HM Government

UK Marine Policy Statement

HM Government
Northern Ireland Executive
Scottish Government
Welsh Assembly Government

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Contents

Abbreviations

AoS – Appraisal of Sustainability
AQMAs – Air Quality Management Areas
CCR – Carbon Capture Ready
CCS – Carbon Capture and Storage
CFP – Common Fisheries Policy
EIA – Environmental Impact Assessment
ELC – European Landscape Convention
EqIA – Equalities Impact Assessment
EU – European Union
HRA – Habitats Regulations Assessment
ICZM – Integrated Coastal Zone Management
IFCAs – Inshore Fisheries and Conservation Authorities
IROPI – Imperative Reasons of Overriding Public Interest
LNG – liquid natural gas
MCZs – Marine Conservation Zones
MoD – Ministry of Defence
MPAs – Marine Protected Areas
MPS – Marine Policy Statement
MSFD – Marine Strategy Framework Directive
NETSO – National Electricity Transmission System Operator
NPS – National Policy Statement
NSIPs – nationally significant infrastructure projects
ODIS – Offshore Development Information Statement
RBMP – River Basin Management Plan
SACs – Special Areas of Conservation
SEA – Strategic Environmental Assessment
SSSIs – Sites of Special Scientific Interest
SPAs – Special Protection Areas
UK – United Kingdom
UKMMAS – UK Marine Monitoring and Assessment Strategy
WFD – Water Framework Directive

The UK Marine Policy Statement

Introduction

This Marine Policy Statement (MPS) is the framework for preparing Marine Plans and taking decisions affecting the marine environment. It will contribute to the achievement of sustainable development in the United Kingdom marine area[1]. It has been prepared and adopted for the purposes of section 44 of the Marine and Coastal Access Act 2009.

The Secretary of State, Scottish Ministers, Welsh Ministers and the Department of the Environment in Northern Ireland are jointly adopting the MPS. This is a key step towards achieving the vision shared by the UK Administrations (UK Government, Scottish Government, Welsh Assembly Government and Northern Ireland Executive) of having 'clean, healthy, safe, productive and biologically diverse oceans and seas'[2].

The MPS will facilitate and support the formulation of Marine Plans, ensuring that marine resources are used in a sustainable way in line with the high level marine objectives[3] and thereby:

- Promote sustainable economic development;
- Enable the UK's move towards a low-carbon economy, in order to mitigate the causes of climate change[4] and ocean acidification and adapt to their effects;
- Ensure a sustainable marine environment which promotes healthy, functioning marine ecosystems and protects marine habitats, species and our heritage assets; and
- Contribute to the societal benefits of the marine area, including the sustainable use of marine resources to address local social and economic issues.

New marine planning systems for the UK

Across the UK new systems of marine planning are being introduced through primary legislation[5]. The MPS is the framework for these marine planning systems. It provides the high level policy context within which national and sub-national Marine Plans will be developed, implemented, monitored, amended and will ensure appropriate consistency in marine planning across the UK marine area. The MPS also sets the direction for marine licensing and other relevant authorisation systems. The process of marine planning will:

[1] The "UK marine area" includes the territorial seas and offshore area adjacent to the UK, which includes the area of sea designated as the UK Exclusive Economic Zone (the Renewable Energy Zone until the Exclusive Economic Zone comes into force) and the UK sector of the continental shelf. It includes any area submerged by seawater at mean high water spring tide, as well as the tidal extent (at mean high water spring tide) of rivers, estuaries and creeks. See Marine and Coastal Access Act 2009 S42 (3) and (4).
[2] Safeguarding our Seas report (2002). www.defra.gov.uk/environment/marine/documents/marine_stewardship.pdf
[3] See box 1
[4] In accordance with the Climate Change Act 2008 and the Climate Change (Scotland) Act 2009; as implemented through the UK Low Carbon Transition Plan www.decc.gov.uk/assets/decc/White%20Papers/UK%20Low%20Carbon%20Transition%20Plan%20WP09/1_20090724153238_e_@@_lowcarbontransitionplan.pdf See also the Scottish Governments Low Carbon Economic Strategy at www.scotland.gov.uk/Publications/2010/11/15085756//0 and The Welsh Assembly Government's Statement 'A Low Carbon Revolution: Wales Energy Policy ' at: http://wales.gov.uk/topics/environmentcountryside/energy/renewable/policy/lowcarbonrevolution/;jsessionid=13XrNxvGS2k1xGpr1YHnln8NdV2QrNhSYvmHncJRX1JkYSQTNSrW!-670654171?lang=en
[5] Marine and Coastal Access Act 2009; the Marine (Scotland) Act 2010; and the Northern Ireland Marine Bill.

- Achieve integration between different objectives;
- Recognise that the demand for use of our seas and the resulting pressures on them will continue to increase;
- Manage competing demands on the marine area, taking an ecosystem-based approach[6];
- Enable the co-existence of compatible activities wherever possible; and
- Integrate with terrestrial planning.

Scope of the MPS

The Marine and Coastal Access Act 2009 requires all public authorities[7] taking authorisation or enforcement decisions[8] that affect or might affect the UK marine area to do so in accordance with the MPS unless relevant considerations indicate otherwise. It also requires that Marine Plans must be in conformity with any MPS in effect in the marine plan area, unless relevant considerations indicate otherwise. Once adopted Marine Plans will have the same effect on authorisation or enforcement decisions in the UK marine area as the MPS, including the requirements and conditions attached to authorisations and the enforcement action that will be taken to ensure compliance. Where the decision is not taken in accordance with the MPS and relevant Marine Plans, the public authority must state its reasons. Public authorities taking decisions that affect or might affect the UK marine area which are not authorisation or enforcement decisions, for example decisions about what representations they should make as a consultee or about what action they should carry out themselves, must *have regard* to the MPS and relevant Marine Plans.

The interrelationship between marine and terrestrial planning regimes is discussed in more detail in Chapter 1. However, it should be noted that in many cases the policies reflected in this MPS are already taken into account in the terrestrial planning system and other consenting regimes which affect or might affect the marine area. If appropriate, further guidance on how these regimes will need to take account of the MPS as part of the marine planning system will be provided by each Administration.

Review and withdrawal process

The MPS will remain in place until it is withdrawn, amended or replaced. As set out in the Marine and Coastal Access Act 2009, it will be reviewed as and when the relevant policy authorities (the Secretary of State in conjunction with Devolved Authorities[9]) consider it appropriate to do so.

When considering whether to review the MPS, the policy authorities will take account of whether there has been a significant change in the evidence underpinning the policies set out in the MPS, whether relevant new policies have been introduced that need to be reflected in the MPS and whether the policy objectives in the MPS need to be amended. This process will also be informed by monitoring and implementation of the marine planning system.

It is possible for any policy authority to withdraw from the MPS by notifying the other policy authorities and then publishing a notice that the withdrawal has taken place[10]. Should the

[6] A practical interpretation of the ecosystem approach is set out in regulation 5 of the Marine Strategy Regulations 2010 which transpose the Marine Strategy Framework Directive. An ecosystem-based approach to the management of human activities means an approach which ensures that the collective pressure of human activities is kept within the levels compatible with the achievement of good environmental status; that does not compromise the capacity of marine ecosystems to respond to human-induced changes; and that enables the sustainable use of marine goods and services.
[7] This includes the Crown Estate who own 80% of the seabed.
[8] Excepting decisions on applications for an order granting development consent under the Planning Act 2008 ie for nationally significant infrastructure projects. In these cases decisions have to have regard to the Marine Policy Statement.
[9] See S 44 (4) of the Marine and Coastal Access Act 2009 for details of the Authorities.
[10] S48 of the Marine and Coastal Access Act 2009.

Scottish Ministers, Welsh Ministers or the Department of the Environment in Northern Ireland withdraw from the MPS then the MPS would cease to have any further effect on decisions which relate to matters within their competence, although withdrawing from the MPS would mean that Marine Plans developed within these devolved administrations after withdrawal would not be relevant in respect of the exercise of retained functions in their Marine Plan. Should the Secretary of State withdraw from the MPS, then the MPS is withdrawn in full and it ceases to have effect. The review or withdrawal of the MPS does not change the effect or validity of any existing Marine Plans which had been prepared when the MPS was in effect.

Assessments

The MPS has been subject to, and informed by, an Appraisal of Sustainability (AoS). This incorporated the requirements of the Strategic Environmental Assessment Directive [11] (SEA Directive). The AoS identified and assessed alternatives to the MPS, indicating those that were not considered feasible as they would not deliver the three pillars of sustainable development effectively. The AoS set out the consideration of each alternative in more detail.

The AoS assessed the MPS and its alternatives against a set of sustainability objectives. These objectives cover all the individual topics listed in the SEA Directive and reflect sustainable development principles. The AoS concluded that the MPS supports achievement of all the sustainability objectives for all the individual topic areas.

The AoS recognised that the MPS forms part of a wider marine planning system within which detailed and area-specific Marine Plans will be developed. These are likely to provide opportunities in the future for further consideration of more detailed sustainability issues.

The AoS contained suggestions to strengthen and enhance the sustainability performance of the MPS but recognised that some of these may only be appropriate at the more detailed stages of plan-making and project development. A Post Adoption Statement has been prepared and is available at: www.defra.gov.uk/environment/marine.

A Habitats Regulations Assessment (HRA) and an Equalities Impact Assessment (EqIA) screening have also been carried out.

The HRA considered the potential effects on sites protected under the Habitats Directive (Directive 92/43/EEC) and Wild Birds Directives (Directive 2009/147/EC)[12] of implementing the MPS. It reflected the strategic, high level nature of the MPS and so identified high level impacts only. It concluded that at this stage it is not possible to exclude the possibility that the integrity of one or more European sites could be adversely affected by activities identified in the MPS. For this reason an assessment of alternative solutions and Imperative Reasons of Overriding Public Interest (IROPI) was undertaken. All Marine Plans and projects carried out in accordance with the MPS may be subject to the appropriate assessment procedure. If, following this procedure, an appropriate assessment is required and this concludes that the Marine Plan or project may affect the integrity of any European site, issues relating to IROPI, site integrity and compensation will need to be addressed in accordance with the relevant legislation and European Commission Guidance.

The EqIA screening exercise was carried out on the MPS to identify any areas of the MPS which may impact on gender, race, disability, age, sexual orientation, religion or belief. This exercise concluded that the MPS would not discriminate against any sections of society and it therefore supports the provisions in equalities legislation and the Welsh Assembly Government's Welsh Language Scheme. It therefore concluded that there was no requirement for a full EqIA.

[11] Directive 2001/42/EC. In accordance with this Directive, the marine plan authorities will be required to undertake Strategic Environmental Assessments to inform their Marine Plans (see section 2.4).
[12] The Directive on the conservation of wild birds (Directive 2009/147/EC) and Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora.

Structure of the MPS

The MPS is structured as follows:

- Chapter 1 sets out the role of the MPS within the wider marine planning system and its interaction with existing planning regimes;
- Chapter 2 outlines the vision for the UK marine area, the high-level approach to marine planning and general principles for decision making that will contribute to achieving this vision. It also sets out the framework for economic, social and environmental considerations that need to be taken into account in marine planning;
- Chapter 3 sets out the policy objectives for the key activities that take place in the marine environment. These objectives are the specific policy outcomes the UK Government, Scottish Government, Welsh Assembly Government and Northern Ireland Executive are seeking to achieve through the sustainable development of the UK marine area in order to deliver the vision in Chapter 2. They will be delivered through marine planning and within the framework of economic, social and environmental considerations outlined in Chapter 2. Marine Plans should align with, and contribute to, the delivery of these objectives. This chapter also provides guidance on the pressures and impacts associated with these activities, which decision makers will need to consider when planning for and permitting development in the UK marine area.

Chapter 1

This chapter sets out the role of the Marine Policy Statement (MPS) within the wider marine planning system and its interaction with existing planning regimes.

1.1 Marine Plans

1.1.1 The MPS and Marine Plans form a new plan-led system for marine activities. They will provide for greater coherence in policy and a forward-looking, proactive and spatial planning approach to the management of the marine area, its resources, and the activities and interactions that take place within it. Marine Plans will be prepared and adopted in accordance with the relevant legislation. If appropriate, an Administration will provide guidance on the content, structure, context for and preparation of Marine Plans.

1.1.2 On adoption of the MPS, the Marine and Coastal Access Act 2009 places a duty on marine plan authorities to seek to ensure that Marine Plans are prepared for all parts of regions where the MPS governs marine planning[13]. The marine plan authorities responsible for developing Marine Plans are the Secretary of State for the English inshore and offshore regions[14], Scottish Ministers for the Scottish offshore region, Welsh Ministers for the Welsh inshore and offshore regions and the Department of the Environment in Northern Ireland for the Northern Ireland offshore region. The Scottish inshore is covered, and the Northern Ireland inshore region will be covered, by respective Scottish and Northern Ireland legislation[15]. As set out in the Marine and Coastal Access Act 2009, Marine Plans developed within the Devolved Administrations will influence the exercise of relevant retained functions[16] when the MPS is in effect, and with the agreement of the Secretary of State. Each of the UK Administrations will also continue to exercise functions affecting the marine environment in accordance with the current devolution settlements.

1.1.3 Marine Plans will set out how the MPS will be implemented in specific areas. They will provide detailed policy and spatial guidance for an area and help ensure that decisions within a plan area contribute to delivery of UK, national and any area specific policy objectives[17]. The MPS does not provide specific guidance on every activity which will take place in, or otherwise affect, UK waters. The MPS provides a framework for development of Marine Plans to ensure necessary consistency in policy goals, principles and considerations that must be taken into account, including in decision making. It identifies those activities to which a degree of priority is expected to be given in marine planning, but does not state, and is not intended to imply, which activities should be prioritised over any others. Relative priorities will be most appropriately determined through the marine planning process, taking into account a wide range of factors alongside UK policy objectives, including the specific characteristics of the individual Marine Plan area.

[13] Marine and Coastal Access Act 2009 – Section 51(2).
[14] This function has been delegated to the Marine Management Organisation (MMO). The Secretary of State must approve the Statement of Public Participation, draft Marine Plans prior to consultation and the final Marine Plans for adoption that the MMO prepares.
[15] Planning for the offshore area in Scotland has a different legislative base to the inshore area. It is intended to bring the Marine Plans developed under the different legislation together in one document. A similar approach will be taken in Northern Ireland. The Welsh Assembly Government is consulting on the approach in Wales.
[16] Being those functions which affect or might affect the whole or any part of UK marine area, as set out in section 58 of the Marine and Coastal Access Act 2009.
[17] In Scotland, a national Marine Plan will be developed which will be in accordance with the MPS and which Scottish regional plans must also comply with, unless relevant considerations indicate otherwise.

1.2 Cross border planning

1.2.1 The UK Administrations are committed to the co-ordination of marine planning across administrative boundaries[18] and have made it a requirement of their respective legislation. Co-ordination will include planning for activities which extend across national or Marine Plan area boundaries, the sharing of data between plan authorities and the timing of the development of Marine Plans for any area. Concordats between UK administrations will enshrine the close co-operation and mutually beneficial approach to marine planning that is in place.

1.2.2 Cross border planning will also be facilitated by the UK-wide marine evidence base collected through monitoring programmes under the UK Marine Monitoring and Assessment Strategy (UKMMAS) community and its reports on the state of the UK seas. For example, "Charting Progress 2", published in July 2010[19], provides a comprehensive assessment of how clean, safe, healthy, biologically diverse and productive the UK seas are, on the basis of the eight biogeographical areas into which UK seas have been divided. Charting Progress 2 provides a useful baseline of information for the development of Marine Plans, though, as the report itself acknowledges, there are significant gaps in the evidence that is available which the marine planning process may help address. Furthermore, the UK Marine Science Co-ordination Committee, under which UKMMAS sits, provides a platform for addressing the research necessary to fill gaps in knowledge about how both natural and anthropogenic pressures impact on marine ecosystems and how they function.

1.2.3 Co-ordination will also be needed with other countries sharing the same regional seas, including the Republic of Ireland with which the UK shares a land and sea boundary[20]. This will include sharing data and consultation with affected authorities and Member States when Marine Plans are being proposed in order to fully understand the potential effects of the plan and in accordance with the Strategic Environmental Assessment (SEA) Directive.

1.3 Integration with terrestrial planning regimes

1.3.1 The MPS and marine planning systems will sit alongside and interact with existing planning regimes across the UK. These include town and country planning and other legislation, guidance and development plans[21] in each Administration. In England and Wales this also includes the development consent order regime for nationally significant infrastructure projects (NSIPs). In Scotland the second National Planning Framework[22] under the Planning (Scotland) Act 2006 sets out a number of national development priorities to support sustainable economic growth. In Northern Ireland the Regional Development Strategy and Planning Policy Statements, along with development / area plans, are the key planning documents which set the policy framework for terrestrial planning decisions.

1.3.2 In England and Wales, consents for nationally significant infrastructure projects, including the larger offshore renewable energy and port developments, need to be determined in accordance with the Planning Act 2008. Where a relevant National Policy Statement (NPS) has been designated, nationally significant infrastructure project applications must be decided in accordance with the NPS, subject to certain exceptions, and having regard to the MPS. In other

[18] The UK marine plan authorities are committed to cross border co-operation; in particular to developing joint plans for the Solway Firth, Severn and Dee estuaries.
[19] See http://chartingprogress.defra.gov.uk/
The assessment highlights those areas where there have been improvements and those where environmental problems remain or deterioration occurs. Although there is a wide ranging evidence base, there are gaps in evidence in some areas.
[20] Other countries include the Faroe Islands, Norway, Denmark, Germany, Netherlands, Belgium and France.
[21] Changes are being made to the terrestrial planning regime in England and non devolved matters in Wales as part of the Localism Bill and in Northern Ireland through the Planning Bill. These changes are compatible with and should not affect the introduction of marine planning.
[22] www.scotland.gov.uk/Publications/2008/12/12093953/0 – this includes references to national developments relating to ports and harbours and onshore and offshore (sub-sea) grid transmission capacity to realise and deliver renewable energy.

circumstances, the decision is for the Secretary of State. The marine plan authorities in England and Wales should have regard to any relevant NPS in developing Marine Plans and in advising other bodies.

1.3.3 The Marine and Coastal Access Act 2009 and the Marine (Scotland) Act 2010 require the marine plan authority to notify local planning authorities of its intention to prepare a Marine Plan, whose area of jurisdiction adjoins (or under the Marine and Coastal Access Act 2009, is adjacent to) the marine plan area[23]. As the marine plan area boundaries will extend up to the level of mean high water spring tides while terrestrial planning boundaries generally extend to mean low water spring tides, the marine plan area will physically overlap with that of terrestrial plans. This overlap ensures that marine and land planning will address the whole of the marine and terrestrial environments respectively, and not be restricted by an artificial boundary at the coast. The geographic overlap between the Marine Plan and existing plans will help organisations to work effectively together and ensure that appropriate harmonisation of plans is achieved[24].

1.3.4 Integration of marine and terrestrial planning will be achieved through:

- Consistency between marine and terrestrial policy documents and guidance. Terrestrial planning policy and development plan documents already include policies addressing coastal and estuarine planning. Marine policy guidance and plans will seek to complement rather than replace these, recognising that both systems may adapt and evolve over time;
- Liaison between respective responsible authorities for terrestrial and marine planning, including in plan development, implementation and review stages. This will help ensure, for example, that developments in the marine environment are supported by the appropriate infrastructure on land and reflected in terrestrial development plans, and vice versa; and
- Sharing the evidence base and data where relevant and appropriate so as to achieve consistency in the data used in plan making and decisions.

1.3.5 Activities taking place on land and in the sea can have impacts on both terrestrial and marine environments. The coast and estuaries are highly valued environments, as well as social and economic assets. The UK Administrations are committed to ensuring that coastal areas, and the activities taking place within them, are managed in an integrated and holistic way in line with the principles of Integrated Coastal Zone Management (ICZM)[25].

[23] As set out in Schedule 6 to the Marine and Coastal Access Act 2009 and Schedule 1 of the Marine (Scotland) Act 2010.
[24] In preparing a Marine Plan in the English and Welsh inshore regions, a marine plan authority must take all reasonable steps to secure that the Marine Plan is compatible with the relevant Planning Act plan (as defined under the Marine and Coastal Access Act 2009) for any area in England, Wales or Scotland which is related to the Marine Plan area. See also Schedule 1 to the Marine (Scotland) Act 2010 in relation to Scottish regional Marine Plans.
[25] The EU ICZM Recommendation. See http://ec.europa.eu/environment/iczm/home.htm

Chapter 2

This chapter outlines the vision for the UK marine area, the high-level approach to marine planning and general principles for decision making that will contribute to achieving this vision. It also sets out the framework for environmental, social and economic considerations that need to be taken into account in marine planning.

2.1 UK vision for the marine environment

2.1.1 The UK vision for the marine environment is for 'clean, healthy, safe, productive and biologically diverse oceans and seas'. The UK high level marine objectives published in April 2009 set out the broad outcomes for the marine area in achieving this vision, and reflect the principles for sustainable development (see Box 1). The process of marine planning will contribute to the achievement and integration of sectoral/ activity specific policy objectives within a framework of economic, social and environmental considerations in order to deliver the high level marine objectives. This approach will help ensure the sustainable development of the UK marine area and deliver the UK vision.

2.2 Achieving the vision through marine planning

2.2.1 Marine Plans will formulate and present outcomes for a marine plan area. These outcomes will be consistent with the Marine Policy Statement (MPS) and be supported and informed by evidence relevant to the plan area. Marine Plans will set out how marine resources can best be managed in order to achieve the plan outcomes, policies and objectives. Marine Plans will provide a clear, spatial and locally-relevant expression of policy, implementation and delivery. They will ensure that different and potentially competing activities are managed in such a way that they contribute to the achievement of sustainable development. A key principle will be to promote compatibility and reduce conflict. Monitoring of implementation will ensure that activities within a marine plan area contribute to the delivery of the MPS, as well as its future revisions.

2.2.2 As each marine plan area has its own characteristics and features, not all of the activity policies in Chapter 3 of the MPS will necessarily be applicable to each Marine Plan. Nor will all activities occurring in, or policies relevant to, a marine plan area be considered by the MPS. Similarly, while the MPS sets out the UK objectives for our marine resources, within each Administration the role that different sectors will play in contributing to sustainable development will vary[26]. Marine Plans may set limits or targets for marine plan areas, where appropriate.

[26] Plans made under the Marine (Scotland) Act 2010 must include specific objectives as set out in section 5(4) of that Act.

Box 1: The high level marine objectives

Achieving a sustainable marine economy

- Infrastructure is in place to support and promote safe, profitable and efficient marine businesses.
- The marine environment and its resources are used to maximise sustainable activity, prosperity and opportunities for all, now and in the future.
- Marine businesses are taking long-term strategic decisions and managing risks effectively. They are competitive and operating efficiently.
- Marine businesses are acting in a way which respects environmental limits and is socially responsible. This is rewarded in the marketplace.

Ensuring a strong, healthy and just society

- People appreciate the diversity of the marine environment, its seascapes, its natural and cultural heritage and its resources and act responsibly.
- The use of the marine environment is benefiting society as a whole, contributing to resilient and cohesive communities that can adapt to coastal erosion and flood risk, as well as contributing to physical and mental wellbeing.
- The coast, seas, oceans and their resources are safe to use.
- The marine environment plays an important role in mitigating climate change.
- There is equitable access for those who want to use and enjoy the coast, seas and their wide range of resources and assets and recognition that for some island and peripheral communities the sea plays a significant role in their community.
- Use of the marine environment will recognise, and integrate with, defence priorities, including the strengthening of international peace and stability and the defence of the UK and its interests.

Living within environmental limits

- Biodiversity is protected, conserved and where appropriate recovered and loss has been halted.
- Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems.
- Our oceans support viable populations of representative, rare, vulnerable, and valued species.

Promoting good governance

- All those who have a stake in the marine environment have an input into associated decision-making.
- Marine, land and water management mechanisms are responsive and work effectively together, for example through integrated coastal zone management and river basin management plans.
- Marine management in the UK takes account of different management systems that are in place because of administrative, political or international boundaries.

- Marine businesses are subject to clear, timely, proportionate and, where appropriate, plan-led regulation.
- The use of the marine environment is spatially planned where appropriate and based on an ecosystems approach which takes account of climate change and recognises the protection and management needs of marine cultural heritage according to its significance.

Using sound science responsibly

- Our understanding of the marine environment continues to develop through new scientific and socio-economic research and data collection.
- Sound evidence and monitoring underpins effective marine management and policy development.
- The precautionary principle is applied consistently in accordance with the UK Government and Devolved Administrations' sustainable development policy.

2.3 Planning and decision making

2.3.1 High level approach to marine planning

2.3.1.1 In developing Marine Plans the process needs to be:

- Conducted in a manner that is consistent with requirements under UK and EU legislation and our obligations under international law;
- Conducted in a way that achieves the relevant UK Administrations' policy objectives affecting the marine area (as set out in Chapter 3), in order to deliver the high level objectives and contribute to achievement of sustainable development;
- Carried out with regard to other relevant projects, programmes, plans and national policies and guidance;
- Based on an ecosystem approach[27];
- Participative and informed by data provided by consultees, stakeholders, regulators and relevant experts;
- Streamlined and efficient, for example making effective use of existing data and management arrangements where appropriate.

2.3.1.2 Marine Plans will be based on a sound evidence base, as far as possible. This will identify issues to be addressed in the plan and inform plan development. The evidence base will be developed from a wide range of sources including existing plans[28], the plan area community, science advisors, statutory and other advisors, industry and other marine users. Where evidence is inconclusive, decision makers should make reasonable efforts to fill evidence gaps but will also need to apply precaution within an overall risk-based approach[29], in accordance with the sustainable development policies of the UK Administrations. This will apply equally to the protection of the natural marine environment, impacts on society and impacts on economic prosperity.

[27] See footnote 6.
[28] For example, Terrestrial Development plans, River Basin Management plans, Shoreline Management plans and Port Master plans.
[29] This means that if the risks from an activity are uncertain preventative measures may be required if there is concern that human activities may harm human health, living resources and marine ecosystems or interfere with other legitimate uses of the sea or have other social and economic impacts. This would need to be considered based on risk.

2.3.1.3 Marine Plans will need to be forward looking and, in particular, through monitoring and review processes ensure flexibility to anticipate, and accommodate, a range of future demands and scenarios, including new evidence, innovation and evolving technologies and techniques. However, they will also need to provide certainty for marine plan authorities and decision makers, and other users.

2.3.1.4 In developing, monitoring and implementing a Marine Plan, the marine plan authority will work with a wide range of planning and regulatory organisations with direct and indirect involvement in marine planning, at national level and/or for individual marine plan areas. This will include the existing work of the terrestrial planning community, complemented by the role of the marine plan authority; in particular in relation to Integrated Coastal Zone Management (ICZM). In addition, marine plan authorities and decision makers should liaise, as appropriate, with those responsible for responding to marine emergencies to ensure that Marine Plans do not inhibit or unknowingly alter an emergency response plan, and to ensure that risks can continue to be managed in a proportionate way.

2.3.1.5 Marine Plans should reflect and address, so far as possible, the range of activities occurring in, and placing demands on, the plan area. The Marine Plan should identify areas of constraint and locations where a range of activities may be accommodated. This will reduce real and potential conflict, maximise compatibility between marine activities and encourage co-existence of multiple uses. In addition the involvement of stakeholders and local communities in the marine planning process will help to maximise adherence to plan-led proposals, identify opportunities for compatible uses and minimise potential conflicts. Should conflicts arise, the marine plan authority in reaching a decision must integrate economic, social and environmental considerations in conformity with the MPS and draw on other considerations, evidence or supplementary guidance where appropriate. This process will be aided by the sustainability appraisal for a Marine Plan, as it will examine the degree to which conflicts are being addressed through mitigating actions.

2.3.1.6 Marine Plans should provide for continued, as well as new, uses and developments in appropriate locations. They should identify how the potential impacts of activities will be managed, including cumulative effects. Close working across plan boundaries will enable the marine plan authority to take account of the cumulative effects of activities at plan boundaries. The consideration of cumulative effects alongside other evidence may enable limits or targets for the area to be determined in the Marine Plan, if it is appropriate to do so.

2.3.2 High level principles for decision making

2.3.2.1 Enforcement or authorisation decisions that affect or might affect the UK marine area must be made in accordance with the relevant marine policy documents[30] unless relevant considerations, such as advances in scientific knowledge and technology for example, indicate otherwise. This means that decisions on activities in the UK marine area will be plan led once Marine Plans are in place. In the interim, decisions must be made in accordance with the MPS. In either case, the same approach will apply and the decision maker should weigh the potential benefits and adverse effects of each proposal, drawing on different, identifiable lines of evidence to consider the different impacts of a proposal. When considering potential benefits and adverse effects, decision makers should also take into account any multiple and cumulative impacts of proposals, in the light of other projects and activities. The level of assessment undertaken for any project should be proportionate to the scale and impact of the project as well as the sensitivity of the environment concerned and in accordance with the Environmental Impact Assessment (EIA) Directive (Directive 85/337/EEC) where applicable[31]. An Appropriate Assessment in accordance

[30] See S58 and 59 of Marine and Coastal Access Act 2009 and s15 of the Marine (Scotland) Act 2010.
[31] An Environmental Impact Assessment under Directive 85/337/EEC as amended is required for all proposed marine projects of types listed in Annex I of the Directive and for projects in Annex II which are likely to have significant environmental effects. The Directive requires applications for consent to be accompanied by information including the likely significant effects of the proposals, and of any alternatives considered, on the environment.

with the Habitats Directive[32] (Directive 92/43/EC) may also be required, in accordance with relevant national legislation and Government circulars or guidance.

2.3.2.2 There are a number of principles that should also be taken into account, specifically that decisions should:

- Be based on the detailed information and advice in the relevant marine policy documents in the respective Administrations;
- Be conducted in a manner that meets requirements under UK and EU legislation and is consistent with our obligations under international law;
- Be conducted in a way that takes into account all of the relevant UK Administrations' policy objectives affecting the marine area;
- Be conducted in a manner that takes account of other relevant projects, programmes, plans and national policies[33] and guidance;
- Be taken after appropriate liaison with terrestrial planning authorities and other regulators, and in consultation with statutory and other advisors when appropriate;
- Be streamlined where possible, making effective use of existing data;
- Be taken using a risk-based approach that allows for uncertainty, recognising the need to use sound science responsibly[34] as set out in the high level objectives;
- Be sensitive to any potential impacts on sites of particular significance including those;
  - protected under environmental legislation or designated in relation to cultural heritage;
  - of particular social or economic significance;
- Take account of potential impacts of climate change mitigation and adaptation in individual applications to ensure that any appropriate adaptation and mitigation measures have been identified;
- Take account of the benefits that good design (including the best use of available technologies and innovation) can deliver; and
- Look to avoid and then mitigate negative impacts where possible at various stages of development, including appropriate conditions in line with legal obligations, in a manner that is proportionate to the potential impacts of the proposal under consideration. Where alternative site selection or design could mitigate negative effects whilst retaining benefits, this should be considered, where appropriate.

2.4 Considering benefits and adverse effects in marine planning

2.4.1 The marine plan authority will need to assess the impacts of their proposals for the marine plan area. These may be identified as anticipated benefits, including the contribution that the proposals would make to policy objectives, or anticipated adverse effects. These benefits and adverse effects may be economic, social and environmental in nature.

2.4.2 The precise nature of the benefits or adverse effects will depend on a number of factors including the types of activity under consideration; the specific characteristics of the marine area affected; and compatibility with other existing or planned activities.

2.4.3 The marine plan authority will need to consider the potential cumulative impact of activities and, using best available techniques, whether for example:

[32] See footnote 12.
[33] For example, any relevant National Policy Statements in England and Wales.
[34] For example, the Scottish Government and Scottish Natural Heritage have developed a "Deploy and Monitor" policy to facilitate deployment of demonstration wave and tidal devices.

- The cumulative impact of activities, either by themselves over time or in conjunction with others, outweigh the benefits;
- A series of low impact activities would have a significant cumulative impact which outweighs the benefit;
- An activity may preclude the use of the same area/resource for another potentially beneficial activity.

2.4.4 These considerations will be picked up in the Marine Plan making process particularly through the Sustainability Appraisal for each Marine Plan created under the Marine and Coastal Access Act 2009[35]. The Sustainability Appraisal will consider the potential social, economic and environmental benefits and adverse effects of the proposals set out in a draft Marine Plan. It will incorporate a Strategic Environmental Assessment (SEA)[36]. An Appropriate Assessment[37] may also be required for a Marine Plan and an impact assessment will also need to be undertaken.

2.4.5 The rest of this chapter sets out some key considerations that marine plan authorities should take into account when preparing the required assessments[38] as part of the marine planning process. They may also apply in decision making, depending on the level of assessment needed. It includes information on the environmental factors to be considered (as set out in the relevant legislation), as well as social and economic considerations. It is not an exhaustive list of all possible considerations and effects; there may be other issues to be taken into account within any Marine Plan, in particular the social and economic factors that are specific to that area. Many of the general considerations addressed below are devolved policies, for example coastal change and seascape. The aim of the MPS is to set out existing UK and EU requirements in relation to these important issues for marine planning, where consistency is necessary, while also recognising that each Administration has responsibility for policies and processes which may go further and vary in the detail of implementation.

2.5 Economic, social and environmental considerations

2.5.1 These considerations are discussed in more detail in the following sections. Chapter 3 includes a more detailed discussion of the economic and social benefits and potential adverse effects that may arise from any activity.

Economic and social considerations

2.5.2 Properly planned developments in the marine area can provide environmental and social benefits as well as drive economic development, provide opportunities for investment and generate export and tax revenues. The marine planning system will help to promote these benefits in contributing to the achievement of sustainable development. There will therefore be a presumption in favour of sustainable development in the marine planning system.

2.5.3 Marine based activities can provide opportunities for employment in long established industries such as fishing, marine transport, port related storage and processing, oil and gas

[35] Marine Plans developed under other legislation may be subject to other assessment processes. These will also include a consideration of social, economic and environmental factors.
[36] The SEA Directive requires that, during the preparation of the plan, the marine plan authority must prepare an Environmental Report on the likely significant environmental effects, consult designated environmental bodies and the public, and take the report and the results of consultation into account. Requirements for monitoring the effects of implementing the plan must also be met.
[37] An Appropriate Assessment under the Habitats Directive will be required for a Marine Plan if that plan is likely to have a significant effect, either alone or in combination with other plans or projects, on a Natura 2000 site and will also be conducted for any site beyond Natura 2000 sites to which the same protection is applied as a matter of policy. The assessment must be carried out in accordance with relevant legislation. Government circulars or guidance should also be taken into account. For the purpose of the MPS, Natura 2000 sites are European Sites, as defined by regulation 8 of the Conservation of Habitats and Species Regulations 2010 SI2010/490 and European Offshore Marine Sites as defined by Regulation 15 of the Offshore Marine Conservation (Natural habitats &c.) Regulations 2007 SI2007/1842. The relevant nature conservation bodies must also be consulted.
[38] The precise requirements will depend on the applicable legislation.

production and new and developing industries such as the renewable energy sector and associated offshore electricity transmission. This employment provides wide and long term benefits for both national and local economies.

2.5.4 The marine environment provides national economic and social benefits including for heritage assets, seascape and cultural services of coastal and marine activities, as well as directly contributing to the quality of life and well being of coastal communities. Marine planning will also therefore make an important contribution towards ensuring vibrant and sustainable coastal communities - helping to build strong local economies - improving quality of life, access to, and enjoyment of, their marine areas.

2.5.5 The marine plan authority should ensure, through integration with terrestrial planning, and engagement with coastal communities, that marine planning contributes to securing sustainable economic growth both in regeneration areas and areas that already benefit from strong local economies. Through well placed and well designed development Marine Plans should promote economic growth and sustain local jobs. Examples of this could include local infrastructure development, or optimising the potential of environmental resources through eco-tourism and recreational use. These considerations must be integrated with social considerations on equality, community cohesion, wellbeing and health[39], as well as implications for the marine environment.

2.5.6 The marine plan authority should give consideration to the social and economic benefits that the enhancement of marine ecosystems can provide, including to coastal communities.

2.5.7 The marine plan authority, through integration of Marine Plans with terrestrial planning and engagement with local communities, should contribute to vibrant coastal communities, particularly in remote areas, which will include consideration of cultural heritage, seascape and local environmental quality.

Environmental considerations

2.5.8 The UK's marine environment is extremely rich and varied, supporting a wide range of species of national and international importance. It provides vital ecosystem goods and services including provision of food and regulation of the climate. A healthy marine ecosystem is fundamental to supporting sustainable development, thus ensuring wide social and economic benefits. There is a wide range of legislative provisions (and other biodiversity and ecologically-relevant obligations) at the international and national level that Marine Plans need to take into account. These include the Marine Strategy Framework Directive (MSFD) (Directive 2008/56/EC), Water Framework Directive (WFD) (Directive 2000/60/EC), Habitats Directive and Wild Birds Directive.

2.5.9 The MSFD sets out the legislative framework for the achievement of good environmental status in our marine and coastal waters. The aim of the Directive is for Member States to put in place management measures designed to achieve good environmental status by 2020. Implementing the Directive will involve taking an ecosystem based approach to the management of human activities, ensuring that the collective pressure of those activities is kept within levels compatible with the achievement of good environmental status. Under the Directive, Member States must develop Marine Strategies for their waters, comprising the following elements:

- An assessment of the current state of UK marine waters, including an economic and social analysis of the use of those waters and the cost of degradation of the marine environment (by 2012);
- Characterisation of what constitutes good environmental status for UK waters, including the establishment of relevant targets and indicators (also by 2012);

[39] The assessment process will vary depending on the legislative basis for a Marine Plan.

- Development of monitoring programmes to measure progress towards good environmental status (by 2014); and
- Development (by 2015) and implementation (by 2016) of programmes of measures to achieve good environmental status by 2020.

2.5.10 The Directive includes the following wide-ranging descriptors which Member States must use as the basis for their more detailed characterisation of good environmental status:

- Biological diversity is maintained;
- The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions:
- Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems;
- Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock;
- All elements of the marine food web, to the extent that they are known, occur at normal abundance and diversity levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity;
- Human-induced eutrophication is minimised, especially the adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters;
- Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems;
- Sea floor integrity is at a level that ensures that the structure and functions of the ecosystem are safeguarded and benthic ecosystems, in particular, are not adversely affected;
- Concentrations of contaminants are at levels not giving rise to pollution effects;
- Properties and quantities of marine litter do not cause harm to the coastal and marine environment;
- Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment.

2.5.11 There will be co-ordination between Member States in the North East Atlantic when implementing the Directive. The Directive requires Member States to include spatial protection measures as part of their programmes of measures, contributing to a coherent and representative network of marine protected areas.

2.5.12 In estuaries and coastal waters there are similar requirements under the WFD for Member States to achieve good ecological status/potential by 2015. There needs to be consideration of whether an activity (as a pressure on the environment) causes, or contributes to causing, a failure to meet water body status objectives. New development should not cause a water body or adjacent water bodies to deteriorate in status, nor prevent the achievement of established objectives set out in any River Basin Management Plan (RBMP).

2.5.13 In coastal waters, which extend out to one nautical mile[40], both the WFD and the MSFD apply. However, in these areas the MSFD only applies for aspects of good environmental status that are not already addressed by the WFD. This includes issues such as the impacts of marine noise and litter and certain aspects of biodiversity[41]. Specific environmental objectives for inland,

[40] Out to three nautical miles in Scotland.
[41] The Marine Strategy Framework Directive requirements cover all aspects of biodiversity, but the Water Framework Directive only covers the following biological quality elements: benthic invertebrates, macroalgae, angiosperms, phytoplankton and transitional water fish.

estuarial and coastal waters are set out in statutory RBMPs. Environmental protection and improvement measures for marine waters and for aspects of coastal waters that are not covered by the WFD will be set out in Marine Strategies developed under the MSFD.

2.5.14 Marine Plans will contribute to meeting the objectives of these Directives, particularly in relation to any measures under those Directives which have a spatial dimension. Marine plan authorities will need to consider how Marine Plans can shape activities within the marine area to support the goals of these Directives, as well as those of other relevant pieces of EC legislation.

2.6 Detailed considerations

The following sections may have social, economic and/or environmental implications that will need to be considered within individual Marine Plans.

2.6.1 Marine ecology and biodiversity

2.6.1.1 Marine plan authorities should be mindful that, consistent with the high level marine objectives, the UK aims to ensure:

- A halting and, if possible, a reversal of biodiversity loss with species and habitats operating as a part of healthy, functioning ecosystems; and
- The general acceptance of biodiversity's essential role in enhancing the quality of life, with its conservation becoming a natural consideration in all relevant public, private and non-governmental decisions and policies.

2.6.1.2 The MSFD also includes several key objectives in relation to marine ecology and biodiversity, which were referred to in Section 2.5. The Directive also requires the measures for achieving good environmental status to include spatial measures for biodiversity protection.

Issues for consideration

2.6.1.3 Marine planning will be a key tool for ensuring that the targets and measures to be determined by the UK for the MSFD can be implemented. As a general principle, development should aim to avoid harm to marine ecology, biodiversity and geological conservation interests (including geological and morphological features), including through location, mitigation and consideration of reasonable alternatives. Where significant harm cannot be avoided, then appropriate compensatory measures should be sought. Additional requirements apply in relation to developments affecting Natura 2000 sites.

2.6.1.4 It is also recognised that the benefits of development may include benefits for marine ecology, biodiversity and geological conservation interests and that these may outweigh potential adverse effects. Development proposals may provide, where appropriate, opportunities for building-in beneficial features for marine ecology, biodiversity and geodiversity as part of good design; for example, incorporating use of shelter for juvenile fish alongside proposals for structures in the sea. When developing Marine Plans, marine plan authorities should maximise the opportunities for integrating policy outcomes.

2.6.1.5 Marine plan authorities should apply precaution within an overall risk-based approach, in accordance with the sustainable development policies of the UK Administrations. The marine plan authority should ensure that appropriate weight is attached to designated sites; to protected species; habitats and other species of principal importance for the conservation of biodiversity; and to geological interests within the wider environment.

2.6.1.6 Many individual wildlife species receive statutory protection under a range of legislative provisions[42]. Other species and habitats have been identified as being of principal importance for the conservation of biodiversity in the UK and thereby requiring conservation action[43] or are subject to recommended conservation actions by an appropriate international organisation[44]. Priority marine features are being defined in the seas around Scotland. The marine plan authority should ensure that development does not result in a significant adverse effect on the conservation of habitats or the populations of species of conservation concern[45] and that wildlife species and habitats enjoying statutory protection are protected from the adverse effects of development in accordance with applicable legislation.

2.6.1.7 The commitment to develop an ecologically coherent network of marine protected areas across the UK marine area and the implications of this activity are discussed in more detail in Chapter 3.

2.6.2 Air quality

2.6.2.1 Activities and developments in the marine and coastal area can have adverse effects on air quality at various stages. The construction, operation and decommissioning phases of projects can involve emissions to air which could lead to adverse impacts on human health, biodiversity, or on the wider environment. Other key sources that impact air quality include emissions from shipping, oil and gas platforms at sea, oil and gas importing facilities, vehicle emissions as a result of increased coastal activity, and dust from construction. The generation of energy from renewable sources has an overall beneficial effect on air quality, as compared with fossil fuels.

Issues for consideration

2.6.2.2 When developing Marine Plans, marine plan authorities should be satisfied that air quality impacts have been taken into account. They should also liaise with terrestrial authorities to consider how air quality may be improved, particularly within, or adjacent to, Air Quality Management Areas[46] (AQMAs). In all cases, the marine plan authority should take account of any relevant statutory air quality limits.

2.6.3 Noise

2.6.3.1 Noise resulting from a proposed activity or development in the marine area or in coastal and estuarine waters can have adverse effects on biodiversity although knowledge of the extent of impacts is limited and there are few systematic monitoring programmes to verify adverse effects. Man-made sound emitted within the marine environment can potentially affect marine organisms in various ways. It has the potential to mask biologically relevant signals; it can lead to a variety of behavioural reactions, affect hearing organs and injure or even kill marine life. Man-made sound sources of primary concern with regard to disturbance of marine life are explosions, shipping, seismic surveys, offshore construction and offshore industrial activities, for example dredging, drilling and piling, sonar of various types and acoustic deterrent devices.

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[42] Certain plant and animal species, including all wild birds protected by the Wild Birds Directive are protected under the Wildlife and Countryside Act 1981. European protected plant and animal species are protected under the Conservation of Habitats and Species Regulations 2010 and the Offshore Marine Conservation (Natural Habitats, &c) Regulations 2007, among others. Some other animals are protected under their own legislation, for example under the Conservation of Seals Act 1970.

[43] Lists of habitats and species of principal importance for the conservation of biological diversity in the UK published in 2007 following a 2 year review are available from the Biodiversity Action Reporting System website at: www.ukbap-reporting.org.uk/plans/priority.asp

[44] A list of threatened and declining species has been identified for the North East Atlantic under the Ospar Commission- www.ospar.org.

[45] These include species and habitats included on the Ospar list of threatened and declining species and habitats and species of principal importance for the conservation of biological diversity in the UK published in 2007. http://www.ukbap-reporting.org.uk/plans/priority.asp

[46] See Part IV of the Environment Act 1995.

2.6.3.2 It should be noted that for certain animals[47], deliberate disturbance[48] is prohibited and can only be carried out in accordance with the terms of a licence. The descriptors for achieving good environmental status under the MSFD include keeping underwater noise at levels that do not adversely affect the marine environment. Specific environmental targets in relation to the impacts of underwater noise are being developed as part of the implementation of the Directive and will be incorporated into Marine Plans as appropriate.

2.6.3.3 Noise from marine activities can also affect people. An EU Directive on Environmental Noise (EU 2002/49/EC) that deals with noise impacts on people is currently under review. Excessive noise can have wide ranging impacts on the quality of human life, health, and use and enjoyment of areas, including those with high visual quality. Its impact therefore needs to be considered and managed appropriately.

Issues for consideration

2.6.3.4 In developing Marine Plans, the marine plan authority should take a strategic overview of man-made noise sources and assess the potential cumulative effects of noise and vibration across sensitive receptors in the marine area, balanced against potential socio-economic benefits and the protection to wildlife that can be achieved through acoustic deterrent devices. Marine plan authorities should be mindful of guidance issued by relevant statutory conservation agencies. They should consider how the effects of noise and vibration on wildlife can be mitigated and minimised taking account of known sensitivities to particular frequencies of sound and should consider how significant adverse effects on health can be avoided.

2.6.4 Ecological and chemical water quality and resources

2.6.4.1 Developments and other activities at the coast and at sea can have adverse effects on transitional waters[49], 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. There may also be an increased risk of spills and leaks of pollutants into the water environment and the likelihood of transmission of invasive non-native species, for example through construction equipment, and their impacts on ecological water quality need to be considered.

Issues for consideration

2.6.4.2 When developing Marine Plans the marine plan authority should ensure it has regard to any relevant RBMP or supplementary plan[50] and the programme of measures devised for the river basin district which is summarised in each plan.

2.6.4.3 The marine plan authority should satisfy itself where relevant that any development will not cause a deterioration in status of any water to which the WFD applies, subject to the provision of Article 4.7 of that Directive, or prevent compliance with any WFD obligation and is consistent with the requirements of daughter directives of the WFD including those on priority substances and groundwater. Decision makers should also take into account impacts on the quality of designated bathing waters and shellfish waters from any proposed development[51].

[47] Animals listed in Annex IV (a) to the Habitats Directive.
[48] Disturbance includes in particular any disturbance that is likely to impair their ability to breed or reproduce or to rear or nurture their young, to hibernate or migrate or to affect significantly the local distribution or abundance of the species.
[49] As defined in the Water Framework Directive (2000/60/EC), transitional waters are bodies of surface water in the vicinity of river mouths which are partly saline in character as a result of their proximity to coastal waters but which are substantially influenced by freshwater flows.
[50] Regulation 17 of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 and the Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2003 and section 16 of the Water Environment and Water Services (Scotland) Act 2003.
[51] The Bathing Water and Shellfish Waters Directives aim to protect public health and the environment from microbial pollution in bathing waters and shellfish waters.

2.6.4.4 Marine plan authorities will also need to take into account, once developed, any relevant targets, indicators or measures aimed at achieving good environmental status under the MSFD. One element of good environmental status involves ensuring that concentrations and effects of contaminants are kept within acceptable limits, so as to ensure that there are no significant impacts on, or risks to, the wider marine environment.

2.6.5 Seascape

2.6.5.1 The effects of activities and developments in the marine and coastal area on the landscape, including seascape, will vary on a case-by-case basis according to the type of activity, its location and its setting. There is no legal definition for seascape in the UK but the European Landscape Convention (ELC) defines landscape as "an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors". In the context of this document, references to seascape should be taken as meaning landscapes with views of the coast or seas, and coasts and the adjacent marine environment with cultural, historical and archaeological links with each other.

Issues for consideration

2.6.5.2 When developing Marine Plans, marine plan authorities should consider at a strategic level visual, cultural, historical and archaeological impacts not just for those coastal areas that are particularly important for seascape, but for all coastal areas, liaising with terrestrial planning authorities as necessary. In addition, any wider social and economic impacts of a development or activity on coastal landscapes and seascapes should be considered.

2.6.5.3 In considering the impact of an activity or development on seascape, the marine plan authority should take into account existing character and quality, how highly it is valued and its capacity to accommodate change specific to any development. Landscape Character Assessment methodology may be an aid to this process.

2.6.5.4 For any development proposed within or relatively close to nationally designated areas[52] the marine plan authority should have regard to the specific statutory purposes of the designated areas. The design of a development should be taken into account as an aid to mitigation.

2.6.6 Historic environment

2.6.6.1 The historic environment includes all aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged. Those elements of the historic environment – buildings, monuments, sites or landscapes – that have been positively identified as holding a degree of significance[53] meriting consideration are called 'heritage assets'.

2.6.6.2 The historic environment of coastal and offshore zones represents a unique aspect of our cultural heritage. In addition to its cultural value, it is an asset of social, economic and environmental value. It can be a powerful driver for economic growth, attracting investment and tourism and sustaining enjoyable and successful places in which to live and work. However, heritage assets are a finite and often irreplaceable resource and can be vulnerable to a wide range of human activities and natural processes.

2.6.6.3 The view shared by the UK Administrations is that heritage assets should be enjoyed for the quality of life they bring to this and future generations, and that they should be conserved through marine planning in a manner appropriate and proportionate to their significance. Opportunities should be taken to contribute to our knowledge and understanding of our past

[52] For example Areas of Outstanding Natural Beauty (AONBs), National Parks or Heritage coasts.
[53] Significance is the value of a heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic.

by capturing evidence from the historic environment and making this publicly available, particularly if a heritage asset is to be lost.

2.6.6.4 Some heritage assets have a level of interest that justifies statutory designation, the purpose of which is to ensure that they are protected and conserved for the benefit of this and future generations. In coastal/intertidal zones and inshore/offshore waters designated heritage assets may include scheduled monuments (designated under the Ancient Monuments and Archaeological Areas Act 1979[54]), protected wreck sites (designated under the Protection of Wrecks Act 1973) and sites designated under the protection of Military Remains Act 1986. In Scotland they may also include Historic Marine Protected Areas designated under the Marine (Scotland) Act 2010.

2.6.6.5 Many heritage assets with archaeological interest in these areas are not currently designated as scheduled monuments or protected wreck sites but are demonstrably of equivalent significance. The absence of designation for such assets does not necessarily indicate lower significance and the marine plan authority should consider them subject to the same policy principles as designated heritage assets (including those outlined) based on information and advice from the relevant regulator and advisors.

Issues for consideration

2.6.6.6 Marine activities have the potential to result in adverse effects on the historic environment both directly and indirectly, including damage to or destruction of heritage assets. In developing and implementing Marine Plans, the marine plan authority should take into account the available evidence, including information and advice from the relevant regulator and advisors, in relation to the significance of any identified heritage assets (or the potential for such assets to be discovered[55]), and consider how they are managed. It should also take into account the historic character of the plan area, with particular attention paid to the landscapes (see section 2.6.5) and groupings of assets that give it a distinctive identity.

2.6.6.7 In considering the significance of heritage assets and their setting, the marine plan authority should take into account the particular nature of the interest in the assets and the value they hold for this and future generations. This understanding should be applied to avoid or minimise conflict between conservation of that significance and any proposals for development.

2.6.6.8 The marine plan authority, working with the relevant regulator and advisors, should take account of the desirability of sustaining and enhancing the significance of heritage assets and should adopt a general presumption in favour of the conservation of designated heritage assets[56] within an appropriate setting. The more significant the asset, the greater should be the presumption in favour of its conservation. Substantial loss or harm to designated assets should be exceptional, and should not be permitted unless it can be demonstrated that the harm or loss is necessary in order to deliver social, economic or environmental benefits that outweigh the harm or loss.

2.6.6.9 Where the loss of the whole or a material part of a heritage asset's significance is justified, the marine plan authority should identify and require suitable mitigating actions to record and advance understanding of the significance of the heritage asset before it is lost. Requirements should be based on advice from the relevant regulator and advisors[57].

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[54] In Northern Ireland scheduled monuments are designated under the Historic Monuments and Archaeological Objects (NI) Order 1995.
[55] The existence and/or location of many heritage assets are often unknown prior to investigation preceding development as part of an archaeological assessment.
[56] Scheduled monuments and protected wreck sites are subject to statutory consent and licensing regimes, the determination of which is the responsibility of the relevant Secretary of State or Devolved Administrations.
[57] In England this will be consistent with national policies on the recording of heritage assets set out in National Policy Statements.

2.6.7 Climate change adaptation and mitigation

2.6.7.1 Climate change is likely to mean that the UK will experience hotter, drier summers and warmer, wetter winters. There is a likelihood of increased drought, heatwaves, changes in seasonal precipitation and the intensity of weather events such as rainfall leading to flooding.

2.6.7.2 For the UK's marine environment, the impacts of climate change include relative sea level rise, increased seawater temperatures, ocean acidification and changes in ocean circulation.

2.6.7.3 Understanding the impacts and effects of climate change is key to maintaining a healthy environment. This will influence how we use and value our coasts and seas both now and in the future. Adaptation, including in the marine environment, is necessary to deal with the potential impacts of these changes which are already in train. Sea level rises, increased flooding and coastal erosion will lead to increased vulnerability for development[58] and significant change along parts of the UK coast.

2.6.7.4 Adapting to the impacts of climate change will also be a priority for terrestrial planning on the coast. Marine planning will need to be compatible with these impacts. This will include ensuring inappropriate types of development are not permitted in those areas most vulnerable to coastal change, or to flooding from coastal waters, while also improving resilience of existing developments to long term climate change.

2.6.7.5 Marine planning will provide an important tool for meeting the long term challenges posed by climate change. To aid planning decisions in taking account of the impacts of climate change, UK Administrations produced a set of UK climate change projections and will be undertaking a UK Climate Change Risk Assessment by 2012 (to be updated every 5 years). The UK has also established the Marine Climate Change Impacts Partnership (MCCIP) which can provide advice to marine plan authorities.

2.6.7.6 Marine planning also has an important role to play in facilitating climate change mitigation, through actions such as offshore renewables and carbon capture and storage; this is described further in section 3.3.

Issues for consideration

2.6.7.7 In marine planning and decision making consideration will need to be given to how the marine environment can adapt to the impacts of climate change. When developing Marine Plans, marine plan authorities should make an assessment of likely and potential impacts from climate change and their implications for the location or timing of development and activities over the plan period and beyond.

2.6.7.8 Marine plan authorities should take account of the findings of the latest UK Climate Change Risk Assessment, relevant national adaptation programmes and the latest set of UK Climate Projections, as well as any other relevant research. Marine plan authorities should also consider the opportunities to increase the resilience of the marine environment to adapt to the impacts of climate change including by:

- Building in sufficient flexibility to take account of climate change impacts, for example by introducing appropriate criteria for selection or de-selection of protected marine areas, seeking the advice of statutory advisors, changing or moving current uses/spatial allocations, or safeguarding areas for future uses;
- Encouraging development/projects to take account of the impacts of climate change over their estimated lifetime, in particular taking account of risks such as increased land and sea

[58] Flood Risk Management Plans (under the Floods Directive) highlight such vulnerability and will lead to actions to mitigate it.

temperatures and sea level rise and possible increase in risk from extreme events such as flooding and coastal erosion;

- Being in a position to take advantage of the opportunities that climate change may bring to certain marine areas, for example, increase in leisure activities and the aquaculture of acceptable and commercially desirable species;
- Considering the opportunities for synergies with, and recognising the benefits of, climate change mitigation actions in the marine environment which may include, but are not limited to, offshore renewable energy, carbon capture and storage and certain types of shipping.

2.6.7.9 The assessment should be made in consultation with the relevant statutory agencies. If any adaptation measures give rise to consequential or additional impacts, such as on coastal change, as a result of protecting a development against flood risk or coastal change for example, the marine plan authority should consider their impacts in relation to the Marine Plan as a whole.

2.6.8 Coastal change and flooding

2.6.8.1 Coastal change[59] and coastal flooding are likely to be exacerbated by climate change, with implications for activities and development on the coast. These risks are a major consideration in ensuring that proposed new developments are resilient to climate change over their lifetime.

2.6.8.2 Activities on the coast which may be relevant to marine planning include, for example, dredging, dredged material deposition, cooling water culvert construction, marine landing facility construction, land reclamation and flood and coastal erosion risk management. Any of these could, if not managed properly, result in direct effects on the coastline, seabed marine ecology, heritage assets and biodiversity.

2.6.8.3 Indirect changes to the coastline and seabed might also arise as a result in response to some of these direct changes. This could lead to localised or more widespread coastal erosion or accretion and changes to offshore features such as submerged banks and ridges. Interruption or changes to the supply of sediment due to infrastructure has the potential to affect physical habitats along the coast or in estuaries.

Issues for consideration

2.6.8.4 When developing Marine Plans marine plan authorities should liaise with terrestrial planning authorities, drawing on Shoreline Management Plans[60] and equivalent plans where available, any relevant Flood Directive Flood Risk Management Plan or supplementary plan[61] once developed and any other relevant evidence and coastal policies[62] or strategies. Marine plan authorities should be satisfied that activities and developments will themselves be resilient to risks of coastal change and flooding and will not have an unacceptable impact on coastal change. A precautionary and risk-based approach, in accordance with the sustainable development policies of the UK Administrations, should be taken in terms of understanding emerging evidence on coastal processes.

2.6.8.5 Marine plan authorities should consider existing terrestrial planning and management policies for coastal development under which inappropriate development should be avoided in areas of highest vulnerability to coastal change and flooding. Development will need to be safe

[59] Coastal change in this context means physical changes to the shoreline for example; erosion, coastal landslip, permanent inundation and coastal accretion.
[60] In England and Wales, Shoreline Management Plans provide a large-scale assessment of the physical risks associated with coastal processes and present a long term policy framework to reduce these risks to people and the developed, historic and natural environment in a sustainable manner.
[61] Regulation 26 of the Flood Risk Regulations 2009, regulation 16 of the Water Environment (Floods Directive) Regulations (Northern Ireland) 2009 and section 27 of the Flood Risk Management (Scotland) Act 2009).
[62] For example, the Northern Ireland Executive's high level policy statement "Living with Rivers and the Sea".

over its planned lifetime and not cause or exacerbate flood and coastal erosion risk elsewhere. When developing Marine Plans, marine plan authorities should take into account any areas identified as Coastal Change Management Areas by terrestrial planning authorities and consult with them to ensure no significant adverse impacts will arise in those areas.

2.6.8.6 Account should be taken of the impacts of climate change (consistent with the approach to adaptation outlined in section 2.6.7) throughout the operational life of a development including any de-commissioning period. Marine plan authorities should not consider development which may affect areas at high risk and probability of coastal change unless the impacts upon it can be managed. Marine plan authorities should seek to minimise and mitigate any geomorphological changes that an activity or development will have on coastal processes, including sediment movement.

Chapter 3

This chapter sets out the policy objectives for the key activities that take place in the marine environment. These objectives are the specific policy outcomes which the UK Government, Scottish Government, Welsh Assembly Government and Northern Ireland Executive are seeking to achieve through the sustainable development of the UK marine area in order to deliver the vision set out in Chapter 2. They will be delivered through marine planning and the decision making approach and framework of environmental, social and economic considerations outlined in Chapter 2. Marine Plans should align with, and contribute to, the delivery of these objectives. This chapter also provides guidance on the pressures and impacts associated with these activities, which will need to be considered when planning for and permitting development in the UK marine area.

Chapter 2 explains the context and considerations which must be taken into account in developing Marine Plans, thus setting the framework within which Marine Plans must be developed. These considerations include high level principles for marine planning, such as promoting compatibility and encouraging co-existence between different activities, application of the ecosystem based approach and integration with terrestrial planning. The context and considerations are also relevant when making decisions. They include key social, economic and environmental considerations that marine plan authorities and decision makers should take into account. The policy objectives below must be taken into account within this framework.

3.1 Marine protected areas

3.1.1 As explained in Chapter 2, the UK marine environment contains very rich and varied habitats which support a wide variety and abundance of living organisms. The UK Administrations recognise the economic, social and intrinsic value of a healthy marine environment and are committed to halting the loss of biodiversity and restoring it so far as is feasible – this means a no net loss to biodiversity[63]. However, many habitats and species are subject to pressure from human activities. Some important habitats and species are declining and a number of commercial fish stocks are under pressure. The UK Administrations are committed to allowing damaged ecosystems to recover in order to realise the benefits from the marine environment. This will be achieved through integrating conservation objectives as set out in Chapter 2 into marine planning and decision making and incorporating the requirements for specific designated conservation areas.

Network of Marine Protected Areas (MPAs)

3.1.2 The UK Administrations are also committed to substantially completing an ecologically coherent network of MPAs by 2012 as part of a broad based approach to nature conservation. The MPA network will comprise existing MPAs as well as new sites. It will be made up of both national (in particular Marine Conservation Zones (MCZs) and MPAs under legislation applying to Scottish waters and Sites of Special Scientific Interest) as well as European designations such as Special Areas of Conservation (as designated) and Special Protection Areas (as classified under the Wild Birds Directive) and sites of international importance (Ramsar sites). This network of MPAs will be a key tool in contributing to achieving good environmental status as required by

[63] The UK has agreed to co-ordinate policies and measures on the marine environment with other countries through international agreements, including the OSPAR Convention for the Protection of the Marine Environment of the North East Atlantic. The OSPAR Commission's Biological Diversity and Ecosystems Strategy has a broad focus and recognises that a mix of approaches is needed: (1) Ecological quality objectives are being developed to support the ecosystem approach to the management of human activities; (2) Species and habitats measures: including a list of threatened and declining habitats and species and action for their protection; (3) Marine protected areas: an ecologically coherent network of well-managed marine protected areas is being created;(4) Human activities: the human activities in the OSPAR maritime area which may adversely affect it are being assessed and programmes and measures to safeguard against such harm are being developed.

the Marine Strategy Framework Directive (MSFD) and particularly in ensuring biodiversity is protected, conserved and where appropriate recovered, and loss of biodiversity halted. It will also contribute to other objectives of good environmental status, such as the protection of sea-floor ecosystems.

International Sites

3.1.3 These are sites identified and designated under Directives and include Special Areas of Conservation (SACs) designated under the Habitats Directive, and Special Protection Areas (SPAs) classified under the Wild Birds Directive for rare, vulnerable and migratory bird populations. The Conservation of Habitats and Species Regulations 2010, the Conservation (Natural Habitats &c) Regulations 1994 (for Scotland only), the Conservation (Natural Habitats &c) Regulations (Northern Ireland) 1995 and the Offshore Marine Conservation (Natural Habitats &c) Regulations 2007, among others, provide statutory protection for these sites[64], but do not provide statutory protection for potential Special Protection Areas (pSPAs) before they have been classified as SPAs. For the purpose of considering development proposals affecting them, as a matter of policy, UK Administrations wish pSPAs to be considered in the same way as if they had already been classified. Listed Ramsar sites also receive the same protection.

Marine Conservation Zones/Marine Protected Areas in Scotland

3.1.4 MCZs – (called Marine Protected Areas in the seas around Scotland) – are areas that have been designated for the purpose of conserving marine flora or fauna, marine habitats or types of marine habitats or features of geological or geomorphological interest[65]. The protected feature or features and the conservation objectives for the site are stated in the designation order. International protected sites – alongside national MCZs and MPAs – will also meet the MSFD requirement for spatial protection measures contributing to a coherent and representative network of marine protected areas. In deciding to designate MCZs and MPAs, the appropriate authority[66] will be required under the Marine and Coastal Access Act 2009[67] to have regard to this MPS.

Sites of Special Scientific Interest (SSSIs)[68]

3.1.5 A number of SSSIs extend into the marine nment, primarily the inter-tidal zone[69]. The statutory protection afforded to SSSIs, and the procedures to be followed with regard to development proposals that may affect them, are detailed in Wildlife and Countryside legislation.

Issues for consideration

3.1.6 When developing Marine Plans the marine plan authority will incorporate the identified areas and features of importance for nature conservation and state policies for or in connection with the sustainable development of the area[70]. These should inform identification of policies and locations for marine activities and developments. Activities or developments that may result in unacceptable adverse impacts on biodiversity should be designed or located to avoid such impacts (as discussed in section 2.6.1).

3.1.7 Marine plan authorities and decision makers should take account of how developments will impact on the aim to halt biodiversity loss and the legal obligations relating to all MPAs, their conservation objectives, and their management arrangements. Through the process

[64] See footnote 12.
[65] Scotland also has the provision to designate Historic and Demonstration and Research Marine Protected Areas.
[66] Under the Marine and Coastal Access Act 2009, the appropriate authority is the Welsh Ministers for an MCZ in the Welsh inshore area, the Scottish Ministers (with the agreement of the Secretary of State) for an MCZ in the Scottish offshore region, and in all other cases the Secretary of State.
[67] The Secretary of State will also designate MCZs under the proposed Northern Ireland Marine Bill.
[68] In Northern Ireland, these sites are called Areas of Special Scientific Interest (ASSI).
[69] Other important sites include National Parks and Areas of Outstanding Natural Beauty.
[70] Under Scottish legislation Marine Plans will also outline policies on the contribution of MPAs to protection and enhancement.

of developing Marine Plans, and their subsequent implementation and monitoring, marine plan authorities may identify that amendments or additions should be made to these spatial designations and this information should be provided to the relevant administration for consideration.

3.1.8 Marine plan authorities and decision-makers should take account of the regime for MPAs and comply with obligations imposed in respect of them. This includes the obligation to ensure that the exercise of certain functions contribute to, or at least do not hinder, the achievement of the objectives of a MCZ or MPA (in Scotland). This would also include the obligations in relevant legislation relating to SSSIs and sites designated under the Wild Birds and Habitats Directives.

3.2 Defence and National Security

3.2.1 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 1900 and the Land Powers Defence Act 1958.

3.2.2 Marine activities should not prejudice the interest of defence and national security and the MoD should be consulted accordingly. The participation of the MoD in the development of Marine Plans and their contribution to overall safety, security and resilience will ensure the effective use of marine resources whilst identifying mitigation measures, where possible, for incompatible activity or usage. Consulting with MoD should reduce any negative impact on national security or defence.

3.2.3 Through the delivery of security for the UK and Overseas Territories, the MoD contributes to the marine sector by providing survey data and cross-government surveillance[71], monitoring and enforcement activities. It employs people throughout the UK in support of its operations in the marine environment, including through HM Naval bases and MoD ranges and coastal estate.

3.2.4 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.

3.2.5 It is recognised that there are risks to the marine environment through the maintenance and deployment of operational capability. The MoD is committed to the protection of the natural and historic environment. It will therefore not seek to be exempt from environmental legislation unless such legislation restricts essential operational capability. Where derogations or exemptions are sought to maintain operational capability, the MoD will ensure that internal management arrangements and mitigation measures minimise environmental impact so far as reasonably practicable. The MoD has undertaken to minimise the impact of its activities on the environment and pays due regard to such impacts as part of its decision making process, in line with the Secretary of State for Defence's statement on Safety, Health Environmental Protection and Sustainable Development in the MoD.

[71] The National Maritime Information Centre is responsible for providing situational awareness to central government via the Cabinet Office Briefing Room (COBR) mechanism and lead departments who deal with the impacts of environmental disasters or crises.

Potential impacts

3.2.6 The socio-economic benefits from the defence sector should be recognised within marine policy and planning, particularly employment. In some coastal locations, the MoD is the major employer in the region.

3.2.7 There are a variety of environmental benefits and risks associated with national defence and national security activities. These include range danger areas, 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.

3.2.8 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.

Issues for consideration

3.2.9 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.

3.3 Energy production and infrastructure development

3.3.1 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. This contribution includes the oil and gas sectors which supply the major part of our current energy needs, and a growing contribution from renewable energy and from other forms of low carbon energy supply in response to the challenges of tackling climate change and energy security. Contributing to securing the UK's energy objectives, while protecting the environment, will be a priority for marine planning.

3.3.2 The UK faces a significant challenge in achieving a secure, affordable low carbon energy supply. The Climate Change Act 2008 and Climate Change (Scotland) Act 2009 established a long-term framework to cut greenhouse gas emissions by at least 80% below 1990 levels by 2050, and the Climate Change Committee recommended that the electricity sector needed to be largely decarbonised by 2030. As part of our move to a low carbon energy economy, the UK must meet a legally binding EU target for 15% of energy consumption to come from renewable sources by 2020. There are specific targets in different parts of the UK[72].

3.3.3 A significant part of the renewable energy required to meet these targets and objectives will come from marine sources. Offshore wind is expected to provide the largest single renewable electricity contribution as we move towards 2020 and beyond. Wave and tidal stream technologies also have significant potential in the medium to long-term. In some parts of the UK nuclear and other power stations may be sited in coastal locations[73] and will have a significant role to play within the UK's energy mix as we move towards low carbon energy supply. In

[72] The Scottish Government has committed that, by 2020, 20% of energy consumption will come from renewable sources and 80% of electricity consumption will come from renewable sources. In Northern Ireland the Strategic Energy Framework has set a target of 40% renewable electricity by 2020. In Wales the Welsh Assembly Government's Low Carbon Revolution sets out the actions it will take to accelerate the transition to a low carbon energy economy, generating more than twice the electrical energy as it consumes from wholly renewable sources by 2020.

[73] There are no new nuclear sites planned for Scotland. Northern Ireland has no nuclear sites and none are planned.

addition to mitigating the impacts of climate change, contributing to securing the UK's energy objectives will bring substantial socio-economic benefits such as employment and income opportunities, transferable technology and skills development.

Issues for consideration for all energy infrastructure

3.3.4 When decision makers are examining and determining applications for energy infrastructure and marine plan authorities are developing Marine Plans they should take into account:

- The national level of need for energy infrastructure, as set out in the Overarching National Policy Statement for Energy (EN-1)[74] which applies in England and Wales, the National Planning Framework which applies in Scotland and the Strategic Energy Framework[75] in Northern Ireland;
- The UK's 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;
- The positive wider environmental, societal and economic benefits of low carbon electricity generation and carbon capture and storage as key technologies for reducing carbon dioxide emissions;
- That the physical resources and features that form oil and gas fields or suitable sites for gas or carbon dioxide storage occur in relatively few locations and need first of all to be explored for and can then only be exploited where they are found. Similarly, renewable energy resources can only be developed where the resource exists and where economically feasible;
- The potential impact of inward investment in offshore wind, wave, tidal stream and tidal range energy related manufacturing and deployment activity; as well as the impact of associated employment opportunities on the regeneration of local and national economies. All of these activities support the objective of developing the UK's low carbon manufacturing capability;
- The UK's programme to support the development and deployment of Carbon Capture and Storage (CCS) and in particular the need for suitable locations that provide for the permanent storage of carbon dioxide[76].

3.3.5 When developing Marine Plans, marine plan authorities should identify how these will contribute to delivery of national targets and priorities, including legally binding commitments entered into under the Renewable Energy Directive (Directive 2009/28/EC) and our domestic binding target to reduce greenhouse gas emissions by 80% by 2050. This will include taking account of preferred areas for development of different energy sources, generation and distribution infrastructure and, if appropriate, setting out potential new opportunities, taking into account the most sensitive areas for biodiversity and considering carefully areas with competing and incompatible uses. 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;

[74] Due to be adopted during 2011.
[75] The Strategic Energy Framework (SEF) was published in September 2010.
[76] In the 2010 Comprehensive Spending Review the UK Government announced £1bn to support what is expected to be one of the world's first demonstrations of CCS on a commercial power station. This should have completed construction by 2014/15. The UK Government is also committed to providing public support for a further three demonstration projects and has recently widened the scope for this programme to include gas fired power stations.

- Appropriately developed and placed ports and harbours to support construction and maintenance as well as other infrastructure such as roads.

3.3.6 In some parts of the UK power stations may be sited in coastal locations and will have an important contribution to play in the UK's energy mix. The construction, operation or decommissioning of a coastal power station may have impacts on the local marine environment through for example the construction of the plants and associated development and marine off-loading facilities, such as jetties and marinas, for heavy plant items. There may also be impacts from abstraction and discharge of cooling water during operation. More detail on impacts and specific measures and actions to avoid or minimise adverse impacts including on marine ecology is contained in the National Policy Statements for Nuclear Power Generation (EN-6)[77] and Fossil Fuel Electricity Generating Infrastructure (EN- 2).[78] Any discharges into water will be controlled in accordance with the permits issued by the relevant licensing authority.

Oil and Gas

Offshore Oil and Gas Exploration and Production

3.3.7 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). 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. On 2009 projections, indigenous production is expected to continue to satisfy about half of the UK's oil and gas demand in 2020. Oil and gas development is also an important source of employment and a significant contributor to tax revenue.

3.3.8 Obtaining the UK's hydrocarbon supplies from indigenous sources minimises dependence upon foreign imports and thus enhances our security of energy supply. Maximising the economic recovery of UK oil and gas resource sustainably is therefore a priority in the UK's energy supply and energy security strategies.

3.3.9 Oil and gas can only be produced where they are found, though current technology allows a degree of flexibility over the precise location of production facilities. Moreover, the development of oil and gas fields can take a number of years owing to the uncertainty over location, the reservoir characteristics and its potential productivity. In general, the majority of offshore oil resource is found to the north of the UK's continental shelf while the main offshore gas province is to the south. In general, these hydrocarbons are also found at some distance from coastal areas.

3.3.10 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. Initial exploration for oil and gas is generally undertaken by seismic survey vessels. Continued access to areas of interest for exploration surveys is necessary but this exploration need not be a permanent barrier to other uses of the sea. Where economically recoverable quantities of hydrocarbons are found, the exclusion footprint of any drilling or offshore production facilities required can be relatively small and may have only a limited impact on other resources and uses of the sea. Looking ahead, the recovery of remaining oil and gas reserves will require additional investment in both money and expertise, while the ending of production in particular fields will lead in due course to decommissioning of the facilities. Around 500 installations are expected to be decommissioned over the next three decades.

[77] Due to be adopted during 2011
[78] Due to be adopted during 2011

Offshore gas supply infrastructure and storage

3.3.11 The UK is highly dependent on natural gas, which is used in roughly equal quantities in domestic households (largely for space heating purposes), for electricity generation (generating over two fifths of electricity in 2008) and across a range of business. 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.

3.3.12 Offshore storage of gas, offshore unloading of gas and provision of gas import facilities are activities which are of increasing importance to our security of supply as indigenous gas supplies decline. A range of offshore infrastructure is required to increase the UK's storage capacity including:

- New import infrastructure, including conventional import pipelines, gas reception facilities and LNG import facilities. These will be necessary to provide import capacity for the increasingly import dependent UK gas market;
- New subsea gas storage facilities and pipelines to allow the offshore off -loading of LNG.

3.3.13 Although there is only one offshore gas storage facility currently in operation in the UK, there is likely to be increasing economic activity in sub-sea storage of gas reserves due to increasing levels of gas imports.

Potential impacts

3.3.14 There are a number of social and economic benefits from the sector including employment, taxes, export business and energy security, all of which are of substantial scale in national terms. 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.

3.3.15 There are a number of 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 1 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.

Renewable energy

3.3.16 The low-carbon energy industry is developing rapidly in response to strategic Government policy and financial mechanisms. The UK is currently the leading country 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 which would keep the UK as a global leader in renewable energy production from these technologies. Increasing the generation of energy from low carbon sources will mitigate against climate change, lessen the UK's dependence on fossil fuels and improve energy security by increasing the diversity of electricity supply.

3.3.17 The UK Administrations have undertaken a large number of studies to assess the environmental implications and spatial interactions of increasing renewable energy deployment in UK waters. From these studies, it was concluded that there are no overriding environmental

reasons to prevent the achievement of our assessed plans for offshore wind and sub-sea grid development up to 2020, if mitigation measures are implemented to prevent, reduce and offset any significant adverse effects. Further studies and a rolling programme of Environmental Assessments[79] are underway to strategically assess the implications of draft plans/ programmes to enable further leasing for offshore energy, including CCS and marine renewables.

3.3.18 Marine Plans should take account of and identify areas of potential for the deployment of different renewable energy technologies. Measures should be taken to prevent, mitigate, and where that is not possible compensate, for any potential negative impacts in line with legislative requirements[80]. Marine Plans and the marine planning process will need to be flexible in responding to emerging evidence about the impacts of new technologies; in particular the monitoring and review arrangements for plans will be important in this.

Offshore wind

3.3.19 The UK has some of the best wind resources in the world and offshore wind will play an important and growing part in meeting our renewable energy and carbon emission targets and improving energy security by 2020, and afterwards towards 2050. Harnessing and connecting offshore wind is currently more technologically challenging and more expensive than harnessing and connecting onshore wind. However, offshore wind has a larger potential, due to a stronger and more consistent wind source at sea leading to higher power outputs. As the most mature of the offshore renewable energy technologies, it has the potential to have the biggest impact in the medium-term on security of energy supply and carbon emission reductions through its commercial scale output. 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.

Tidal range

3.3.20 Studies by organisations such as the Sustainable Development Commission and Liverpool University and the Proudman Laboratory have suggested that tidal range schemes could provide up to 15% of the UK's current electricity demand. Tidal range technology is relatively mature – the La Rance barrage in Brittany has been operating since the 1960s – and new innovative technologies are being investigated which could have less environmental impact and still produce significant amounts of energy.

Tidal stream and wave

3.3.21 Research by organisations such as the Carbon Trust[81] and Renewable UK[82] has suggested that up to 20% of the UK's current energy demand could be supplied by wave and tidal energy. There is potential to produce wave and tidal energy throughout the UK; and there are examples of sector progress across the UK[83]. 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. It is important for marine planning to take account of appropriate locations for such developments alongside more established uses of marine space and to recognise the timescales and stages

[79] This includes studies under DECC's rolling programme of Offshore Energy Strategic Environmental Assessment, The Scottish Government's SEAs, the Welsh Assembly Government's Marine Renewable Energy Strategy Framework and Northern Ireland's Strategic Energy Framework.
[80] Including the Directive on the conservation of wild birds (Directive 2009/147/EC and Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora.
[81] The 2006 Carbon Trust report (2006).
[82] The 2006 BWEA report.
[83] The Scottish Government has established a framework to promote the development of this sector, including the £10m Saltire Prize for successful development. In Northern Ireland, the Department of Enterprise, Trade and Investment (DETI) will shortly be finalising its Offshore Renewable Energy Strategic Action Plan 2010 – 2020 (www.offshorenergyni.co.uk) leading on to an Offshore Renewable Energy Leasing Round in NI waters in 2010-2011. Details of the offshore energy SEA for the UK Renewable Energy Zone and English and Welsh Territorial Waters can be found at www.offshore-sea.org.uk.

against which the sector is likely to progress, including the lead time for grid and infrastructure development. For example, pre-commercial demonstration deployments will need to manage the potential environmental impacts in relation to the scale of risks and legislative requirements while recognising that not all uncertainties can be addressed in the early life of this technology.

Potential impacts

3.3.22 It should be recognised that the potential benefits and adverse effects of renewable energy developments will vary greatly, depending for example on the technology type and their size, structure and geographical location.

3.3.23 Renewable energy offers the potential for significant broad-scale environmental benefits through mitigating greenhouse gas emissions from energy production. In addition there are a number of potentially significant socio-economic benefits from the sector including employment opportunities, export business and energy security. As yet, the potential for benefits such as introduction of artificial reef structures, which can yield biodiversity benefits and fishing opportunities around wind farm sites, have not been fully explored. These should be considered further in the context of marine planning, and for individual developments.

3.3.24 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. Their foundation designs are likely to have an effect on hydrodynamics and consequent sediment movement. This includes potential scouring of sediments around the bases of turbines. These and other potential adverse impacts, together with potential mitigation measures, are considered in the National Policy Statement for Renewable Energy Infrastructure (EN-3)[84].

3.3.25 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. 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 in which they are situated. To underpin the marine planning process further research is needed to develop a better understanding of the potential impacts that marine technologies might have on potentially sensitive environmental features. For example, adaptation and mitigation methods for such impacts may be supported by detailed monitoring programmes and co-ordinated research initiatives, including post deployment of devices.

Offshore Electricity Networks

3.3.26 The UK has historically had a centralised electricity generation network relying on large scale generation from conventional power stations, some clustered in specific parts of the country. However, the move to diversify the UK's electricity generation including major increases in offshore wind, wave and tidal generation will require the expansion, connection and reinforcement of the UK's electricity networks both onshore and offshore. Timely development of the offshore electricity network in all parts of the UK is vital to help ensure the continued deployment of offshore renewable power generation. The UK Government has established a new offshore 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

[84] In Scotland, reference should be made to the Second National Planning Framework. In Northern Ireland, these issues have been addressed in the Strategic Environment Assessment of the draft Offshore Renewable Energy strategic Action Plan.

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.

3.3.27 To ensure that the offshore grid can be developed in a strategic and co-ordinated way and remain flexible enough to support links between parts of the UK and also links to Europe, National Grid Electricity Transmission in Great Britain is responsible for operating and co-ordinating both onshore and offshore grid connections as National Electricity Transmission System Operator (NETSO). NETSO[85] consulted on an initial Offshore Development Information Statement (ODIS) between December 2009 and May 2010. The ODIS, which will be updated annually, presents potential scenarios and NETSO's best view of the development of the transmission network offshore to 2025, to help ensure it develops in a co-ordinated and informed manner. In addition to the current plans to strengthen and develop the Northern Ireland Grid to accommodate higher levels of renewables, the Department of Enterprise, Trade and Investment is working with Scotland and the Republic of Ireland on the feasibility of constructing an offshore electricity transmission network linking potential offshore sites on the west of Scotland, the north and north east coasts of Northern Ireland, the Irish Sea and the west coast of the Republic of Ireland.

3.3.28 Electricity interconnections between parts of the UK and other European countries to allow for import and export of electricity will also become increasingly important to ensure that the UK continues to have a secure and stable network, particularly as the penetration of renewables rises and develops capacity to allow export of energy from parts of the UK to Europe.

Potential impacts

3.3.29 There are obvious social and economic benefits from such an increase in network capacity, most notably the facilitation of offshore renewable energy. There are also social and economic risks associated with such an increase in underwater cabling, which may affect activities such as dredging and the use of certain fishing gear, and impact on other sea users, including existing cable and pipeline operators.

3.3.30 An increase in underwater cables in the UK marine area will cause environmental impacts. Impacts from cable installations on the sea bed are low and mainly occur due to the physical disturbance involved with their placement. They tend to be of short duration with a relatively small area being affected. The main impact will be where cable protection, for example rock armour or concrete mattresses, is required where cable burial is not feasible. This is particularly the case where cables either run through, or have landfall within, any site designated as being of national or international nature conservation importance or other sensitive areas such as designated shell fisheries, spawning or nursery grounds for economically important fish species or marine archaeological sites. It may also displace fishing activity.

Carbon Dioxide Capture and Storage

3.3.31 Fossil fuels will remain an important source of electricity generation for the foreseeable future. To comply with the UK's legally binding carbon reduction commitments virtually all fossil fuel generation will eventually need to be fitted with technology that captures carbon dioxide and permanently stores it deep underground. All new fossil fuel power stations must now be constructed Carbon Capture Ready (CCR). This programme will generate considerable volumes of carbon dioxide to be permanently stored. The UK offshore area is thought to be one of the most promising hub locations in Europe for permanent storage of carbon dioxide. The expectation is that storage in the UK will take place almost exclusively offshore, which in turn will require the necessary infrastructure (such as pipelines and offshore structures) to be installed to transport carbon dioxide from the mainland and inject it deep below the seabed.

[85] In Northern Ireland SONI (System Operator for Northern Ireland) operates the electrical system.

3.3.32 Carbon Capture and Storage is a three step process which includes: capturing carbon dioxide from power plants and other industrial sources; transporting it, usually via pipelines (although shipping is also a possibility), to storage points; and storing it safely in deep (at least 800m) offshore geological sites such as saline formations or depleted oil and gas fields. CCS is not yet a commercially proven technology and the UK Government has announced its intention to support four full-chain commercial scale demonstration projects. Other demonstration projects may also be supported through European funding. It is possible that R&D scale storage projects may also be proposed. Under the Carbon Storage Directive (Directive 2009/31/EC) a person who intends to operate a geological site for the storage of carbon dioxide will require a permit issued in accordance with the requirements of the Directive. The purpose of the Directive is to ensure environmentally safe geological storage defined as the permanent containment of carbon dioxide in such a way as to prevent or, where prevention is not possible, eliminate as far as possible negative effects and any risk to the environment and human health.

3.3.33 While storage sites themselves will be well below the seabed, for storage to take place it will be necessary to install associated infrastructure such as pipelines and well-heads (though there are also possibilities to re-use existing infrastructure). Facilities for long term monitoring will also be required. There is likely to be preliminary exploration of storage sites with the first commercial scale storage site intended to be operational from 2014. Initially, attention is likely to focus on depleted oil and gas fields but other structures such as saline aquifers could also be used. It may also be possible to combine permanent storage of carbon dioxide with the enhanced production of hydrocarbons.

Potential impacts

3.3.34 The deployment of carbon capture and storage technologies will bring significant benefits for the UK in enabling fossil fuel energy generation to be part of the UK's low carbon, secure energy future. It has been estimated that for CCS alone, the sector could be worth up to £3bn a year by 2030, sustaining up to 100,000 jobs[86]. The CCS Demonstration Programme also allows the UK to demonstrate leadership in deploying greenhouse gas emission mitigation techniques that will be vital in addressing the burgeoning energy requirements of developing economies. Removing carbon dioxide emissions from worldwide electricity generation will considerably reduce the potential for further acidification of the marine environment.

3.3.35 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 well-heads. 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 our oceans.

3.4 Ports and shipping

3.4.1 Ports and shipping play an important role in the activities taking place within the marine environment. They are an essential part of the UK economy, providing the major conduit for the country's imports and exports. Ports also provide key transport infrastructure between land and sea. Ports and shipping are critical to the effective movement of cargo and people, both within the UK and in the context of the global economy.

3.4.2 Some 95% of international trade by volume passes through ports. This includes vital raw materials such as coal, ores, oil and petrochemical products; timber; trade vehicles and finished and intermediate goods in containers and ro-ro vehicles, essentially spanning the full range of trade. Ports also play a significant role in domestic freight transport through coastal shipping (including transhipment), and links with Northern Ireland; and they enable important

[86] Clean Coal: an industrial strategy for the development of carbon capture and storage across the UK, DECC, 2010.

international passenger services. Our ports, particularly in Scotland, provide infrastructure and facilities to support lifeline ferry services to island communities. Their role is crucial not only in supporting the projected future growth of freight traffic, but also supporting more fragile and remote communities.

3.4.3 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 and to mitigate the effects of climate change by facilitating the increased movement of freight by sea rather than road.

3.4.4 The operation of our ports and marinas is enabled through the creation, maintenance and development of channels, berths and docks. This requires dredging and the disposal of the dredged marine sediment. This 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. 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.

3.4.5 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. Transport by ship includes the transport of both freight and passengers, whether it is for commercial or recreational purposes. Water transport is supported by a diverse range of ancillary activities including shipbuilding and repair, the construction of ports and marinas and activities associated with navigation including dredging and the production of charts.

Potential impacts

3.4.6 Environmental impacts 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).

Issues for consideration

3.4.7 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. Marine Plan development and individual decisions should also take account of environmental, social and economic effects and be in compliance with international maritime law. Marine plan authorities will also need to take account of the need to protect the efficiency and resilience of continuing port operations, as well as further port development.

Port Development

3.4.8 Relevant national planning policy documents indicate the overall national level of need for port development based on port forecasts in the context of a market-led sector[87]. These

[87] In England and Wales the National Policy Statement for Ports (expected to be published during 2011). In Northern Ireland, the Regional Development Strategy. In Scotland National Planning Framework 2 identifies a number of port and related proposals as National Developments. Projects such as Scotland's national renewable infrastructure plan also identify ports and infrastructure for supporting the development of marine renewable projects.

capacity needs will create opportunities for developments of various kinds across a range of ports. In almost all cases, port developments that affect the marine environment will need to be licensed by the relevant licensing authority, although some activities may be exempted from marine licensing[88]. Both types will need to be considered in marine planning. Where a port has worked with stakeholders to produce a Master Plan, this may provide marine plan authorities with a strategic view of the potential direction of future port development. In the case of harbour maintenance works, a Master Plan may also create an opportunity for a licensing authority to discuss the possible need and timing for approval of a programme of works to be carried out.

Potential impacts

3.4.9 Positive impacts from port development include job creation and benefits to local fishermen, as well as wider benefits to national, regional or local economies. Adverse effects from the development of new ports are similar to those from any coastal development and will primarily result from the construction phase, although associated impacts such as increases in shipping traffic and maintenance dredging can cause impacts during the operational phase. The precise nature of the impacts will vary depending on the local conditions, ecosystems and other factors. However, as port developments are generally located in estuarine environments, particular impacts might include: impacts to the local hydrodynamic and sedimentary regime; loss of intertidal habitats; disturbance of historical contamination during capital works; impacts on migratory and juvenile fish; impacts on important bird populations and impacts on heritage assets[89]. In addition, projects may be subject to the Environmental Permitting (EP) regime[90], which also incorporates operational waste management requirements for certain activities.

3.4.10 Port development may also result in an increase in shipping. When considering any potential increase in shipping activity marine plan authorities and decision makers should ensure that the social and economic benefits and environmental impacts are taken into account and that impacts are considered in line with sustainable development principles.

Issues for consideration

3.4.11 When decision makers are advising on or determining an application for an order granting development consent in relation to ports, or when marine plan authorities are developing Marine Plans, they should take into account the contribution that the development would make to the national, regional or more local need for the infrastructure, against expected adverse effects including cumulative impacts. In considering the need for port developments in England and Wales, reference should be made to interpretations of need as set out in the Ports National Policy Statement. In Scotland, reference should be made to the second National Planning Framework which identifies known large-scale port developments.

3.5 Marine aggregates[91]

3.5.1 The UK has some of the best marine aggregate resources in the world. Marine sand and gravel makes a crucial contribution to meeting the nation's demand for construction aggregate materials, essential for the development of our built environment. 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. South Wales is also highly dependent on marine-dredged sand, which meets more than 80% of the

[88] For example some specific dredging and associated deposits are exempt under the Marine and Coastal Access Act 2009.
[89] Further details are set out in the Ports NPS, which applies in England and Wales. This is expected to be adopted during 2011
[90] This regime does not apply in Scotland or Northern Ireland, where activities may be subject to the Pollution Prevention and Control regime.
[91] Not currently applicable to Scotland.

demand[92]. In addition there are often no practicable alternative sources to marine aggregate for the maintenance of coastal defences required for climate change adaptation. 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. 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.

3.5.2 Land-based and marine-based construction aggregate resources are unevenly distributed and many regions are heavily dependent on supplies from other areas. Marine aggregates contribute to diversity of supply and deliver high quality aggregate into the centre of areas of high demand with minimum disruption.

Potential impacts

3.5.3 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.

3.5.4 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; overspills from dredging vessels and impacts on geodiversity.

Issues for consideration

3.5.5 Marine plan authorities should as a minimum make provision within Marine Plans for a level of supply of marine sand and gravel that ensures that marine aggregates (along with other sources of aggregates, including recyclates) contribute to the overarching Government objective of securing an adequate and continuing supply to the UK market for various uses. In doing so, marine plan authorities should consider the potential long-term requirement for marine-won sand and gravel, taking into account trends in construction activity, likely climate change adaptation strategies and major project development.

3.5.6 Marine plan authorities and decision makers should base decisions on sustainability criteria and should take into account the existing sea bed within the marine plan area that is currently being dredged; offshore movement of aggregates; the importance of meeting regional and national needs, beach replenishment and contract fill; and the need to safeguard reserves for future extraction. Where an Environmental Impact Assessment (EIA) is required for the proposed dredging operation and that EIA includes an assessment of the physical effects of the operation and its implications for coastal erosion, then decision makers should consider the need for a Coastal Impact Study. A marine licence or other regulatory approval to dredge should only be issued if the decision maker is content that the proposed dredging is environmentally acceptable.

3.6 Marine dredging and disposal

3.6.1 Most marine dredging and disposal is for the purposes of navigation and existing and future port development, though other works can take place to facilitate the construction of

[92] 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: wales.gov.uk/topics/planning/policy/minerals/interimmarine?lang=en. There is currently no marine aggregates extraction for construction in Scotland or Northern Ireland. Policies on aggregate extraction set out in this MPS do not apply to Scotland.

pipelines, outfalls and tunnels. Since 1998, in compliance with international obligations, the UK Administrations have – with some minor exceptions – only licensed the disposal at sea of capital and maintenance dredgings and small amounts of fish waste.

3.6.2 The amount of dredged material disposed of at sea each year from the UK has been relatively consistent since 1985, the variation in annual tonnage being most marked in the quantities of capital dredgings associated with port expansion and channel deepenings; the fluctuations in dredgings reflecting a combination of economics and weather.

Potential impacts

3.6.3 Dredging is an enabling activity which is essential to the functioning of ports and marinas (see section 3.4) and the social and economic benefits which derive from these. It can also allow specific construction activities to be taken forward.

3.6.4 Appropriately targeted disposal of dredged sediment can have an ancillary benefit in maintaining sedimentary systems and, where the sediment is constituted appropriately, can have social and economic benefit in providing material for alternative uses such as construction, beach nourishment or salt marsh restoration.

3.6.5 The primary environmental considerations include the potential risk to fish and other marine life from the release of sediments, chemical pollution and morphological changes including burial of seabed flora and fauna; hydrological effects; interference with other marine activities; increases in turbidity; increases in marine noise; possible adverse effects for designated nature conservation areas and potential destruction or destabilisation of known or unknown heritage assets. Removal of dredged material can also cause adverse impacts to the natural sedimentary systems.

3.6.6 When sediments are contaminated, dredging has the potential to cause significant environmental and health effects through exposure to contaminants in the dredging plume. These contaminants arise from diverse sources such as the legacy of industrial pollution, for example metals and poly chlorinated biphenyls, or historical and current use of antifoulants including tributyltin and heavy metals and new contaminants which are now finding their way into the marine environment, such as flame retardants including poly brominated diphenyl ethers.

Issues for consideration

3.6.7 In considering an application, decision makers should undertake a detailed evaluation of the potential adverse effects of any dredging activity or deposit on the marine ecosystem and others using the sea. This should have full regard to any accompanying environmental statement or additional data that may be requested in support of the application and international obligations under the OSPAR Convention 1992 and London Protocol 1996, as well as any other available guidance. Account should also be taken of the views expressed by other consultees before a decision is taken whether to grant approval.

3.6.8 Applications to dispose of wastes must demonstrate that appropriate consideration has been given to the internationally agreed hierarchy of waste management options for sea disposal. Wastes should not be accepted for disposal where appropriate opportunities exist to re-use, recycle or treat the waste without undue risks to either human health or the environment, or disproportionate costs[93]. The decision maker should give appropriate consideration to alternative uses of the sediment[94].

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[93] The most up to date guidance on beneficial use is: PIANC (2009) Dredged material as a resource: Options and constraints. PIANC Report No. 104, 54pp.

[94] In Scotland, the Best Practicable Environmental Option Assessment approach is used to determine that there are no practicable alternatives to sediment disposal.

3.6.9 Decision makers should consider the potential adverse effects on the marine environment, habitats and wildlife from dredging activity. Particular recognition should be given to the implementation and use of the maintenance dredge protocol[95] to minimise impacts on habitats and wildlife and help meet statutory obligations in relation to European Sites. There also needs to be compliance with requirements of the WFD and other EU Directives[96].

3.7 Telecommunications cabling

3.7.1 Submarine cables are part of the backbone of the world's power, information and international telecommunications infrastructure, and socially and economically crucial to the UK. 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[97].

Potential impacts

3.7.2 Impacts from cable installations on the sea bed are low and spatially minor and tend to occur due to the physical disturbance involved during placement. 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.

3.7.3 The importance of telecommunication and power cabling as vital infrastructure for the domestic and global economy should be recognised in Marine Plans and for integrating across marine plan boundaries. This includes the potential for any detrimental impact on the maintenance and operation of these cables, the functioning and prosperity of the UK economy and on worldwide telecommunications, for example the Internet. The potential for other uses of the sea bed to impede the ability of cable owners to maintain and repair damaged cables should be taken into account.

Issues for consideration

3.7.4 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. Through the marine planning process, marine plan authorities should help facilitate the co-ordination of marine activities, a better understanding among relevant industries and the communication of guidelines to ensure both the safety of these installations and safe access to them for maintenance purposes.

3.8 Fisheries

3.8.1 Fish is an important source of protein, can be part of a healthy diet and has a role in achieving food security, which is an objective of the UK Administrations. The marine fisheries sector comprises all socio-economic activities related to the capture of wild marine organisms (fish and shellfish), and the subsequent handling and processing of catches. Shellfish and demersal fish species currently contribute around 40% each to the total catch value, with the

[95] This does not apply in Scotland or Wales.
[96] As set out in the voluntary framework for England and Wales 'Clearing the Waters – a user guide for marine dredging activities' which can be found at www.environment-agency.gov.uk/marinedredging
[97] UKCPC calculation of total UK cable capacity.

remaining 20% comprising pelagic species such as mackerel and herring. The UK has a long history of fishing both inshore and offshore waters, which the UK Administrations wish to see continue.

3.8.2 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.

3.8.3 Decision makers must therefore have regard to the provisions of the CFP in developing any plans or proposals affecting fisheries. The CFP is currently being reviewed with the aim of introducing a reformed vision by 1 January 2013. The view of the UK Administrations is that the overall aim of the reformed CFP should be to attain ecological sustainability whilst optimising the wealth generation of marine fish resources and their long term prospects.

3.8.4 In the medium term, continuing our move towards more sustainable fisheries management that will improve the state of the stocks should provide more stability for industry, avoiding drastic cuts in quotas and providing for a more profitable industry as well as a healthier marine environment.

3.8.5 A reformed CFP should contribute to the delivery of the effective management of our seas and be integrated into wider marine policy including marine nature conservation. This will be key in delivering good environmental status under the MSFD. 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.

Potential impacts

3.8.6 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. The dependence of jobs on fishing can be as high as 20% or more in some communities.

3.8.7 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. 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.

3.8.8 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 stocks and the environment are complex and need to be considered. It should also be recognised that many fishing activities are compatible with other sea users.

Issues for consideration

3.8.9 Marine plan authorities should have regard to the UK Administrations' priorities for fisheries management set out above. They should also take into account the UK Administrations' aim to promote greater decentralisation of decision-making in fisheries management, to Member States working together regionally, in order that measures reflect local conditions.

3.8.10 Marine plan authorities should consider the potential social and economic impacts of other developments on fishing activity, as well as potential environmental impacts. They should, for example, have regard to the impacts of displacement and whether it is possible for vessels to relocate to other fishing grounds. They should also consider the potential impacts of this displacement on the viability of fish stocks and on the marine landscape in the alternative fishing grounds. They will also wish to consider and measure the impacts on local communities of any reduction in fishing activity, redistribution of fishing effort or associated impact on related businesses as the result of a marine development. 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.

3.9 Aquaculture

3.9.1 Aquaculture is the process of farming or culturing aquatic organisms. Food security is an objective of the UK Administrations and aquaculture makes an important and growing contribution to this. All Administrations support and encourage the development of efficient, effective, competitive and sustainable aquaculture industries subject to suitable governance and safeguards[98]. 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 WFD.

3.9.2 Marine 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. Aquaculture operations are also viewed as a key focus for future development of a sustainable food source and as a possible source of employment. These factors need to be taken into account when developing Marine Plans.

3.9.3 The majority of marine aquaculture is currently related to Atlantic salmon and shellfish. The sector also includes the operation of marine worm farms to produce angling bait. The farming of seaweed as a food or fuel is a growing part of this sector including as a part of polyculture processes such as sea fish production. The majority (99%) of existing UK marine based finfish aquaculture activity is located in Scotland, which is the largest producer of farmed salmon in the EU, and the second largest in the world, although aquaculture activity is increasing in other areas of the UK. Shellfish production is evenly spread throughout the UK and is an expanding activity. In 2008 the estimated value of farmed shellfish was £33m, from just over 38.6 thousand tonnes; this is an increase of about 40% over the level of production in 2007. Trends in the industry are closely tied in with changes in wild fisheries, the availability of investment, and site availability. More intensive types of aquaculture can use space and resources more efficiently if they are carefully planned and managed. The overall outlook is dependent on site availability

[98] The Scottish Government's current strategy for aquaculture: "A Fresh Start: The Renewed Strategic Framework for Scottish Aquaculture" can be found at: www.scotland.gov.uk/Publications/2008/08/06103512/0. The Welsh Assembly Governments Fisheries Strategy Aquaculture action plan can be found at: www.wales.gov.uk/topics/environmentcountryside/foodandfisheries/fisheries/walesfisheriesstrategy/?lang=en. See also http://www.defra.gov.uk/foodfarm/fisheries/documents/aquaculture-report0904.pdf.

and environmental carrying capacity. Future development of deepwater finfish production could lead to large scale offshore production.

Potential impacts

3.9.4 The status of global fish stocks has been identified as 'very unfavourable' in a recent assessment of UK food security[99]. Increased UK aquaculture production could help to contribute to increased food security and local production as a means of securing future supply in a way which is carbon efficient and fits local economies. Finfish aquaculture can alleviate fishing pressure on some wild stocks, while providing additional nutrients for shellfish production when well sited. Reduction of pollution of shellfish waters will help provide a sustainable base for development of the inshore aquaculture sector, as well as reducing public health risks. The health benefits of fish consumption remain clear, with increased consumption in the UK population advised.

3.9.5 The environmental impacts of aquaculture activity 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. As the largest sector, finfish aquaculture has a number of potential impacts. These can include organic enrichment which may result in de-oxygenation of the water column and sediments, and changes in the diversity of benthic invertebrates. They can also include inorganic enrichment, which may contribute to eutrophication and changes in plankton communities. Other impacts can include the genetic alteration of local populations from escapees; changes in biodiversity caused by the escape or release of non-native species which may compete with native species, or cause changes in the natural ecosystem processes; increased potential for exchange of disease between farmed and wild fish although the exchange may be in either direction; and contamination from antiparasiticides and heavy metals.

Issues for consideration

3.9.6 Marine plan authorities should consider the benefits of encouraging the development of efficient, competitive, and sustainable aquaculture industries in line with the policies set out above. They should ensure that proposed activity has minimal wider effect and should seek to embrace the significant opportunities for co-existence of aquaculture and other marine activities in developing Marine Plans.

3.9.7 In developing Marine Plans, marine plan authorities should take account of existing aquaculture activity in the area and seek information on possible future aquaculture operations in areas not previously used, assessing the suitability of those areas for development. Marine plan authorities should also take account of the financial and environmental impact that new aquaculture operations might have on existing marine activities in the area and ensure that activities are consistent with the environmental objectives of the WFD.

3.9.8 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. The use of this legislation will be an essential part of any consideration of aquaculture development and native species protection, and should be incorporated into the marine planning process.

3.10 Surface water management and waste water treatment and disposal

3.10.1 The objective shared by the UK Administrations is to contribute to sustainable development including the health and well being of the community and the protection of the environment by maintaining and developing a policy and regulatory system which provides modern, high quality management and treatment of surface and waste water. The collection, treatment and disposal of waste water from housing and industry, the effective drainage of storm

[99] UK Food Security Assessment: Our Approach - August 2009.

water and runoff to the sea, mitigating the effects of diffuse pollution from urban areas and agriculture by improved management and improvements to drainage design are key activities to achieve this. An important aim is ensuring that infrastructure is in place and maintained for necessary disposal activity to be carried out in compliance with EU legislative requirements[100]. Sewerage infrastructure and drainage is also essential in supporting economic and social development, and for reducing the risk of flooding in urban areas[101].

3.10.2 For example, allocating sufficient space to facilitate future growth of current sewerage services is essential to the integration of land-use plans with Marine Plans. In developing Marine Plans, or considering individual applications for new marine activities, the marine plan authority should balance the benefits of the new activities against any consequential costs.

Potential impacts

3.10.3 The construction and development of new facilities will have an impact, but well managed these can be minimised so that the benefits outweigh impacts. The location of existing facilities associated with waste water discharge will impact upon and shape future terrestrial and marine planning decisions.

3.10.4 There are significant environmental, social and economic benefits in the provision of appropriate infrastructure for waste water collection, treatment, discharge and surface water drainage in coastal areas. These include: protection and improvement of water quality, improvements in public health, local amenity value and the provision of essential infrastructure in support of national priorities for growth and economic development.

3.10.5 Waste water collection, treatment and discharge is governed by requirements in European legislation including the Urban Waste Water Treatment Directive, Shellfish Waters Directive, Bathing Water Directives and Water Framework Directive. These requirements aim to protect and where necessary improve the quality of water in the aquatic environment. Proposals for new or extended waste water collection and treatment facilities are bound by these requirements ensuring minimal impact and a sustainable co-existence with other existing marine activities such as aquaculture, fishing and bathing.

Issues for consideration

3.10.6 Marine plan authorities should take account of the benefits that waste water infrastructure can provide in enabling wider socio-economic development on land, and maximise opportunities for co-existence with other activities in the marine environment.

3.10.7 The majority of developments will be subject to an appropriate permitting regime[102], which may also incorporate operational waste management requirements for certain activities and permit requirements for discharges (water discharge activities, ground water activities). Marine plan authorities should consider the physical aspect of discharging to sea in the form of the location and physical impact of major sea outfalls in the development of Marine Plans. The impact of coastal and estuarine change, and the risk of flooding in such areas, should be taken into account to avoid inappropriate development in vulnerable areas and be in line with the considerations in sections 2.6.4 – 2.6.8.

[100] This includes compliance with the requirements of the Urban Waste Water Treatment Directive, Water Framework Directive, Shellfish Waters Directive, Bathing Waters Directives and the Marine Strategy Framework Directive.
[101] Specific objectives for water and sewerage services are set out in guidance issued to the industry for each price review or price control period and in England, the government's future water strategy 'Future Water'.
[102] The operating regimes vary across the UK Administrations.

3.11 Tourism and recreation

3.11.1 The UK Administrations' aim for tourism is to take steps to improve the competitiveness of the tourism industry, recognising the important part that it plays in the national economy and to encourage growth within environmental limits. Tourism is one of the top three growth sectors of the economy and supports 1.5 million jobs and contributed nearly £90bn to the economy in 2009[103]. Seaside tourism makes an important contribution. It supports some 21,000 jobs and contributes £3.6bn to the economy. The economic, social and environmental factors relating to tourism therefore need to be carefully considered in developing Marine Plans. 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.

3.11.2 The sea can provide a variety of tourism and recreational opportunities. These will vary from area to area but will include 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[104]. 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, with many local businesses relying on the marine environment for their livelihoods. These activities will be enhanced by a well-managed and healthy marine environment, attractive and well-maintained beaches, seashore and clean bathing water.

3.11.3 Many seaside towns have developed cultural facilities to attract visitors all year round, although some marine activities will of necessity be restricted by the weather and many family holidays are taken during the summer school holidays.

Potential impacts

3.11.4 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.

Issues for consideration

3.11.5 Marine plan authorities and decision makers should consider the potential for tourism and recreation in the marine environment and the benefits that this will bring to the economy and local communities. These activities, especially recreation, are likely to be varied and many will be closely linked to onshore tourism strategies and plans which will need to be taken into account. The provision of slipways, coastal footpaths and ensuring coastal access for example could encourage economic growth and highlights the importance of considering the links between marine and terrestrial plans. There may also be opportunities for raising environmental awareness amongst coastal users.

3.11.6 In weighing up these considerations it will be important to ensure that local authorities, local tourism stakeholders, tourism destination management organisations, water based sports organisations and other marine and coastal users are engaged and consulted before decisions are taken.

[103] Tourism Contribution to the Economy & Tourism Employment (TSA). Employment figures are for 2008.
[104] For example see www.scotland.gov.uk/Publications/2010/05/12164456/0 and wales.gov.uk/topics/tourism/research/tourisminwales/visitorsurvey09/?lang=en

Conclusion

This document provides the framework for marine planning and taking decisions affecting the UK marine area. It outlines the UK Administrations' vision for the UK marine area, general principles for decision making and the high level approach to marine planning that will contribute to delivering this vision and so achievement of sustainable development. It sets out the environmental, social and economic considerations that need to be taken into account.

It also sets out the policy objectives for the key activities taking place in the marine environment. These objectives are the policy specific outcomes which the UK Administrations are seeking to achieve through the sustainable development of the UK marine area. Marine Plans will need to align with and contribute to delivery of these objectives, and marine plan authorities and decision makers will need to consider pressures and impacts associated with these activities.

The UK Administrations will ensure that the MPS is reviewed where circumstances indicate this is necessary.

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