging Protocol](#) is in place to ensure all conservation aspects are considered in relation to the Natura 2000 network for maintenance dredging and, where possible, ensure good status/ ecological potential is achieved. [The Environment Agency Water Framework Directive document Clearing the Waters](#) augments the protocol (Economy_616)

[The National Contingency Plan for Marine Pollution](#) sets out the arrangements for dealing with pollution, or the threat of pollution, spilled from ships and offshore installations (Economy_617)

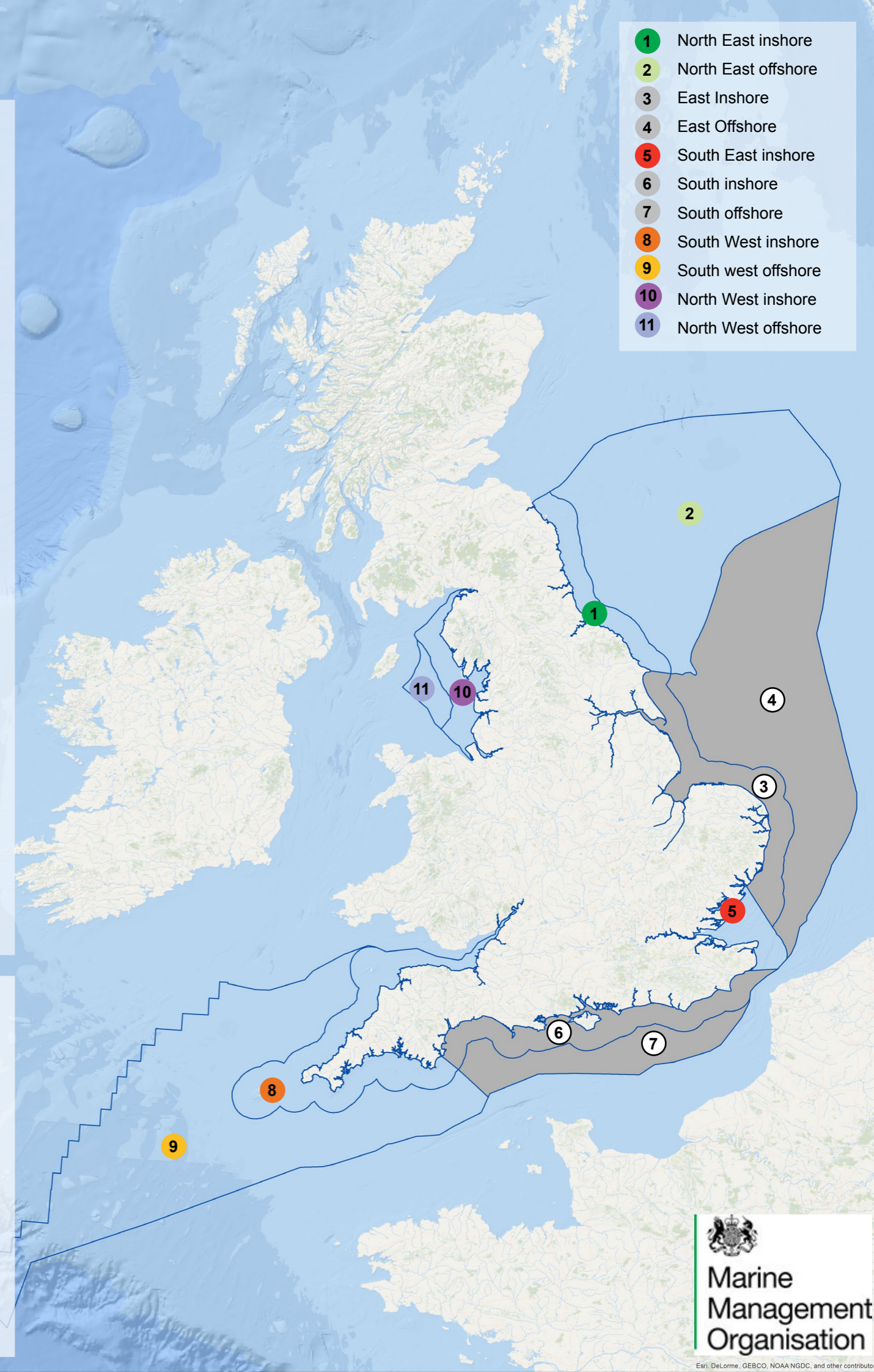
Baseline/issues: North East Plan Areas 1 2

- The East coast ports of the Tyne and Tees provide clear corridors of shipping activity. Routes into the North Sea connect to the Baltic States, and most notably, ferry routes to the Netherlands from the Humber (Economy_440)
- There are no IMO Traffic Separation Schemes in place within the plan area (Economy_411)
- According to Department for Transport statistics, there are 3 major ports in the North East Plan area: Sunderland, Teesport and Hartlepool and Port of Tyne. Teesport and Hartlepool port is the third busiest in the UK (Economy_373)
- Teesport is an international asset with good deep water access. It is the largest exporting port by tonnage in England, exporting 20m tonnes (Economy_149)
- There are numerous smaller ports servicing smaller vessels in the inshore area (Economy_413)

Baseline/issues: South East Plan Areas 5

- The English Channel is one of the world's busiest shipping routes, linking the North and Baltic Seas to the North-West Atlantic (Economy_434)
- Dover to Calais is most popular international passenger route accounting for 48% of all short sea international passengers (Economy_331)
- IMO Traffic Separation Schemes in the plan area: Thames Estuary and Dover Strait and around the South coast (Economy_449)
- According to Department for Transport statistics, there are seven major ports in the South East plan area: Dover, Felixstowe, Harwich, Ipswich, London, Medway, and Ramsgate. London is ranked as the second busiest port in the UK, Felixstowe is ranked seventh and Dover is ranked eighth (Economy_380)
- Felixstowe is the busiest container port and Dover has the greatest amount of ro-ro freight (Economy_326)
- The South East contributes over £2.5 billion to the national economy from ports and shipping, (the greatest amount of GVA of all the marine plan areas) (Economy_328)
- The Thames is used as a port for shipping (including dredging and disposal), but also for inland freight and waterborne passenger transport. The Port of London Authority is actively engaged with the Mayor of London in supporting the 'safeguarding' of riverside wharves from redevelopment into non-port use. Currently 50 wharves are safeguarded: 25 upstream and 25 downstream of the Thames Barrier. It will important to assess the impact of development in the marine plan on these safeguarded wharves (Economy_594)

- 1 North East inshore
- 2 North East offshore
- 3 East Inshore
- 4 East Offshore
- 5 South East inshore
- 6 South inshore
- 7 South offshore
- 8 South West inshore
- 9 South west offshore
- 10 North West inshore
- 11 North West offshore



Economy - Ports and Shipping

Key cross cutting baseline / issues across all plan areas

- The UK ports sector is the largest in Europe, in terms of tonnage handled. It comprises a variety of company, trust and municipal ports although much of the tonnage handled is concentrated in a small number of ports, with the top 15 ports accounting for almost 80% of the UK's total traffic (Economy_429)
- The location of ports in England and Wales has changed over time, in response to changes in global markets, in the size and nature of ships, and in the transport networks which support them. Currently, the largest container and ro-ro terminals are in the South East, while the west coast has naturally been best placed to meet the needs of transatlantic and Irish traffic (Economy_430)
- Environmental impacts from the ports and shipping sector can be through accidental pollution from ships in the course of navigation or lawful operations, pollution caused by unlawful operational discharges by ships, such as oil, waste or sewage, or physical damage caused by groundings or collisions. Other pressures on the environment from shipping and ports relate to noise, airborne emissions and the introduction and spread of non-indigenous species (transported on the hulls of ships or in ballast water) (Economy_421)
- Shipping is an essential and valuable economic activity for the UK. There are significant movements of ships around the UK coast and into and out of UK ports serving the UK's economic interests. There are also significant levels of legitimate passing traffic, for example through the English Channel and other ships freely using the navigable seas adjacent to the UK (Economy_425)
- Navigational dredging and disposal of marine sediment needs to be facilitated in line with the objective to prevent, reduce and eliminate where practicable pollution caused by dredging operations and the disposal of dredged sediments. All the ports listed undertake navigational dredging and the impacts of this activity may need to be assessed as part of the SA. For example, in the Port of London three types of dredging are undertaken: Water Injection Maintenance Dredging, Trailing or Trailing Suction Hopper Dredger Maintenance Dredging and Plough Maintenance Dredging (Economy_452)

The likely evolution of the environment over the plan duration

Shipping will continue to provide the only effective way to move the vast majority of freight in and out of the UK, and the provision of sufficient sea port capacity will remain an essential element in ensuring sustainable growth in the UK economy. UK Government port forecasts show a continued strong growth in the ports sector. There are a number of recent developments in the marine plan areas which will see further development at certain ports including:

- The Port of Felixstowe - consent granted in February 2006 would provide capacity for an estimated further 1.6m to 2m twenty foot equivalent unit (teu) at Felixstowe South;
- Bathside Bay (Harwich) - consent granted March 2006 would provide capacity for an estimated 1.7m teu per annum, though this development is not expected to proceed for some years;
- London Gateway - consent granted June 2007 would allow capacity for an estimated 3.5m teu per annum;
- Teesport - consent granted February 2008 would provide capacity for a further 1.5m teu;
- Liverpool - consent granted March 2007 would allow capacity for around a further 0.6m teu; and
- Bristol - consent granted September 2010 will allow an estimated further 1.5m teu.

It is also evident that demand for port capacity to service offshore windfarms will be substantial, especially in the short term in support of the 'Round 3' offshore developments. Generally, it is not possible to anticipate future commercial opportunities. New shipping routes and technologies may emerge. The needs of trading partners may change as their economic circumstances develop. So capacity needs to be provided at a wide range of facilities and locations, to provide the flexibility to match the changing demands of the market, possibly with traffic moving from existing ports to new facilities generating surplus capacity. There is also an increasing trend toward larger vessels and deeper drafts requiring larger quays and port-side facilities. This will pose additional requirement for more frequent or large scale dredging and this could have implications on biodiversity and water.

Potential interactions with other topics

Dredging is an enabling activity which is essential to the functioning of ports and marinas and can have impacts on water and sediment pollution. Current safeguards have significantly improved the chemical status of the sediments around our coasts. This is due to reductions in the tonnage of contaminants which have been permitted to be disposed of at sea (Economy_619).

Ports and shipping has positive interactions with economic and social topics including job creation and benefits to local fishermen, as well as wider benefits to national, regional or local economies (including tourism and recreation). Despite continuing advances in efficiency, ports remain substantial employers in their own right and they generate and facilitate economic activity in trade-related sectors. In addition, they are essential to support emerging industries such as renewable energy development (Economy_620). Sea ports also play an important role in the tourism and leisure industries, supporting many different forms of economic and social activity, including passenger cruise liners, channel ferries, sea going yachts and dinghies.

Ports and shipping can have some negative interactions with other sustainability topics including the effects of dredging on water quality and biodiversity. Particular impacts might include: impacts to the local hydrodynamic and sedimentary regime including from increased pollution risk (oil spill) and disposal of spoil; increased collision risk or barrier to movement; loss of or disturbance to intertidal habitats; disturbance of historical contamination during capital works; impacts on migratory and juvenile fish; marine mammals, impacts on important bird populations, accidental introduction of invasive and non-native species via shipping, and impacts on heritage assets. However, current safeguards have significantly improved the chemical status of the sediments around our coasts. This is due to reductions in the tonnage of contaminants which have been permitted to be disposed of at sea (Economy_619). There may also be potential interactions with protected sites, existing or proposed (for example, the harbour porpoise and basking shark (Biodiv_502)). Please see the marine mega fauna and fish and shellfish report card for more detail.

Ports and shipping also has key interactions with other users of marine space including biodiversity (for example, displacement of species can result from shipping and has potential consequences to SPA and SAC mobile features). Increased competition for marine resources may affect the sea space available for the safe navigation of ships. Marine plan authorities and decision makers should take into account and seek to minimise any negative impacts on shipping activity, freedom of navigation and navigational safety and ensure that their decisions are in compliance with international maritime law. There are particular issues with regard to shipping and offshore renewable energy installations. Navigational safety around such installations is essential and the Government have issued various guidance notes on this issue. There are also issues with regard to keel clearance and tidal stream devices. There are a number of standing management measures in place to manage interactions between ports / shipping / dredging and other activities (Economy_621). There are obvious interactions between port and energy. Ports have a vital role in the import and export of energy supplies, including oil, liquefied natural gas and biomass, in the construction and servicing of offshore energy installations and in supporting terminals for oil and gas pipelines. Port handling needs for energy can be expected to change as the mix of our energy supplies changes and particularly as renewables play an increasingly important part as an energy source. Ensuring security of energy supplies through our ports will be an important consideration, and ports will need to be responsive both to changes in different types of energy supplies needed (and to the need for facilities to support the development and maintenance of offshore renewable sites) and to possible changes in the geographical pattern of demand for fuel, including with the development of power stations fuelled by biomass within port perimeters (Economy_532)

Please also see the water, biodiversity and energy report cards.

Potential transboundary issues

By its very nature shipping is an international issue which crosses boundaries. Shipping is an essential and valuable economic activity for the UK. There are significant movements of ships around the UK coast and into and out of UK ports serving the UK's economic interests. There are also significant levels of legitimate passing traffic, for example through the English Channel and other ships freely using the navigable seas adjacent to the UK. In 2014, 4 out of every 5 tonnes of freight handled by UK ports was being imported or exported from international ports. Ports play a significant role in domestic freight transport through coastal shipping (including transshipment) and links with Northern Ireland. Ports in the North East have a role supporting north sea oil and gas activity, as well as wind farm development.

Consultation responses from the Isle of Man Government have rightly highlighted that the effects of the marine plans on the Isle of Man need to be fully considered. Risk of interference with navigation is of particular concern for the Island, both from a safety and a commercial perspective, given the high level of dependence the Island has on these lifeline services. This will specifically in relation to activity proposed in the North West plan areas.

Key data gaps

The MMO is undertaking a strategic review of disposal sites around the coast of England to provide additional information to assist future decision making on marine licensing applications. This review will look at the current status of each site, sensitivities and forthcoming designations, and the process for identifying and using disposal sites. This may provide useful information to the SA process (Economy_589)



Economy - Fisheries and Aquaculture

Baseline/issues: North West Plan Areas 10 11

(Please note that the figures in brackets refer to the SA scoping database. This is available on the MMO website)

- In the North West, fishing appears to be most important in Whitehaven (although it should be noted this is the port into which catches are taken and not necessarily where boats are registered) but is also important in to a number of localised coastal communities. Fishing activity occurs in both the inshore and offshore area (Communities_63)
- Fishing is also an important activity here with a larger proportion of over 15m vessel activity than in other marine plan area (Economy_526)
- The percentage of plan area utilised by shellfish production is as follows: North West 29.4%. There are potentially important shellfish beds for cockles and mussels in the Duddon Estuary and Morecambe Bay. Recreational gathering of razor clams also occurs at Leasowe. Morecambe Bay and the Solway Firth (Allonby) have important areas for the aquaculture of Pacific oysters (Economy_300)
- Non English fleet fishing in the North West plan area include: Belgian, Scottish, Welsh and Northern Irish (Economy_345)
- The North West has only 0.010% of the work force employed in aquaculture. However, this is still significant to areas which are deprived or have limited other economic opportunities (Communities_65)

Baseline/issues: South West Plan Areas 8 9

- In 2011 39% of landings into English ports by UK vessels landed into Plymouth (South West plan area), Brixham (South plan area), and Newlyn (South West plan area), with Plymouth landing the most (Economy_384)
- Plymouth and Newlyn have a large proportion of high value catch, caught by a few large vessels over 15m in length (Economy_314)
- Fishing appears to be most important in the following settlements (although it should be noted these are the ports into which catches are taken and not necessarily where boats are registered): Newlyn, Plymouth, Ilfracombe. Fishing activity occurs in both the inshore and offshore area but inshore vessels activity is particularly high (Communities_60)
- Non UK fleet fishing in the South West plan area include: Spanish long line activity targeting hake, and Spanish bottom trawler targeting hake, megrim and monkfish (Economy_319)
- The percentage of plan area utilised by shellfish production is as follows: South West inshore: 8.8%, South West offshore: 0%. In the South West there are several important shellfish beds, including pacific oyster in Salcombe, blue mussel and pacific oyster in the Dart, Fowey and Yealm Estuaries, pacific oyster in Bigbury and Avon and native oyster, blue mussel and pacific oyster in Truro, Tresillian and Fal (Economy_300)

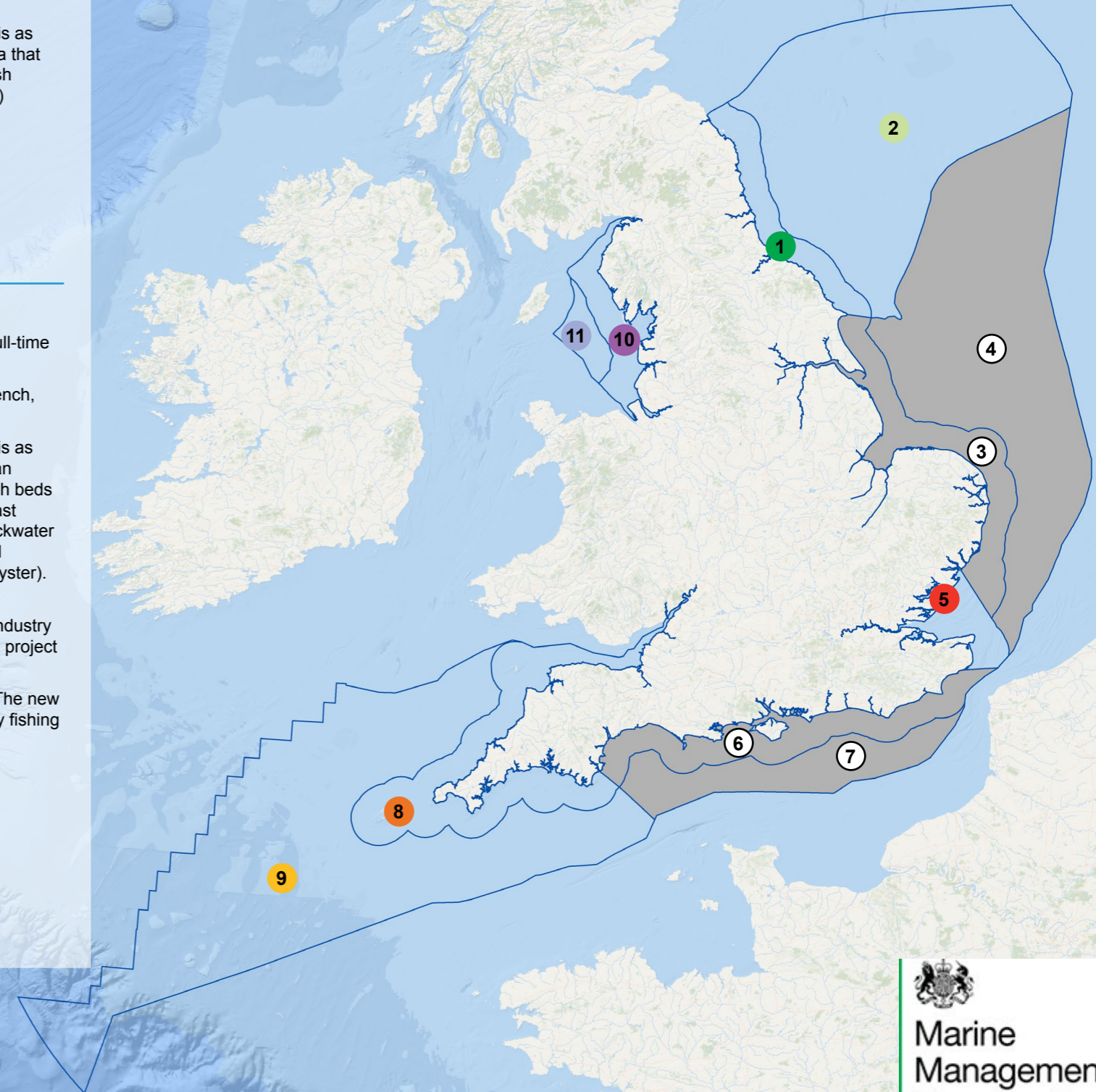
Baseline/issues: North East Plan Areas 1 2

- There is significant fishing activity in the North East plan area including lobster fishing which is the most lucrative stock for inshore vessels (Economy_371) and there are a number of ports that show a comparatively greater volume of fish landed when compared to its overall value including North Shields (Economy_374)
- Fishing activity occurs in both the inshore and offshore area but inshore vessels activity is particularly high in North East plan area (Economy_375)
- Fishing appears to be most important in the following settlements (although it should be noted these are the ports into which catches are taken and not necessarily where boats are registered): Blyth; North Shields; Whitby; and Scarborough (Communities_71)
- Non UK fleet fishing in the North East plan area include: Dutch, Danish, French, and Belgian (Economy_364)
- The percentage of plan area utilised by shellfish production is as follows: North East inshore: 1.6%. The North East is the area that has the least aquaculture activity - there are only two shellfish sites (for native oyster and pacific oyster around Holy Island) (Economy_300 and 462)

Baseline/issues: South East Plan Areas 5

- The South East has 200 employed persons in fishing both full-time and part-time. It has a GVA of £73 million (Economy_333)
- Non UK fleet fishing in the South East plan area include: French, Belgian and Spanish (Economy_333)
- The percentage of plan area utilised by shellfish production is as follows: South East: 38.2%, the most significant of all the plan areas. In the South East, there are several important shellfish beds in the plan area: On the Swale, Thames and North Kent Coast (native oyster, pacific oyster and manila clam); Colne to Blackwater (blue mussel, pacific oyster, manila clam, native oyster); and Walton backwaters (manila clam, native oyster and pacific oyster). (Economy_300)
- Native oysters were once extensive and supported a large industry in this area. Restoration of the native oyster is the focus of a project being run by the Kent and Essex IFCA (Economy_582)
- There is a proposed no-take-zone in the Medway Estuary. The new Medway Nursery Area No Take Zone byelaw will prohibit any fishing activity in this area of the Medway (Economy_612)

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- 11 North West offshore



Economy - Fisheries and Aquaculture

Summary of the legislative / policy context

There is a raft of legislation that protects water quality relating to shellfish waters, for example, and this is outlined in more detail in the water pollution report card. UK environmental policy will continue to improve the quality of shellfish harvesting areas (including those for wild shellfish) by seeking to adopt appropriate microbiological standards when implementing the [Water Framework Directive](#). Aquaculture is being promoted strongly in the [Blue Growth Strategy](#), the [Atlantic Strategy](#) and the reformed [Common Fisheries Policy](#) (CFP) (Economy_453). Some UK administrations have also adopted specific aquaculture policies and strategies to encourage or support industry growth and development. [The EC Regulation on Alien Species in Aquaculture \(708/2007\)](#) requires Member States to establish a process by which the risk of introducing alien species for aquaculture is fully assessed before any introductions of such species are consented (Economy_458)

The Common Fisheries Policy (CFP) provides the main framework for decisions concerning the management of fisheries in EU waters although a Member State may take non-discriminatory measures that are more restrictive than the CFP measures to those fisheries operating within their 0-12 nautical mile zones in respect of national fleets and, with the approval of the Commission and affected Member States, to other EU vessels subject to where historic fisheries rights exist in the 6-12 nautical mile zone (Economy_454)

The [Marine Policy Statement](#) makes it clear that both fishing and aquaculture are key in maintaining food security and that sustainable fish stocks have the potential to maintain a prosperous and efficient fishing industry and provide social, cultural and economic benefits to often fragile coastal communities (Economy_457)

Key cross cutting baseline / issues across all plan areas

The South West has the highest number of employed persons in fishing both full-time and part-time totalling 900 people followed by Yorkshire and the Humber with 400 people. The highest GVA, however, is associated with the catch in the East of England region amounting to £90m followed by the South West with £84m. Decline in fisheries due to overfishing and the implementation of the quota system under the Common Fisheries Policy (CFP) has made fishing as a livelihood and way of life difficult in recent years (Communities_26)

The majority of marine aquaculture in England consists of shellfish farming, particularly mussels. Other species include scallops as well as pacific and native oysters (Economy_299). The farming of seaweed as a food or fuel is a growing part of this sector. This is currently mainly in Scotland but there is some small scale activity in Cornwall and this could spread to other areas of the UK (Economy_469)

The likely evolution of the environment over the plan duration

The number of UK fishing vessels has been declining since the 1990's and levels of fishing effort have therefore fallen dramatically. However, the capability of vessels is increasing. Fisheries are generally in recovery (although this is certainly not universal). In terms of aquaculture, trends in the industry are closely tied in with changes in wild fisheries, the availability of investment, and site availability. There is evidence that the aquaculture industry across Europe has stagnated, despite some areas of the UK experiencing growth in the sector. This has led to an increased reliance on fish products from outside the EU. However, aquaculture is being promoted strongly in the Blue Growth Strategy, the Atlantic Strategy and the reformed Common Fisheries Policy (CFP). Therefore, the likely evolution of this sector is currently uncertain.

Potential interactions with other topics

There are obvious links between fisheries and biodiversity. Good environmental status requires populations of all commercial fish and shellfish stocks to be exploited within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock. Achieving good environmental status will also involve better managing and mitigating the impact of fisheries on the wider marine environment, such as wider biodiversity impacts (Biodiv_57). Fishing activity is sensitive to changes in other sea uses. Marine developments have the potential to prevent, displace or encourage fishing activities. There are potential social, economic and environmental impacts of displacement of fishing activity caused by other sea uses, particularly if from well-established fishing grounds. Fishing can have negative environmental impacts. As well as over-exploitation of commercial fish stocks, this can include threats to vulnerable or rare species, including by-catch, and can cause extensive damage or destruction to habitats and the historic environment. Such impacts can often be associated with particular gear types and the intensity of fishing activity. Interactions between fishing activity and marine developments and their consequent impacts on fish stock and the environment are complex and need to be considered (Economy_628)

With regard to aquaculture, the impacts are diverse, reflecting the broad scope of the industry. The precise nature of impacts will vary depending on the nature of the activity and local conditions. Shellfish and algal culture can improve local water quality as these activities require good quality water if sold for food and the industry recognises the importance of being neutral or positive regarding water quality. Negative water quality impacts are generally lower for shellfish production than finfish production (which is present in Scottish waters but not English waters) as shellfish don't require supplementary feed or antibiotics and are generally low density cultures. However, it should be recognised that shellfish are considered keystone species and therefore they have the ability to affect the surrounding environment in both negative and positive ways. They influence primary and secondary productivity and can start a series of cascade effects on water column and sediment population and dynamics. Effects can include phytoplankton modification, reduced turbidity, increase ammonium and metals concentration, increased deposition, modification of topography and introduction of non-native species. However, bivalves also have the potential to change topography and provide novel habitats that would not normally occur and can provide for a diversity of species (Economy_629). There are also potential conflicts between aquaculture and recreational boating. However, there are opportunities for multiple uses of large infrastructure sites i.e. wind farm and aquaculture and habitat creation. There are links with climate change and the potential effects of ocean acidification (OA). The effects of OA will make it harder for commercial shellfish species to create their calcium carbonate shells. This could potentially result in a lower quality product being produced although the likely responses of different species to OA is unclear (Climate_161)

There are also obvious links with communities as fishing helps to shape the identity of many coastal communities. Please also see the communities, health and well-being report cards.

Potential transboundary issues

In addition to marine fish stocks associated with commercial sea fishing, the coastal environment is important as a corridor for migrating Atlantic salmon and European eel, and in providing the marine feeding ground for sea trout. These important species that support coastal and inland commercial fishing and recreational angling could be vulnerable to a wide range of coastal activities.

Marine plan authorities should engage with other regions to where activity is displaced to ensure that a comprehensive picture of impacts is developed and unintended consequences are avoided. Wherever possible, decision makers should seek to encourage opportunities for co-existence between fishing and other activities. Inshore Fisheries Groups in Scotland and Inshore Fisheries and Conservation Authorities (IFCAs) in England will be expected to participate fully in wider marine planning. Welsh Ministers are also seeking to put in place a mechanism to enable local and national input into fisheries management plans and policies.

Aquaculture is important to communities throughout the UK and in particular on the west and north coasts of Scotland and the Western and Northern Isles and in parts of North and South Wales, and in Northern Ireland.

Key data gaps

None specifically identified through the evidence base work completed so far although the future of both the fishing and the aquaculture industries is uncertain.



Economy - Leisure and Recreation / Tourism

Baseline/issues: North West Plan Areas 10 11

(Please note that the figures in brackets refer to the SA scoping database. This is available on the MMO website)

- Of the top 20 towns and cities visited in Great Britain by UK residents in 2013 four of them are in the North West plan area: Blackpool (ranked 3rd), Manchester (ranked 4th), Liverpool (ranked 6th), and Lancaster (ranked 16th) (Economy_301)
- The revenue from leisure and small commercial marine activities in the UK is recorded, the most recent available data shows in the North West annual turnover was £86.4 million (Economy_346)
- Recreational marinas in the North West plan Area include Ribble at Preston, Maryport, Whitehaven, Douglas Harbour (isle of Man), Glasson Basin, Fleetwood Harbour Village and Liverpool (Economy_576)
- All of the plan areas include a number of Royal Yachting Association cruising routes, sailing areas and racing areas and these extend through to the offshore area (Economy_571)
- Although the south coast (including the South West) dominates participation in boating activities, the Merseyside area, Thames area and the North East coastal region are popular for boating (Economy_573)

Baseline/issues: South West Plan Areas 8 9

- Of the top 20 towns and cities visited in Great Britain by UK residents in 2013 two of them are in the South West plan area: Newquay (ranked 13th), Bristol (ranked 15th) (Economy_301)
- Surfing is of major significance in Cornwall, Devon and Dorset in England and the Gower Peninsula in Wales (Economy_315)
- The revenue from leisure and small commercial marine activities in the UK is recorded, the most recent available data shows in the South West annual turnover was £711.6 million (Economy_320)
- Recreational marinas in the South West plan area include Dart and Dartmouth, Mayflower, a number around Plymouth Sound, Southdown, Torpoint, Mylor Yacht Harbour, Falmouth, Padstow, Watchet, Portishead Quays, Victoria Basin (Glos), Bristol, Porthaven, Salford and Bath (Economy_578)
- All of the plan areas include a number of Royal Yachting Association cruising routes, sailing areas and racing areas and these extend through to the offshore area (Economy_571)
- Scuba diving is particularly popular in Plymouth and the Isles of Scilly (Economy_359)
- Recreational and sport fishing is widespread although participation rates are highest in the South West, South East and North East (Economy_370)
- The South West is also an important destination for wildlife watchers with a number of small boat operators around the coast (Economy_524)
- The south coast (including the South (including the South West) dominates participation in boating activities (Economy_572)

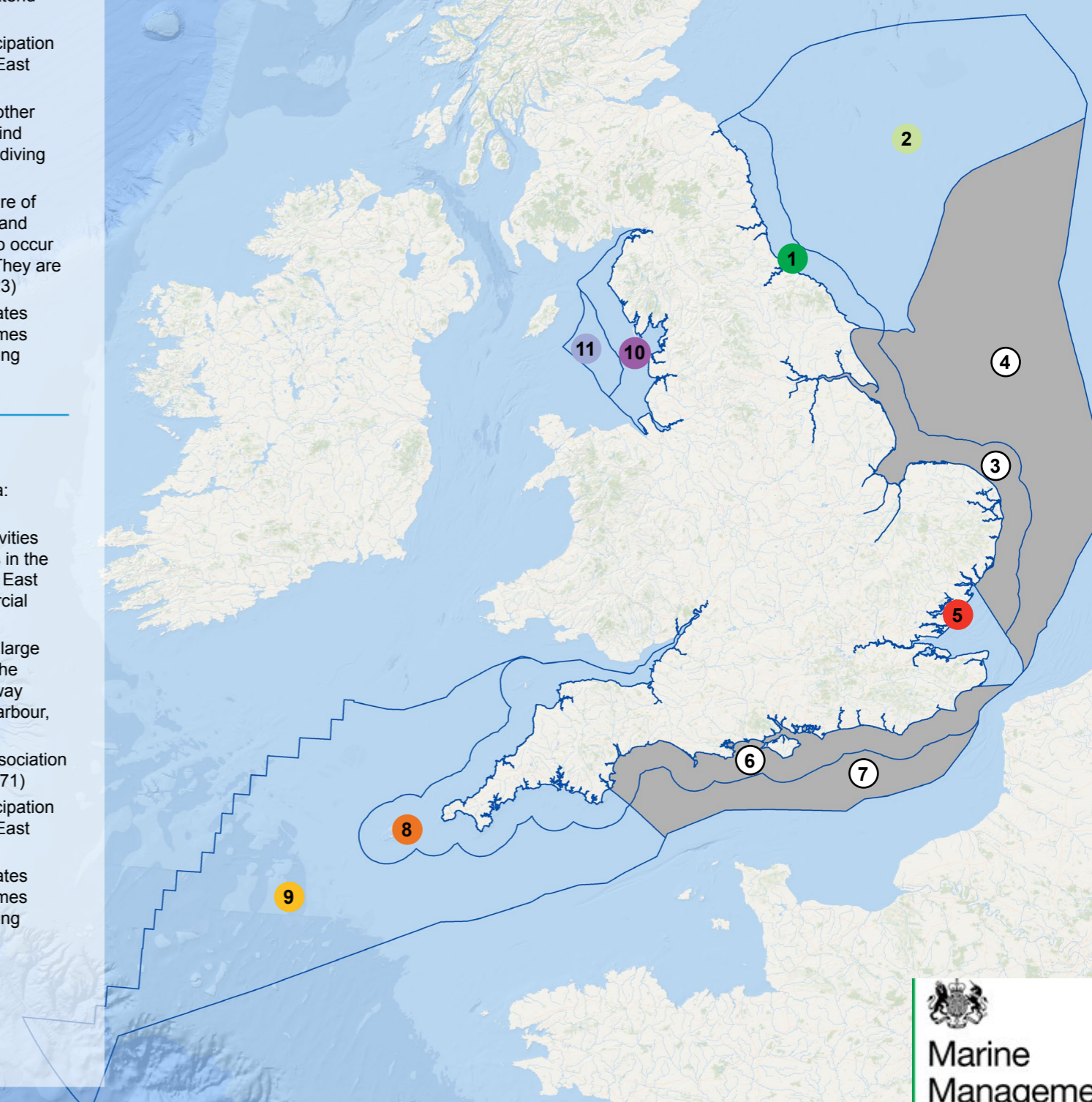
Baseline/issues: North East Plan Areas 1 2

- Of the top 20 towns and cities visited in Great Britain by UK residents in 2013, two of them are in the North East plan area: Scarborough (ranked 2nd) and Berwick-upon-Tweed (ranked 17th) (Economy_301)
- The revenue from leisure and small commercial marine activities in the UK is recorded, the most recent available data shows in the North East annual turnover was £16.8 million (Economy_365)
- Recreational marinas in the North East Plan Area include Scarborough, Whitby, Hartlepool, Seaham, Sunderland, Royal Quays on the River Tyne, St Peter's on the river Tyne, Newcastle City Marina on the River Tyne, Royal Northumberland Yacht Club at Blyth, and Amble Marina (Economy_575)
- All of the plan areas include a number of Royal Yachting Association cruising routes, sailing areas and racing areas and these extend through to the offshore area (Economy_571)
- Recreational and sport fishing is widespread although participation rates are highest in the South West, South East and North East (Economy_370)
- Tourism is not as big a contributor to the local economy as other plan areas although there is high potential for surfing and wind surfing along the north sea coast-at Seahouses and Scuba diving and boat angling at the Farne Islands (Economy_362)
- The North East Plan area includes some wildlife sites that are of significant value to the local economies. The Farne Islands and Coquet Island support wildlife watching boat trips which also occur along the cliffs of the Flamborough and Filey Coast pSPA. They are the cornerstone of nature tourism in this area (Economy_523)
- Although the south coast (including the South West) dominates participation in boating activities, the Merseyside area, Thames area and the North East coastal region are popular for boating (Economy_573)

Baseline/issues: South East Plan Areas 5

- Of the top 20 towns and cities visited in Great Britain by UK residents in 2013 one of them is in the South East plan area: London (ranked 1st) (Economy_301)
- The revenue from leisure and small commercial marine activities in the UK is recorded, the most recent available data shows in the South East annual turnover was £1119.2 million. The South East generates the most revenue from leisure and small commercial marine activities that the other plan areas (Economy_334)
- Recreational marinas in the South East plan area include a large number along the Thames estuary, Titchmarsh (Walton on the Naze), Highway, Conyer Creek, Allington, Gillingham, Medway Bridge, Cuxton, Elmhaven, Hoo, Halcon, Burnham Yacht Harbour, Tollesbury and Blackwater (Economy_577)
- All of the plan areas include a number of Royal Yachting Association cruising routes, sailing areas and racing areas (Economy_571)
- Recreational and sport fishing is widespread although participation rates are highest in the South West, South East and North East (Economy_370)
- Although the south coast (including the South West) dominates participation in boating activities, the Merseyside area, Thames area and the North East coastal region are popular for boating (Economy_573)

- 1 North East inshore
- 2 North East offshore
- 3 East Inshore
- 4 East Offshore
- 5 South East inshore
- 6 South inshore
- 7 South offshore
- 8 South West inshore
- 9 South west offshore
- 10 North West inshore
- 11 North West offshore



Economy - Leisure and Recreation / Tourism

Summary of the legislative / policy context

The [Marine Policy Statement](#) aims to ensure equitable access to the coast and seas and recognises that the marine area provides national social and economic benefits and contributes to the wellbeing and quality of life of coastal communities. It states that marine planning should contribute to securing sustainable economic growth in regeneration areas and areas that already benefit from strong local economies. This links to Part 9 of the Marine and Coastal Access Act 2009 which aims to improve public access to, and enjoyment of, the English coastline (Economy_596)

[A European Strategy for More Growth and Jobs in Coastal and Maritime Tourism: European Commission](#) (February 2014) proposes joint responses to the multiple challenges of the tourism sector, with a view to capitalise on Europe's strengths and enabling it to substantially contribute to the Europe 2020 objectives for smart, sustainable and inclusive growth. The Commission has identified 14 actions which can help the sector grow sustainably and provide added impetus to Europe's coastal regions (Economy_3)

Key cross cutting baseline / issues across all plan areas

Please note that the subjects of leisure / recreation and tourism will be assessed separately and are different issues. Data has also been collected for both subjects separately as part of the economy database. However, for presentation sake these have been presented together on one report card.

Seaside tourism makes an important contribution to overall tourism. It supports some 21,000 jobs and contributes £3.6bn to the economy. A similar picture exists for recreation where, for example, the estimated economic contribution of recreational boating to the UK economy was £1.042 billion in 2009/10 and employed nearly 35,000 in this sector (Economy_481)

The sea can provide a variety of tourism and recreational opportunities. These will vary from area to area but will include visiting the beach, dog walking, and walking, pleasure boating, sailing, recreational diving (including diving on wrecks), sea angling, kayaking and surfing, as well as exploration of underwater and coastal heritage assets. The coast also provides inspiration for a range of artistic and cultural activities and food-based tourism. There is also growing interest in eco-tourism and wildlife experiences. All these activities can generate a considerable amount of income for the economy and can be a mainstay for many coastal towns, supporting their quality of life, and providing health and well-being benefits. These activities will be enhanced by a well-managed and healthy marine environment, attractive and well-maintained beaches, seashore and clean bathing water (Economy_482)

There is high tourism employment dependency across all plan areas (Communities_20). The highest percentage contribution of recreational employment to total employment number is held by Yorkshire and the Humber as well as the South East at 1.69%, this is followed by the South West at 1.61%. However, with regards to GVA contribution London is has the highest GVA contribution to total income (1.83%), followed by the East Midlands (1.68%) and the South East (1.61%) (Communities_27)

The likely evolution of the environment over the plan duration

Participation in boating activities has been decreasing and this is highlighted in the recent RYA Watersports Participation Report 2016. However, in light of the poor weather conditions and an overall downward trend experienced across recreational sports last year, boating outperformed many of its counterparts observing only a minimal decline of 0.6% in UK participation. In addition, 2015 saw a continued steady rise in the frequency of boating participation since 2013. The same report found that although 2014 saw a decline in domestic tourism, it was the end of a downward trend spanning back to 2011. The projected end of year total for domestic holidays (based on the YTD numbers) shows a 10% rise in trips. Ageing populations may have an effect on coastal recreational activities in the future as older participants retire from activities and are not replaced. Boat ownership trends are fairly stable. However, recent years have seen a shift in popularity with inland boating becoming more popular and coastal boating less popular. Therefore, there is a mixed picture with regard to future levels of recreation and tourism.

Under climate change scenarios sea level rise, more frequent extreme storms and waves, sea temperature rise, and changes to fluvial inputs may affect ecotourism (access to sites in bad weather, decrease in some bird species populations); safety of recreational fisheries during bad weather; coastal tourism during bad weather; integrity of coastal tourism infrastructure; loss or degradation of beaches; decrease in suitable conditions for scuba diving and decrease in bathing water quality during storms and operation of combined sewer overflows. However, air and sea temperature rise may create benefits through increased ecotourism, increased recreational fishing, increased coastal tourism and improved conditions for scuba diving; and more extreme storms and waves, air and sea temperature rise and coastal flooding creating benefits through increased opportunities for some water sports such as sailing and surfing

The inclusion of tourism as an EU competence is relatively recent; there is no specific regulatory framework for it. In December 2015 DG MARE commissioned a study on detailed aspects of the maritime and coastal tourism market. The purpose of the Nautical Tourism Study is to provide evidence on the performance of specific aspects of the market and opportunities to aid development of maritime tourism through additional EU support. The study includes boating and marina development, marinas as hubs for regional development and combined nautical and coastal tourism products. The study hopes to identify the key challenges facing marinas and boating activities in particular and to determine specific actions that the EU could take to address these challenges. The project is expected to conclude soon, however it may be 2017 before the Commission communicates its decision on the way forward following the conclusions of the report (Economy_595)

Potential interactions with other topics

Leisure, recreation and tourism are dependent on a well-managed and healthy marine environment, attractive and well-maintained beaches, seashore and clean bathing water. There are clear links to water quality and the water database discusses bathing water quality. See also the water report cards. Tourism can provide environmental benefits through helping to enhance understanding and appreciation of the marine environment through activities such as eco-tourism and nature watching. Environmental effects/impacts may include the removal of marine fauna and flora, the physical or visual disturbance of wildlife, pollution from waste water and litter and pressures from increased visitor numbers in environmentally sensitive areas. Socio-economic benefits include positive economic benefits through increased visitor numbers and improved access. Outdoor recreation and enjoyment of the coast can also provide benefits to physical and mental well-being (Economy_630)

Conversely, designations of Marine Protected Areas can affect boating activity through potential restrictions on speed, anchoring, mooring and facility development. There are also potential interactions between recreational stakeholders and other economic sectors and without adequate early consultation with recreational stakeholders, development of sectors such as wind, wave and tidal energy, and aquaculture can impact upon the recreational sector. Unmarked fishing gear can cause a recreational hazard, as can buoys and lines in busy boating areas. Cable installations can be an issue in terms of maintaining navigable depth on recreational boating routes where cables come close to the surface (erg when crossing each other); and where obstructions are inevitable, of properly marking these (Economy_631)

Socio-economic benefits of recreation include positive economic benefits through increased visitor numbers and improved access. Outdoor recreation and enjoyment of the coast can also provide benefits to physical and mental wellbeing. Recreation and tourism uses can also conflict with other users of marine space (Economy_630). Seasonality of employment in the tourism sector is a long-term issue and links to deprivation in coastal communities and various social issues

Potential transboundary issues

It will be important that activities that may affect recreational activities in Wales and Scotland are examined for their effects.

Key data gaps

There is a lack of understanding of the significance of impacts of recreational activities on biodiversity e.g. significance of bird disturbance at a population level. There is also a lack of recreational activity data in general – where activities occur, participation levels, activity intensity and frequency. Improving this both for management and marine planning would be useful (Economy_597)



Economy - Marine Manufacturing and Defence

Baseline/issues: North West Plan Areas 10 11

(Please note that the figures in brackets refer to the SA scoping database. This is available on the MMO website)

- Securing manufacturing investment and the associated supply chain for offshore wind in the UK will require a port (or ports) with the required facilities and commercial land. These would provide an industrial hub for wind turbine manufacturers and their supply chain. The only port suited for Round 3 offshore wind farm development in the North West plan area is Barrow (Economy_533)
- Barrow port is the site of BAE Systems' submarine design and manufacturing facility (Economy_536) and Barrow and Fleetwood ports service the UK offshore wind industry (Economy_537)
- Heysham port forms a major offshore supply base for oil and gas and is ideally located as a support base for the future Celtic Array offshore wind farm development (Economy_539)
- Areas of manufacturing / heavy industry that affect the coastal zone in the North West include Runcorn / Widnes; Ellesmere Port; Liverpool, Birkenhead; Ribble Valley; Grange Sands and Whitehaven. The main focus in these areas is the chemical and energy industries and car manufacture (Economy_551)
- Sea training is carried out within defined military practice and exercise (PEXA) training areas. The percentage of the marine plan area covered by PEXA is 14% (Economy_292)

Baseline/issues: South West Plan Areas 8 9

- The main area in the South West for marine manufacturing is Avonmouth. Industries in Avonmouth employ a large number of people in a wide range of processes, from making pharmaceuticals to smelting zinc. The industries make vital products such as anaesthetics and agricultural fertilizers and provide important services such as gas storage (Economy_530)
- There are no ports in the South West area suited to Round 3 offshore wind farm development (Economy_535)
- Her Majesty's Naval Base Devonport and Dockyard as a major component of the UK's strategic defence capability (Economy_289). In Plymouth, the Devonport Naval base generates approximately 10% of the income for the city and employs 2,500 people and creates business opportunities for around 500 firms (Economy_317)
- The percentage of the marine plan area covered by PEXA is as follows: South West inshore: 60%, South West offshore: 94% (Economy_292)

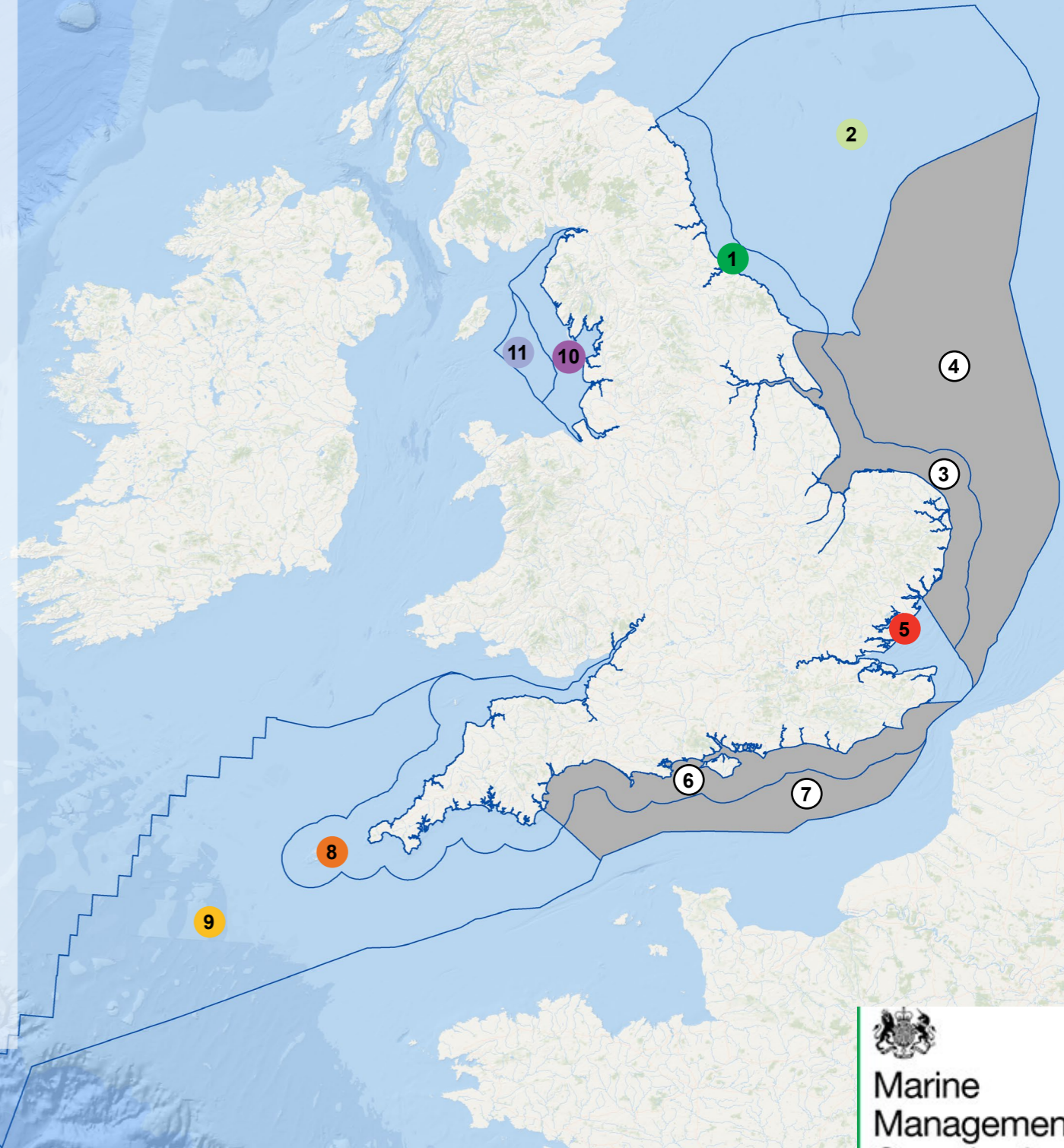
Baseline/issues: North East Plan Areas 1 2

- Ports suited for Round 3 offshore wind farm development in the North East Plan area are Newcastle Upon Tyne and Hartlepool (Economy_532)
- Areas of manufacturing / heavy industry that affect the coastal zone in the North East include Teesport, Tyne and Wear, Redcar and Billingham. The main focus in this area is the chemical industry and energy industry (Economy_549)
- There is an objective for the north bank of the River Tyne to be the focus for advanced engineering, research and development particularly in renewable and marine off-shore manufacturing and sub-sea technologies. The North East Local Enterprise Partnership (NELEP) Enterprise Zone has been given the status of one of five of the UK's dedicated CORE (Centres for Offshore Renewable Engineering) sites (Economy_550)
- There is a large Ministry of Defence PEXA area in the North East offshore area (Economy_525)
- The percentage of the marine plan area covered by PEXA is North East inshore: 39%, North East offshore: 54% (Economy_292)

Baseline/issues: South East Plan Areas 5

- The only ports suited for Round 3 offshore wind farm development in the South East area are Ramsgate and Medway (Economy_534)
- The South East Plan area is not a significant area for marine manufacturing. Although Ports such as Port of London are key in exporting UK manufactured goods overseas (Economy_531)
- The percentage of the marine plan area covered by PEXA is South East: 17% (Economy_292)

- 1 North East inshore
- 2 North East offshore
- 3 East Inshore
- 4 East Offshore
- 5 South East inshore
- 6 South inshore
- 7 South offshore
- 8 South West inshore
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- 10 North West inshore
- 11 North West offshore



Economy - Marine Manufacturing and Defence

Summary of the legislative / policy context

- The primary objective of the Ministry of Defence (MoD) is to provide military defence and, where appropriate, security for the people of the UK and Overseas Territories. UK waters are a crucial environment in which MoD (including HM Armed Forces and the Royal Fleet Auxiliary) must maintain and deploy the operational capability required to achieve this. The MoD has the power to regulate sea areas and restrict their use either temporarily or permanently by making byelaws under the provisions of the [Military Lands Acts 1892 and 1990](#) and the [Land Powers Defence Act 1958](#). The [Marine Policy Statement](#) states that the construction and operation of offshore marine infrastructure, installations and activities, as well as policies on conservation designations and the health of the wider environment may impact on defence interests in certain areas. Marine plan authorities and decision makers should take full account of the individual and cumulative effects of marine infrastructure on both marine and land based MoD interests. Marine plan authorities, decision makers and developers should consult the MoD in all circumstances to verify whether defence interests will be affected (Economy_483)
- The [Department for Transport Maritime Growth Study](#) sets out recommendations to support future growth in the UK maritime sector (Economy_614)
- With regard to manufacturing, the [Marine Policy Statement](#) does not address the issue directly. It does discuss the issue in relation to offshore renewable energy development and states that “Expansion of the offshore wind supply is likely to require significant investment in new high-value manufacturing capability with potential to regenerate local and national economies and provide employment”. There are other areas of manufacturing in the marine plan areas which have a coastal or estuarine location and these are discussed below (Economy_615)
- JNCC and the other Statutory Nature Conservation Bodies (SNCB's) have a Statement of Intent with the Navy Command Headquarters regarding the use and maintenance of the Environmental Protection Guidelines (Maritime) (EPG (M)) and Maritime and Sustainability Assessment Tool (MESAT), details of which can be accessed at <http://jncc.defra.gov.uk/page-6589-theme=default> (Economy_598)

Key cross cutting baseline / issues across all plan areas

- Defence activities that utilise the marine environment, directly or indirectly, in support of operational capability are diverse but include operational vessels and aircraft, HM Naval bases, surface and sub-surface navigational interests, underwater acoustic ranges, maritime exercises, amphibious exercises, coastal training ranges and coastal test and evaluation ranges (Economy_484)
- Sea training is carried out within defined military practice and exercise (PEXA) training areas. There are military practice areas in each of the plan areas (Economy_292)
- Land support for military training comes from training establishments: Britannia Royal Naval College (BRNC), HMS Raleigh, HMS Excellent, HMW Collingwood, HMS Sultan, HMS Temeraire. HMS Raleigh is in the South West plan area, the rest are in the South plan area. Naval bases in England include HMNB Portsmouth (South Plan Area) and HMNB Devonport (South West plan area). The Royal Navy employs approximately 38,600 people and 5,200 civilians, which benefits local coastal economies. In Plymouth, the Devonport Naval base generates approximately 10% of the income for the city and employs 2,500 people and creates business opportunities for around 500 firms (Economy_316)

The likely evolution of the environment over the plan duration

- The current strategy of the Ministry of Defence is to have an estate of fewer, larger sites in the UK, which better supports military capability. This will be through the development of defence communities, for example in Base Ports, Super Garrisons (SGs), Main Operating Bases (MOBs) or Permanent Joint Operating Bases (PJOBs). These will deliver efficiencies and either greater functional or formation coherence as well as offering greater stability to personnel and increased integration with local economies and civil society. This will mean larger bases which could potentially have bigger impacts (both negative and positive)
- The future of the manufacturing sector is very much dependent on government subsidies and the performance of the UK and the global economy and this is uncertain.

Potential interactions with other topics

The socio-economic benefits from the defence sector should be recognised, particularly employment. In some coastal locations, the MoD is the major employer in the region (Economy_632). There are a variety of environmental benefits and risks associated with national defence and national security activities. These include activities affecting intertidal habitats and water quality, protecting areas of sea bed from potentially damaging activities and concerns about noise and disturbance from maritime activities. MoD has well established systems to manage the risks arising from its activities. Non-defence activities in the marine area have the potential to impact the MoD elsewhere. Some onshore coastal defences such as aerodromes, transmitter sites and explosive stores have safeguarding zones extending over the marine area to regulate development that may otherwise affect their operation. There are potential effects of future wind turbines on radar interference. Military training can have negative effects on habitats and wildlife (Economy_633)

With regard to manufacturing, heavy manufacturing which has a coastal or estuarine location can potentially have a number of impacts on the environment and impacts on the water environment is a key one. Developments can have adverse effects on transitional waters, coastal waters and marine waters. During the construction, operation and decommissioning phases of developments, there can be increased demand for water, discharges to water and adverse ecological effects resulting from physical modifications to the water environment (Economy_634). Most of the areas in UK seas where there are problems from contamination with hazardous substances are local in nature. These are particularly in industrialised estuaries and coasts and generally associated with historic discharges and emissions from industry (Water_176). See also the Water report cards.

Potential transboundary issues

The future of the manufacturing sector is very much dependent on government subsidies and the performance of the UK and the global economy as a whole. There is influence from competing economies on the development of the UK manufacturing sector and stronger industrial bases in continental Europe may draw business abroad.

Key data gaps

None identified

Economy - Aggregate Extraction and Seabed Assets

Baseline/issues: North West Plan Areas 10 11

(Please note that the figures in brackets refer to the SA scoping database. This is available on the MMO website)

- 0.95% of the plan area is covered by an aggregate extraction licence. There are licensed areas in both the inshore and the offshore area (Economy_293)
- 0.4 km² of the plan area was subject to extraction (affecting both the inshore and the offshore area) (2011 figures) (Economy_294)
- Aggregate wharves in the North West include Barrow, Eastham, Glasson, Heysham, Liverpool Wharves (Economy_586)
- The length of cable in the marine plan areas (km) is as follows: North West : 940 (Economy_297)
- The number of pipelines in the plan areas is as follows: North West: 369 (Economy_298)
- The Western Link project (high-voltage direct current line) will link Hunterston in Scotland with Deeside (Economy_415)
- There is a planned subsea cable which will go under Morecambe Bay (and under or around the Duddon Estuary) as part of the North West Coastal Connections project to connect the planned nuclear power plant at Moorside to the National Grid at Heysham (Economy_591)
- There are several cables crossing the Irish Sea linking England with Ireland, Northern Ireland and a power interconnector to the Isle of Man (Economy_527)

Baseline/issues: South West Plan Areas 8 9

- 0.03% of the plan area is covered by an aggregate extraction licence and this affects only the inshore area (Economy_293)
- 7 km² of the plan area was subject to extraction (inshore area only) (2011 figures) (Economy_294)
- Aggregate wharves in the South West include Dunball Wharf, Plymouth, Appledore, Avonmouth and Bristol (Economy_587)
- The length of cable in the marine plan areas (km) is as follows: South West inshore: 1,939, South West offshore: 682 (Economy_297)
- The number of pipelines in the plan areas is as follows: South West inshore: 196, South west offshore: 0 (Economy_298)
- The South West Coast acts as a landing point for a substantial number of economically important cable connections across the Atlantic to North America (for example Cornwall is the landing point for one of the world's fastest high-speed transatlantic fibre optic cables) (Economy_528)

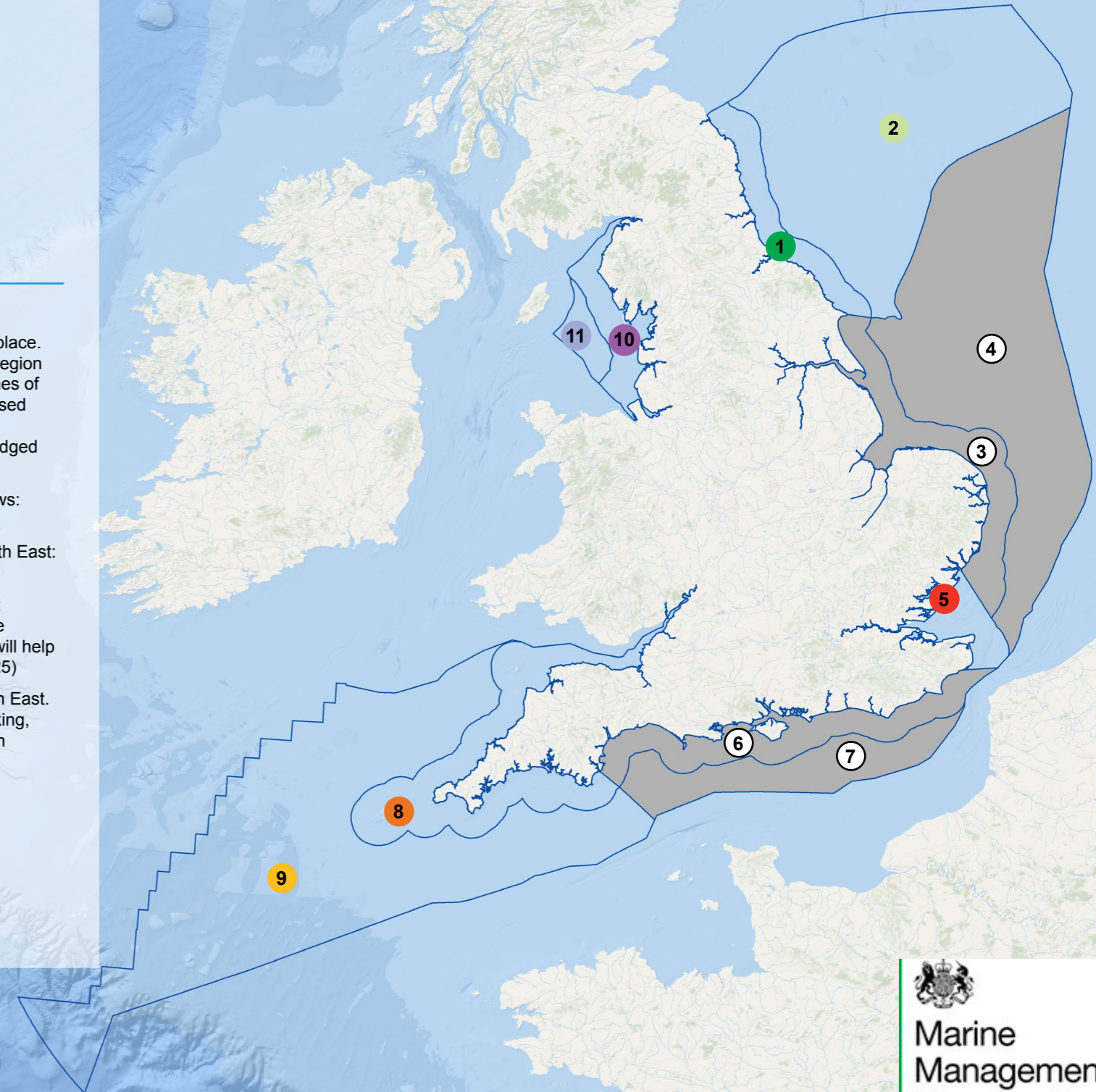
Baseline/issues: North East Plan Areas 1 2

- 0% of the plan area is covered by an aggregate extraction licence (Economy_293)
- No aggregate extraction took place in 2011 (Economy_294)
- Aggregate wharves in the North East include River Tees, River Tyne and Sunderland (Economy_585)
- The length of cable in the marine plan areas (km) is as follows: North East inshore: 120, North East offshore: 6,096 (Economy_297)
- The number of pipelines in the plan areas is as follows: North East inshore: 140, North East offshore: 242 (Economy_298)
- There is a planned North Sea interconnector from Seaham to Sweden. This is part of the North Sea Offshore Grid Initiative (Economy_352)

Baseline/issues: South East Plan Areas 5

- Data from 2011 suggests that no aggregate extraction took place. However, newer data from 2014 suggests that the Thames region has 4 production licences and during 2014, 0.59 million tonnes of construction aggregate were dredged from a permitted licensed tonnage of 1.76 million. In addition 0.37 million tonnes were dredged for reclamation fill and 0.48 million tonnes were dredged for beach nourishment (Economy_294)
- The length of cable in the marine plan areas (km) is as follows: South East: 520 (Economy_297)
- The number of pipelines in the plan areas is as follows: South East: 371 (Economy_298)
- There is a current installation of an interconnector from Kent to Belgium ('Nemo'). This has been designated as one of the European Commission's Projects of Common Interest as it will help create an integrated European energy market (Economy_325)
- There are a large number of aggregate wharves in the South East. These are mainly concentrated in the Thames Estuary (Barking, Cliffe, Dagenham, Denton, Erith, Greenhithe, and Greenwich Wharves) (Economy_522)

- 1 North East inshore
- 2 North East offshore
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- 10 North West inshore
- 11 North West offshore



Economy - Aggregate Extraction and Seabed Assets

Summary of the legislative / policy context

- The [Marine Policy Statement](#) states that the extraction of marine dredged sand and gravel should continue to the extent that this remains consistent with the principles of sustainable development, recognising that marine aggregates are a finite resource and in line with the relevant guidance and legislation (Economy_477)
- The Marine Policy Statement states that the importance of telecommunication and power cabling as vital infrastructure for the domestic and global economy should be recognised in marine plans (Economy_472)
- Inter-connector cables outside 12nm are not subject to State regulation under the [Marine & Coastal Access Act \(MCAA\) 2009](#) but are subject to [UNCLOS](#) to which the UK is a signatory. Under the provisions of the MCAA, cables being laid within 12nm require a marine licence and any maintenance/ removal to a cable laid after this point will be subject to the provisions of the marine licence as was originally awarded (as set out in Section 34 of The Marine Licensing (Exempted Activities) Order 2011). Cables laid outside 12nm are not subject to a marine licence due to the provisions of UNCLOS, which allows states to freely lay cables in international waters, but these projects usually follow best practice (e.g. EIAs etc) (Economy_599)
- Guidelines for trans-European energy infrastructure EU 347/2013 (TEN-E Regulations) include rules for the timely development and interoperability of energy networks and set out guidelines for streamlining the permitting processes for major energy infrastructure projects called "Projects of Common Interest" (PCIs). Some of the PCI's include construction of interconnectors and energy cables (Economy_600)

Key cross cutting baseline / issues across all plan areas

- Marine sand and gravel makes a crucial contribution to meeting the nation's demand for construction aggregate materials (Economy_476)
- They are particularly important in England, accounting for 38% of the total regional demand for sand and gravel in the South East (80% in London), 46% in the North East and 22% in the North West. Land-based and marine-based construction aggregate resources are unevenly distributed and many regions are heavily dependent on supplies from other areas. Marine sand and gravel is delivered to specialised marine aggregate wharves in 35 ports around England and Wales for use by the construction industry (Economy_476)
- Submarine telecommunication cables carry more than 95% of the world's international traffic including telephone, internet and data, as well as many services for the UK's local communities, major utilities and industries. The transatlantic cables landing in the UK carry more than 70% of Europe's transatlantic internet traffic. The UK Government has established a new offshore electricity transmission regime to help ensure that the substantial investment required to connect offshore generation projects to the onshore grid is delivered in a cost effective manner to maximise the benefits to consumers and renewable energy developers. In addition, potential new sub-sea cabling to reinforce and better connect certain sections of the onshore grid is a key part of supporting the growth of renewable and low carbon generation (Economy_471)

The likely evolution of the environment over the plan duration

- The relative importance of dredging areas changes as reserves become depleted and new reserves are developed. For example, the Thames has declined in importance (as reserves have become depleted) but the East English Channel has become increasingly important (where large resources have been discovered) (Economy_583)
- Potential new sub-sea cabling to reinforce and better connect certain sections of the onshore grid is a key part of supporting the growth of renewable and low carbon generation. The UK has signed up to the European Supergrid plan (North Seas Offshore Grid Initiative). The UK is working with nine other European countries as part of the North Seas Offshore Grid Initiative (Economy_473)

Potential interactions with other topics

Marine aggregates contribute to energy security and economic development through provision of fill for major coastal infrastructure projects, for example ports, renewable energy and nuclear energy projects (Economy_479). Marine aggregates can present reduced impacts on local communities compared to the extraction of land-won aggregates, in particular with regard to the extraction process and transportation. Substantial volumes of marine aggregates are landed on wharves close to where they are needed and locally distributed by rail, water (through barges) and road. Wider social and economic benefits include skilled, stable employment and the generation of income through the construction industry supply chain. Potential adverse impacts include changes to the hydrodynamic regime that may alter coastal processes; loss of seabed habitat and heritage assets; impacts on fisheries and secondary impacts to marine life and habitat associated with sediment plumes; disturbance of fish spawning, migration routes, nursery and overwintering areas; overfills from dredging vessels and impacts on geodiversity (Economy_625)

Potential new sub-sea cabling to reinforce and better connect certain sections of the onshore grid is a key part of supporting the growth of renewable and low carbon generation. Impacts from cable installations on the sea bed are low and spatially minor and tend to occur due to the physical disturbance involved during installation. The main impact will be where cable protection, for example, rock armour or concrete mattresses, is required where cable burial is not feasible and potentially in the intertidal area where the cable lands. Impacts may also occur if the cable runs through any site designated as being of national or international nature or cultural heritage conservation importance or other sensitive areas such as designated shell fisheries, spawning or nursery ground for economically important fish species. Other potential impacts could include disturbance to known or undiscovered archaeological sites (Economy_626)

Cables are buried deep in the sea bed where possible and installers and operators promote marine safety and protection. However, cable installations on the UK continental shelf and surrounding waters can be subject to damage. Although this can be through natural causes, human activity is the main cause of submarine cable faults due to damage caused by fishing trawlers and anchors. Given the increased activity in the UK marine area there is a risk that the number of incidents may increase. There are issues around the cumulative effects of submarine cabling with other sectors specifically in certain areas where multiple cables utilise the same grid connection/landfall location meaning several cables can be located in close proximity (Economy_627). There are likely to be potential interactions between areas licenced for aggregates and those offered (currently or in the future) through oil and gas licensing rounds and this may result in conflict

Please also see the Ports and Shipping report card and energy report card.

Potential transboundary issues

- Wales is also highly dependent on marine-dredged sand for construction use and beach nourishment (Marine Policy Statement), which meets more than 80% of the demand. Decisions on aggregate extraction off the coast of South Wales are made in line with the Welsh Assembly Government's Interim Marine Aggregates Dredging Policy, which provides strategic area-based guidance. There is currently no marine aggregates extraction for construction in Scotland or Northern Ireland.
- Sand and gravel dredged in the UK is shipped to Europe. Marine sand and gravel is delivered to wharves in 17 ports on mainland Europe, where it is used by the construction industry. In 2014 about 20% of the total was shipped to Belgium, France and the Netherlands and 4.5 % was shipped to Wales. The rest was for use in England
- The UK has signed up to the European Supergrid plan, the [North Seas Offshore Grid Initiative](#). The UK is working with nine other European countries as part of the North Seas Offshore Grid Initiative

Key data gaps

- The aggregate resources on the UK continental shelf are being mapped by the British Geological Survey on behalf of the Crown Estate. However, this process is still ongoing (the first reports have been produced by the British Geological Survey covering the Scottish coasts, Welsh coasts, South English coasts and East English coasts) and is not complete. These maps may be useful at the assessment stage (Economy_584)



Economy - Energy

Baseline/issues: North West Plan Areas 10 11

- The North West Plan area has five operational offshore wind farms: Barrow, Burbo Bank, Ormonde, Walney I, Walney II and West of Duddon Sands. It also has two approved offshore wind farms: Burbo Bank extension and Walney III. The current combined offshore wind farm capacity for the North West plan area is 1086.2 MW and this affects both the inshore and offshore areas (Economy_347)
- Tidal Lagoon Power has an early stage proposal to create a tidal lagoon north of Workington on the west Cumbrian coast. There are also plans for a Wyre tidal energy barrage and a Mersey barrage (which is listed in the Liverpool Devolution Agreement) potentially affecting the inshore area (Economy_379)
- The UK Offshore Energy SEA3 states that existing offshore oil and gas infrastructure in mature fields provides the potential for re-use as storage facilities where structure design life and modifications allow. Proven sealing structures and an abundance of historical geological well and seismic data make the East Irish Sea area highly prospective for gas storage and CCS projects and this could potentially affect the inshore and offshore area. Large industrial emitters in the Merseyside area also provide significant potential CO2 sources (Economy_605)
- Heysham 1 and 2 power stations are in the North West inshore plan area (Economy_361). NuGen's Moorside project aims to develop a new generation nuclear power station of up to 3.6GW on land in West Cumbria, North West England potentially affecting the inshore area (Economy_548)
- West Cumbria Mining Ltd. has on-shore and offshore licences to develop the Whitehaven Coking Coal Project, with the potential to develop a substantial new offshore underground coking coal mine off Whitehaven potentially affecting the inshore area (Economy_593)
- In the North West plan area there is a gas terminal at Barrow-in-Furness, there are a number of gas and oil fields, predominantly gas fields. There are two significant oil discovery areas, and there are currently licenced 28th round award and 28th round provisional award areas, and a gas storage licence area and these potentially affect both the inshore and offshore plan areas (Economy_348)
- There is one area off the coast of the Wirral in the North West inshore plan area subject to Coal Authority Underground coal gasification licenses (Economy_546)
- The Solway Energy Gateway is a project to create an "electric bridge" across the Solway Firth to harness tidal energy and create a pedestrian and cycle route between England and Scotland (Economy_592)

Baseline/issues: South West Plan Areas 8 9

- There are no operational or approved offshore wind farms in the South West plan area (Economy_321)
- There are / have been tidal stream/lease agreements for lease sites in the South West inshore (Pulse Tidal Limited, Bristol Channel), North Cornwall Wave Demonstration Zone, North Devon Tidal Demonstration Zone and Falmouth Bay Test Site (FabTest) (Economy_318) potentially affecting the inshore area. However, there is now considerable uncertainty in the industry as Pulse Tidal Limited have been liquidated and the Agreement for Lease in the Bristol Channel has been terminated. The North Cornwall Wave Demonstration Zone has also been terminated (Economy_318)
- Tidal Lagoon Power are considering the potential of Bridgwater Bay, Somerset to develop a tidal la-agoon (Economy_387)
- The UK Offshore Energy SEA3 states that comparatively smaller geological understanding make these areas unlikely candidates for gas storage or CCS compared with North Sea and East Irish Sea prospects (Economy_607)
- Hinkley point power station is in the South West inshore plan area. A Development Consent Order (DCO) was granted for Hinkley Point C and associated developments in 2013 but there is uncertainty surrounding the future of the development. Final Investment Decision (FID) has been delayed; however, preliminary works have commenced on site. The potential Oldbury (Horizon) nuclear plant in South Gloucestershire is at an early stage of consideration (Economy_361)
- In the South West plan area there are no oil or gas fields, no oil or gas terminals and no currently licenced areas. However, whilst a large proportion of the South West Plan area is designated as restricted, the remaining blocks in the area could potentially be licensed in future licensing rounds within the plan period, especially if further strategic seismic programmes are undertaken (Economy_322)
- The South West Marine Energy Park, the country's first, serves the wider south west peninsula, and offers direct access to physical assets and resources including the north Devon and north Somerset marine energy coasts for opportunities in wind, tidal and nuclear energy (Economy_602)

Baseline/issues: North East Plan Areas 1 2

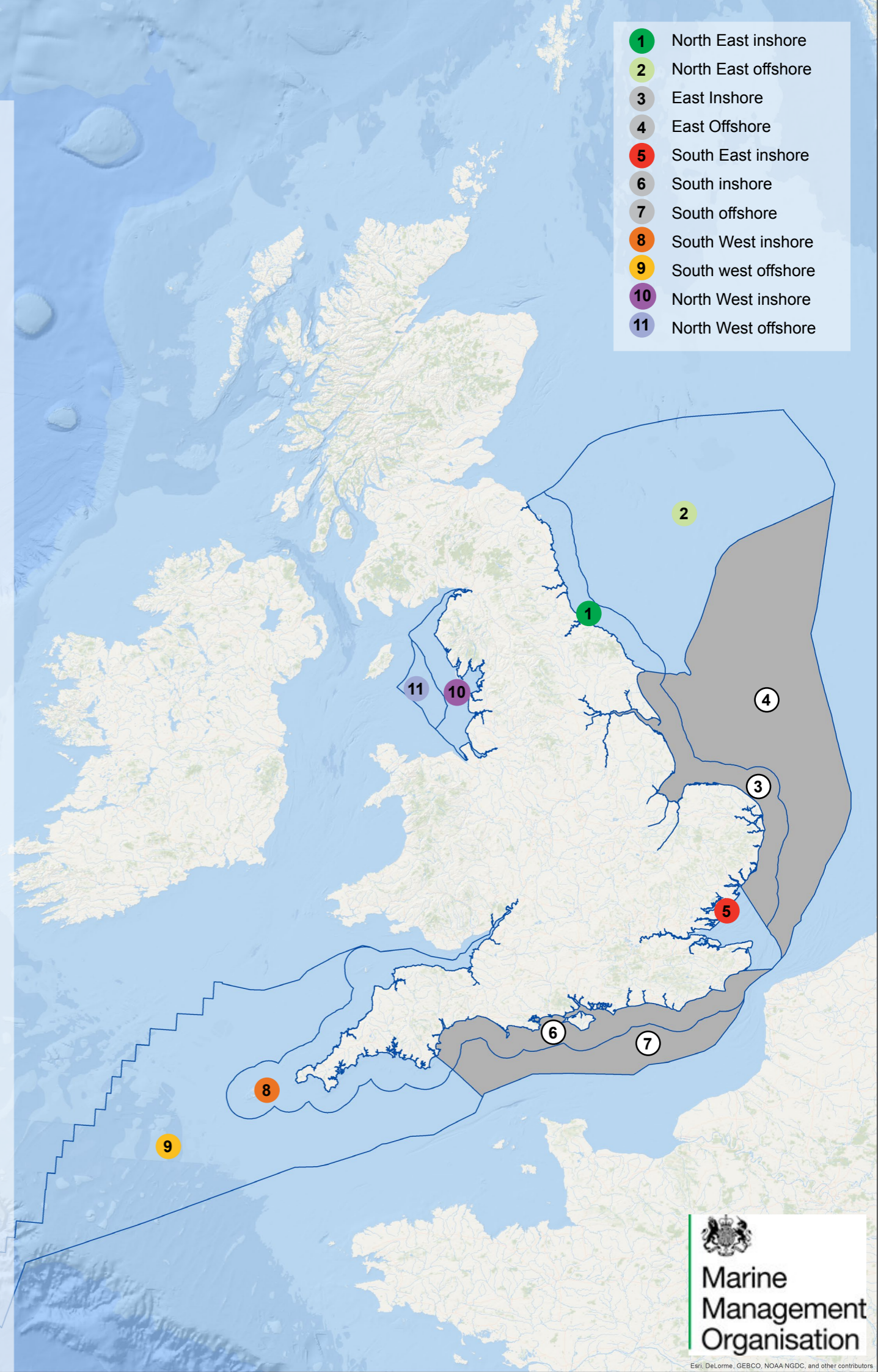
(Please note that the figures in brackets refer to the SA scoping database. This is available on the MMO website)

- The North East Plan area has two operational offshore wind farms: Blyth and Teesside offshore wind farms. It also has one approved offshore wind farm: Blyth offshore demonstrator. The current combined offshore wind farm capacity for the North East plan area is 66.1 MW. This affects both the inshore and offshore plan areas. The Hornsea Development Zone is in the North East offshore area. This is a 4GW offshore wind project currently in development in Yorkshire (Economy_366)
- Wave and tidal demonstration facilities include: National Renewable Energy Centre (NAREC) (although NAREC's wave and tidal facilities are all terrestrial and affect the inshore area only) (Economy_360)
- Potential CCS projects include the Teesside low carbon project (although at the moment this is an industry hub only). The UK Offshore Energy SEA3 states that existing offshore oil and gas infrastructure in mature fields in this area provides the potential for re-use as storage facilities where structure design life and modifications allow. Proven sealing structures and an abundance of historical geological well and seismic data make Regional Seas 1 and 2 (which covers the North East and the South East marine plan areas) highly prospective for gas storage and CCS projects and this could potentially affect the inshore and offshore area (Economy_606)
- Hartlepool Nuclear Power station is in the North East inshore plan area (Economy_361)
- There are a number of oil fields near to the east plan area boundary and a number of oil fields further offshore near to the Scottish border. There is an oil terminal and a gas terminal in Teesside. There are areas of currently licenced 28th round award, and 28th round provisional award in this plan area and this mainly affects the inshore plan area (Economy_368)
- There are a number of areas along the coast north of Sunderland in the inshore area subject to Coal Authority Underground coal gasification licenses (Economy_545)

Baseline/issues: South East Plan Areas 5

- The South East Plan area contains seven offshore wind farms, all of which are operational, including: Gunfleet Sands I, Gunfleet Sands II, Gunfleet Demonstration, Kentish Flats I, Kentish Flats II, London Array and Thanet. The current combined offshore wind farm capacity for the South East plan area is 1254.3 MW (Economy_335)
- The UK Offshore Energy SEA3 states that existing offshore oil and gas infrastructure in mature fields in this area provides the potential for re-use as storage facilities where structure design life and modifications allow. Proven sealing structures and an abundance of historical geological well and seismic data make Regional Seas 1 and 2 (which covers the North East and the South East Marine plan areas) highly prospective for gas storage and CCS projects (Economy_606)
- In October 2015 the Government's Energy Secretary confirmed that China will lead the construction of a nuclear power station at Bradwell-on-Sea, nominated into the Government's Strategic Siting Assessment process and incorporated into the Nuclear National Policy Statement (Economy_361)
- In the South East Plan area there are no oil or gas fields, no oil or gas terminals and no currently licenced areas. There is a small area of 28th round provisional award in this plan area (Economy_336)

- 1 North East inshore
- 2 North East offshore
- 3 East Inshore
- 4 East Offshore
- 5 South East inshore
- 6 South inshore
- 7 South offshore
- 8 South West inshore
- 9 South west offshore
- 10 North West inshore
- 11 North West offshore



Economy - Energy

Summary of the legislative / policy context

- The [Overarching National Policy Statement for Energy' \(EN-1\)](#), provides the primary basis for decisions by the Infrastructure Planning Commission (IPC) on applications it receives. There are also a number of supporting documents - [National Policy Statement for Fossil Fuel Electricity Generating Infrastructure \(EN-2\)](#); [National Policy Statement for Renewable Energy Infrastructure \(EN-3\)](#); [National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines \(EN-4\)](#); [National Policy Statement for Electricity Networks Infrastructure \(EN-5\)](#); [National Policy Statement for Nuclear Power Generation \(EN-6\)](#) (Economy_6)
- According to the [Marine Policy Statement](#), a secure, sustainable and affordable supply of energy is of central importance to the economic and social well-being of the UK. The marine environment will make an increasingly major contribution to the provision of the UK's energy supply and distribution. The UK has a policy objective to maximise economic development of the UK's oil and gas resources reflecting their importance to the UK's economic prosperity and security of energy supply (Economy_510)
- The UK also has legally binding commitments entered into under the [Renewable Energy Directive](#) (Directive 2009/28/EC) (Economy_511)
- [The Carbon Plan](#) set out how the UK Government intended to achieve the fourth carbon budget. The development of CCS is an important element of the Carbon Plan, which is expected to be commercially deployed in the 2020s. In preparation for this, all new fossil fuel power stations of a type covered by the Large Combustion Plant Directive and with a capacity of 300MW or greater are not to be consented unless it can be demonstrated that carbon capture technology can feasibly be retrofitted (Economy_608)

Key cross cutting baseline / issues across all plan areas

Renewables: A significant part of the renewable energy required to meet the UK's targets and objectives will come from marine sources. The UK is currently the leading country globally for offshore wind deployment and the potential sites identified for offshore renewables (including offshore wind, wave and tidal) show the huge exploitable renewable energy resource in UK waters (Economy_508). The technology to enable wave and tidal energy generation is at an earlier stage of development than offshore wind. However, it is anticipated that the amount of wave and tidal energy being generated will increase markedly up to and beyond 2020. This will affect both the inshore and offshore area (Economy_542)

Carbon capture and storage (CCS): Carbon dioxide (CO₂) may be stored in a range of geological formations including depleted hydrocarbon reservoirs and saline aquifers and will potentially affect both the inshore and offshore area. Due to the maturity of most of the UKCS hydrocarbon basins, the availability of sites for CO₂ storage is likely to increase in the coming years, and has the potential to exploit existing infrastructure. Saline aquifers can have similar characteristics to hydrocarbon reservoirs and may also be suited to CO₂ storage. The central North Sea, southern North Sea and East Irish Sea are presently most prospective due to the presence of suitable formations and proximity to areas of high CO₂ emissions (e.g. Thames Estuary, Humber, Merseyside, the Firth of Forth, Teesside and Tyneside). In 2012 DECC's CCS commercialisation programme was launched to support the design and construction of selected CCS projects. The white Rose (Yorkshire – East Plan area) CCS demonstration site is England's only current large scale project being considered by the commercialisation programme. However, in the 2015 Chancellor's Autumn Statement, HM Government confirmed that the £1 billion ring-fenced capital budget for the Carbon Capture and Storage Competition is no longer available and the White Rose CCS project was refused consent by the Department of Energy and Climate Change in April 2016. This has left considerable uncertainty in the industry. The Committee on Climate Change's report *The Future of Carbon Capture and Storage in the UK* stresses the risk that removal of CCS competition funding has on the UK's ability to meet its carbon targets (Economy_303)

Nuclear: The following nuclear reactors are operational in the UK in the inshore plan areas: Heysham 1 and 2, Hinkley point B, Hunterston B, Dungeness B, Hartlepool, Torness, Sizewell. Hartlepool Power station is in the North East plan area. Heysham 1 and 2 power stations are in the North West plan area. Hinkley point power station is in the South West plan area. The potential Oldbury (Horizon) nuclear plant in South Gloucestershire is at an early stage of consideration. In October 2015 the Government's Energy Secretary confirmed that China will lead the construction of a nuclear power station at Bradwell-on-Sea, nominated into the Government's Strategic Siting Assessment process and incorporated into the Nuclear National Policy Statement (Economy_361)

Fossil fuels: Offshore oil and gas is at present the largest source of UK energy supplies and satisfied about two thirds of primary energy demand in 2008 (91% of oil demand and 73% of gas demand). Oil and gas development is present in the inshore and offshore plan areas. Although indigenous production is now in long-term decline oil and gas are expected to remain of central importance even as the country moves towards a low carbon economy. The majority of oil and gas fields on the UK Continental Shelf are located in the North Sea and the largest region of related employment in the UK is in Scotland. Some parts of the UK marine area are well explored and understood. However, in all areas it is likely that there are new discoveries still to be made and these resources need to be accessed to achieve the objective of maximum economic recovery. A range of offshore infrastructure is required to increase the UK's storage capacity. In addition to conventional oil and gas there are several areas in the marine plan areas covered by underground coal gasification licenses (Economy_513). The UK Government has just published the UK Offshore Energy Strategic Environmental Assessment 3 (OESEA3) and this is a useful tool to help developers assess and identify potential opportunities. Future combustion power plants may also be important and are likely to be in coastal locations. Coastal and estuarine locations offer the potential for the efficiency benefits of wet cooling (Economy_618)

The likely evolution of the environment over the plan duration

Although the UK plans to reduce its reliance on fossil fuels, transition will take a significant time and gas will continue to play an important part in the UK fuel mix for years to come. The UK will remain heavily dependent on gas and is expected to rely on imports to meet around half of its net gas demand in 2020. Consequently, significant investment in new gas infrastructure will be required and unconventional fossil fuel technology will also start to contribute towards supply. EDF Energy is planning a seven year reactor life extension for Hinkley Point (November 2012), In February 2016 five-year life extensions were announced for Heysham I, to 2024 and seven year extension for Heysham II to 2030, In February 2016 five-year life extensions were announced for Hartlepool to 2024 (Economy_581). New nuclear reactors are planned for South Gloucestershire and Bradwell-on-Sea (Economy_361)

The UK has some of the best wind resources in the world and offshore wind will play an important and growing part in meeting renewable energy and carbon emission targets and improving energy security by 2020, and afterwards towards 2050. Initiatives like the [Offshore Renewable Energy Catapult](#) (a UK based innovation and research centre for offshore wind, wave and tidal energy) is playing its part in this development. The technology to enable wave and tidal energy generation is at an earlier stage of development than offshore wind. However, it is anticipated that the amount of wave and tidal energy being generated will increase markedly up to and beyond 2020. On 10 February 2016 the Government announced an independent review into the feasibility and practicality of tidal lagoon energy in the UK. This is expected to commence soon and conclude before the end of the year and this may prove to be useful in predicting the future baseline for this area.

Potential interactions with other topics

There are a number of potential environmental risks and potential impacts associated with oil and gas extraction, the most notable being the risk of oil spill, noise from exploration (e.g. seismic survey) and production, historical oil based cuttings piles, and inputs of exploration and production chemicals. Oil discharges in produced water have fallen in the UK and most oil spills are now of less than one tonne. Dependent upon the location, manner of installation and size of the pipeline there are potential impacts from pipeline installation on habitats. However, these are generally spatially minor with short-term noise and disturbance impacts. Use of existing storage features and infrastructure is likely to result in negligible additional impacts although the production of salt caverns may result in significant local impacts and interference with other users of the area. Decommissioning at the end of life can also cause impacts including ecological impacts and potential pollution impacts (Economy_624)

Renewable energy developments can potentially have adverse impacts on marine fish and mammals, primarily through construction noise and may displace fishing activity and have direct or indirect impacts on other users of the sea, including mariners. Certain bird species may be displaced by offshore wind turbines, which also have the potential to form barriers to migration or present a collision risk for birds (Biodiv_463). Marine energy deployments, that is wave and tidal deployments, may pose potential risks to the environment if inappropriately sited. However, the level of risk and ecological significance is largely unknown since, in particular, tidal stream and wave technologies are at a relatively early stage of development. There is the potential for existing fields to be included within the boundaries of future protected areas with implications for both maintenance and decommissioning activities. Renewable projects, depending on substructure type, can also cause habitat damage/ loss. Studies of tidal range technologies, including barrages, have indicated that these structures can have adverse impacts on migratory fish and bird species and on the hydrodynamics of the estuarine environments and can impact on intertidal and subtidal habitats. Decommissioning can also cause impacts but these impacts are less well understood because of the relative immaturity of some of the technologies. There are also potential issues with any other sector requiring open access to marine areas (fishing/shipping/aquaculture). However, please note that there are potential co-existence opportunities with compatible sectors. Cumulative and in-combination effects will need to be considered as part of the SA. Please also see the Ports and Shipping report card for information regarding the effects of subsea infrastructure on shipping (Economy_623)

With regard to Carbon Capture and Storage, leakage from a properly selected storage site is extremely unlikely. Once injected into a formation, a number of physical and chemical trapping mechanisms will retain carbon dioxide within the formation. It is possible that leakage of carbon dioxide from the injection process could take place, for example through failure of infrastructure, such as pipelines and wellheads. This could have some localised impact on benthic marine communities and possibly cause minor localised seawater acidification. However, such impacts are unlikely to be either widespread or long-term, taking into account the dilution and buffering capacity of oceans (Economy_622)



Economy - Energy

Potential transboundary issues

- There are no new nuclear sites planned for Scotland. Northern Ireland has no nuclear sites and none are planned.
- Marine plan authorities will need to liaise, as appropriate, with terrestrial planning authorities to ensure the development of any necessary on-shore infrastructure. This will include, for example sub-stations, to support offshore electricity generation and connection to the national grid; new gas and electricity import infrastructure, including conventional import pipelines, gas reception facilities and liquid natural gas (LNG) import facilities; appropriately developed and placed ports and harbours to support construction and maintenance as well as other infrastructure such as roads. Terrestrial authorities can support marine development by making available factory/industrial space for marine industries and supply chains.
- Tidal Lagoon Power have plans to develop tidal lagoons at Cardiff, Newport and Swansea. Swansea is most advanced plan with consent granted by Secretary of State for Energy and Climate Change in June 2015. Although none of these developments lie within the South West inshore marine plan area their development could impact South West inshore seascape. The development of tidal lagoons in Wales could potentially impact upon viability of proposals on the English coast in the Bristol Channel due to the shared use of resource and impact and issues could also occur accumulatively, with incremental addition of tidal range technologies and in combination effects of the tidal lagoons may also exclude the adoption of other marine technologies. The Workington tidal barrage on the west Cumbrian coast could have effects on Scottish environmental receptors.
- Robin Rigg was Scotland's first offshore windfarm and is in the Solway Firth. The Solway Energy Gateway is a sustainable, renewable energy project to create an "electric bridge" across the Solway Firth. It will harness tidal energy to generate green electricity, whilst creating a new pedestrian and cycle route between England and Scotland, a tourist attraction and a multi-use asset for the benefit of local communities.

Key data gaps

Further research is needed to develop a better understanding of the potential impacts that newer renewable energy technologies might have on potentially sensitive environmental features. The cumulative impact of tidal lagoons at all the above locations is unknown and extensive additional work is needed before the effect on flooding, biodiversity and sedimentation transport is fully understood. The Offshore Renewables Joint Industry Programme (ORJIP) is a UK-wide collaborative programme of environmental research with the aim of reducing consenting risks for wave, tidal stream and tidal range projects. Their [Forward Look report](#) dated February 2016 includes a prioritised list of strategic research projects to address key EIA/HRA issues. This research programme and its findings is likely to be useful evidence that can be used as part of the SA assessment stage. On 10 February 2016 the Government announced an independent review into the feasibility and practicality of tidal lagoon energy in the UK. This is expected to commence soon and conclude before the end of the year and this may prove to be useful in predicting the future baseline for this area (Economy_518)

The potential impacts of decommissioning activities is not well understood. Given the large number of fields that will be reaching the end of their usable life during the life-times of the plans this is an important consideration (Economy_609)

The wide scale introduction of hard structures into soft sediment environments could have cumulative impacts of this on the seabed and these potential impacts are not well understood (Economy_610)

The Scottish Government have given permission for a pilot project of five floating wind turbines to be installed in the North Sea off the coast of Peterhead. However, the potential and interest in floating wind in England is not known (Economy_612)

The extraction of onshore shale gas may require some coastal or marine infrastructure but the scale and potential locations of this infrastructure is yet unknown (Economy_611)

Information on over 500 potentially prospective storage structures is available through the CO2stored database, which makes available some of the information on the UK Storage Appraisal Project commissioned by the Energy Technologies Institute, and which is now being updated by The Crown Estate and the British Geological Survey. This data could be useful at the detailed assessment stage (Economy_613)