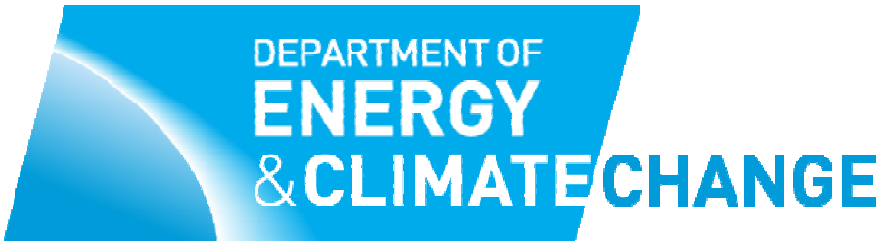


Offshore Energy Strategic Environmental Assessment 2 (OESEA2)

Post Public Consultation Report

August 2011

URN: 11D/834

Contents

1 INTRODUCTION

1.1 Purpose of this document

In 2009, The Department of Energy and Climate Change (DECC) completed a Strategic Environmental Assessment (SEA) of a draft plan/programme to hold further rounds of offshore leasing for wind and offshore oil and gas licensing in United Kingdom waters (OESEA). During 2010, DECC proposed to undertake an exercise to update and extend the scope of the OESEA Environmental Report and issue it for consultation to enable further licensing/leasing for offshore energy (oil and gas, gas storage including carbon capture and storage (CCS) and marine renewables, including wind, wave and tidal devices).

The Environmental Report of this SEA (hereafter referred to as the OESEA2) was published on the Offshore SEA website[1] on the 14th February 2011 at the start of a 3 month public consultation period. This report presents a summary[2] of the issues raised and other comments received during the public consultation period. Where appropriate, responses to comments are included which provide factual and technical clarifications. The report also includes responses to comments on policy, regulatory and other controls, and future plans where these are relevant. A revised set of recommendations are included in Section 3. It is not intended to publish a revised version of the Environmental Report.

There are many considerations which DECC will take into account in making decisions regarding the draft plan/programme; the responses to this consultation and the Environmental Report are important inputs to this process. The Government decision will be accompanied by a post adoption statement, describing *inter alia* how environmental considerations have been integrated into the plan or programme and how the environmental report and opinions expressed in response to the consultation has been taken into account in line with the requirements of the SEA Regulations.

1.2 Background

OESEA2 is being conducted in accordance with the *Environmental Assessment of Plans and Programmes Regulations 2004* (the SEA Regulations), which apply to any relevant plan or programme which relates either solely to the whole or any part of England, or to England and any other part of the United Kingdom (UK).

The SEA is intended to:

- Consider the environmental implications of a draft plan/programme (summarised overleaf) including consideration of the implications of alternatives to the plan/programme and the potential spatial interactions with other users of the sea.
- Inform the UK Government's decisions on the draft plan/programme.
- Provide routes for public and stakeholder participation in the process.

[1] www.offshore-sea.org.uk
[2] For reference, in addition to the summarised comments in this report, full copies of the responses are available on the SEA website.

The main parts of the draft plan/programme are:

Renewable energy:

1. Wave – to enable future leasing in the UK Renewable Energy Zone and the territorial waters of England and Wales. The Scottish Renewable Energy Zone and Northern Irish waters within the 12 nautical mile territorial sea limit are not included in this part of the plan/programme. In view of the relatively early stage of technological development, a target generation capacity is not set in the draft plan/programme.

2. Tidal stream – to enable future leasing in the UK Renewable Energy Zone and the territorial waters of England and Wales. The Scottish Renewable Energy Zone and Northern Irish waters within the 12 nautical mile territorial sea limit are not included in this part of the plan/programme. In view of the relatively early stage of technological development, a target generation capacity is not set in the draft plan/programme. Similarly, a minimum average tidal current velocity threshold is not proposed.

3. Tidal range – to enable future leasing in the territorial waters of England and Wales. The Severn tidal power schemes are not included as they are part of a separate DECC SEA initiative. It is considered unlikely that there will be tidal range developments outside of territorial waters.

4. Offshore wind – To enable further rounds of offshore wind farm leasing in the UK Renewable Energy Zone and the territorial waters of England and Wales towards the objective of achieving an installed generation capacity of some 33GW by 2020. The Scottish Renewable Energy Zone and Northern Irish waters within the 12 nautical mile territorial sea limit are not included in this part of the plan/programme.

Oil and gas:

1. Exploration and production – to enable further Seaward Rounds of oil and gas licensing in UK waters.

2. Hydrocarbon gas importation and storage – to enable further licensing/leasing for unloading and underground storage of hydrocarbon gas in UK waters (territorial waters and the UK Gas Importation and Storage Zone). UK OESEA only covered gas storage in hydrocarbon reservoirs, OESEA2 also considers hydrocarbon gas storage in other geological formations/structures including constructed salt caverns, and the offshore unloading of hydrocarbon gas.

Carbon dioxide:

1. Carbon dioxide transportation and storage – to enable licensing/leasing for underground storage of carbon dioxide gas in UK waters (territorial waters and the UK Gas Importation and Storage Zone). This SEA considers carbon dioxide storage in geological formations/structures including depleted hydrocarbon reservoirs and saline aquifers, as well as the possibility of co-locating (clustering) of pipelines for storage projects.

An indicative time horizon (i.e. period of currency) of five years was decided for OESEA2. Various legal and policy objectives and targets have long time scales (e.g. the 2008 Climate Change Act introduced legally binding 'carbon budgets', aiming to cut UK emissions on 1990 levels by 34% by 2020 and at least 80% by 2050). However, as several of the technologies covered in the draft plan/programme are likely to undergo rapid change, and various marine

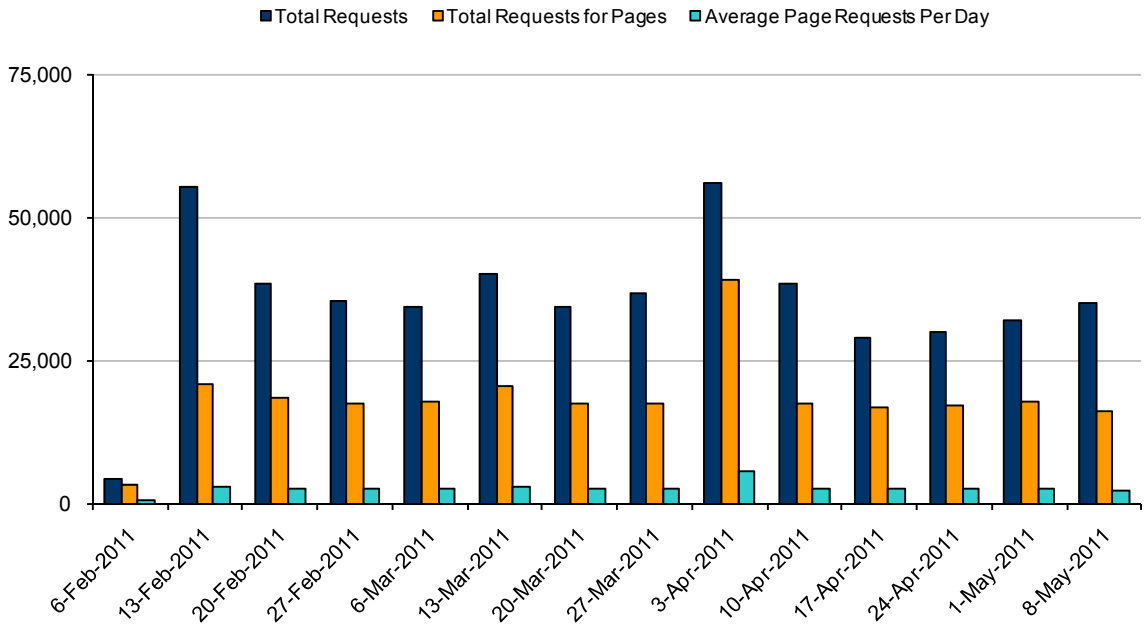
environmental management initiatives are underway, a five year time horizon for this SEA is considered appropriate. This indicative time horizon will be periodically reviewed by DECC (as the competent authority) in the context of significant new information on technologies, the environment, effects, or plan/programme status.

1.3 Offshore Energy SEA consultation process

The Environmental Report was available to view or freely download from the SEA website[3]. Copies of the Environmental Report could also be ordered[4], if preferred, via the website, by email or by mail. An email alert was sent to all registered users of the SEA website. Other stakeholders were variously alerted by email including through the Communications and Management for Sustainability emailing advertising service. Notices were inserted in 24 national and regional newspapers to inform the wider public of the SEA consultation. Copies of the Environmental Report were sent to statutory consultation bodies and authorities in the UK and to neighbouring states, and a CD of the report was sent to all coastal libraries in the UK.

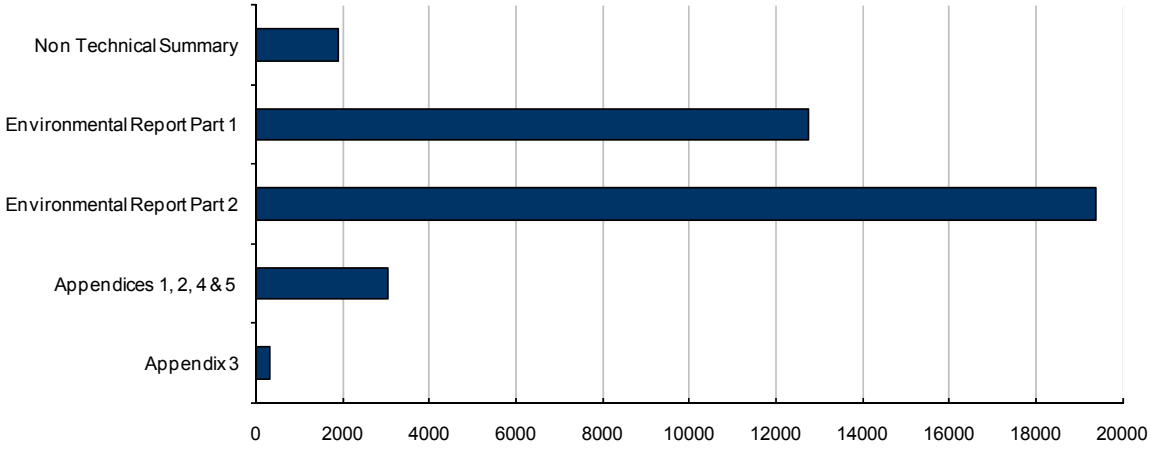
25 copies of the Environmental Report were mailed out in response to requests from stakeholders and the public. Statistics for the number of times the Environmental Report and Technical Reports were downloaded from the Offshore SEA website, as well as the number of hits on the website during the consultation period, are summarised in the histograms below. Figures are indicative, as for example, search engine page crawlers can add extra traffic to a website.

Offshore SEA website – number of page hits for the weeks covering the SEA consultation period



[3] Various Technical Reports and copies of Reports from earlier DECC SEAs are also available from the SEA website
[4] Copies of the Environmental Report were provided free of charge.

Number of pdf documents downloaded from the Offshore SEA website during the SEA consultation period



2 SUMMARY OF CONSULTATION FEEDBACK

2.1 Consultation input

Responses were received via the SEA website and as e-mailed or hard copy correspondence to DECC. Responses were received from the following 22 organisations and individuals:

Carbon Capture and Storage Association (CCSA)
Chamber of Shipping (CoS)
Countryside Council for Wales (CCW)
The Crown Estate (TCE)
EDF Energy (EDF)
English Heritage (EH)
Environment Agency (EA)
Greenpeace (GP)
Historic Scotland (HS)
Isle of Man Government (IoM)
Joint Nature Conservation Committee (JNCC), a joint response from the Statutory Nature Conservation Bodies (SNCBs)[5].
MAREN Project (Cardiff University Hydro-Environmental Research Centre), (MAREN)
Marine Conservation Society (MCS)
The National Federation of Fishermen's Organisations
The National Trust (TNT)
Northern Ireland Environment Agency (NIEA)
Royal Society for the Protection of Birds (RSPB)
Scottish Environment Protection Agency (SEPA)
Scottish Power Renewables (SPR)

[5] CCW, JNCC, NE and SNH. Note that CCW also submitted its own response.

Tidal Energy Limited (TEL)
Whale and Dolphin Conservation Society (WDCS)
Welsh Assembly Government (WAG)

For ease of reader access, consultee comments have been summarised and grouped in Section 2.2 (by topic), together with clarifications and DECC responses which are given in italicised text following each comment. Where consultee comments cover the same issue they have been combined to avoid duplication. Where author approval was given, full texts of consultee comments are available on the SEA website.

2.1.1 Number of respondants by category

Respondent category	Number of respondents (% of total)
UK public bodies	8 (36)
Foreign government bodies	1 (5)
Trade organisations and business	7(32)
Environmental non-governmental organisations	5(23)
Other non-governmental organisations	1 (5)
Individuals	-
Total	**22 (100)**

Due to the volume and diversity of stakeholder responses received, they have been categorised on several levels, broadly relating to the section of the Environmental Report to which they refer. The following categories are used, which are further subdivided in Section 2:

- SEA scope, process and quality of the Environmental Report
- Assessment process and findings
- Consideration of alternatives
- Recommendations and monitoring
- Environmental baseline
- Other issues raised/comments
- Deepwater Horizon event and drilling in deepwater areas of the UK

2.2 Consultation issues with DECC responses and clarifications

2.2.1 Quality of the Environmental Report

a	JNCC	The context and background information provided as a basis for assessment are comprehensive, the data robust, and knowledge gaps about offshore renewable industries, in particular those for wave and tidal are acknowledged.
		Noted.
b	NIEA	We welcome the level and scope of detail that is included in the Environmental Report in relation to biodiversity, habitats, flora and fauna. The extensive baseline data and consideration of up-to date scientific literature has enabled a comprehensive consideration and assessment of biodiversity interests in the Environmental Report. The information collated should prove to be a useful resource for other future marine plans and projects.
		Noted.
c	TCE	The Environmental Report is broadly welcomed by The Crown Estate as an important step to ensuring that a robust strategic planning framework is in place to underpin the further development of offshore renewables and gas & carbon storage in the UK. Government's decision on the plan for UK Offshore Energy should seek to maximise the potential for the sustainable development of these strategically important energy resources.
		Noted.

2.2.2 SEA scope and process

Scope		
a	EDF	Concerned that some of the detail is overly prescriptive on various environmental issues, which increases the risk of unnecessary delays and time consuming detailed assessments.
		As noted in Section 5.1, the assessment of environmental issues was informed by the evidence base regarding the relative risks and potential for significant effects from activities that may arise from leasing/licensing. SEA Steering Group, statutory consultee and stakeholder perspectives on important issues were also factored into the assessment. For those issues for which little information was available, e.g. the interaction of birds, marine mammals and fish with surface and submerged wave and tidal devices, the SEA recommended that appropriately focussed surveys of animal activity and behaviour should be undertaken to inform commercial scale deployment risk.
b		Though EDF agrees with the principal of designating Natura 2000 sites, and the delivery of the MSFD/MCZs, we hold reservations with regard to the detailed assessments and level of stakeholder engagement in certain cases.
		The Natura 2000 network, Marine Conservation Zones (MCZs) and the Marine Strategy Framework Directive (MSFD) are mandated by the UK legislation and European Directives described in the OESEA2 Environmental Report. The processes for site designations include public consultation, and Defra will consult on proposed MCZ boundaries in summer 2012. In accordance with the MSFD, the UK's determination of Good Environmental Status, and associated targets and indicators, has to be submitted to the EU Commission by July 2012. The Welsh Government will be responsible for designating Marine Conservation Zones in Wales.
c		EDF believes there to be a delicate balance between socio-economic issues and the conservation objectives of the Marine Strategy Framework Directive.

		These will require careful consideration in relation to development of offshore wind farms and other marine renewables sites, oil and gas/gas storage (including carbon dioxide storage) infrastructure to avoid compromising good environmental status.
		Noted. See response to 2.2.2b above.
d	TEL	It is unfortunate that no target has been suggested for the deployment of marine renewables in the OESEA2 timeframe.
		In view of the relatively early stage of technological development of wave and tidal devices, and the likelihood that development will be of demonstrator scale within the timescale of OESEA2 (up to 5 years), it was not considered that realistic generation targets could be set.
e	MAREN	Marine renewable energy needs to be safeguarded against the extreme application of the precautionary principle through the effective use of data and capabilities that are available or underway. Working in partnership with those research institutes that are capable of analysis and projection through future scenario modelling is essential.
		DECC and other parts of UK Government strive for a balanced consideration of issues regarding marine renewable energy, and to take account of the results of relevant research.
f	CCSA	It is noted that the environmental management capacity and track record of applicants for storage licences is considered by DECC. We would hope that this process would be proportionate and not overly burdensome on applicants and CCSA would welcome the opportunity to contribute to its development.
		Noted.
g		It is stated that, "*[CCS] has the potential to reduce emissions from power stations and other industrial installations by around 90%, but is generally considered not yet ready for large scale deployment*". It is the policy framework rather than the technology that is the principle impediment to deployment. The separate parts of the CCS chain (capture, transport and storage) have been safely used for many decades.
		The text reflects that there has been no commercial scale CCS project to date, and that wider deployment is generally expected to be from 2020 following the technical and economic demonstration of a number of UK projects.
h		It is stated that the UK Government has committed £1bn to help fund demonstration projects, though up to £1bn has been formally committed to help fund the demonstration of CCS, and negotiations are ongoing with regard to the post capture plant at Longannet in Scotland.
		Noted. Further description can be found in Sections 2.1.1 and 5.11.3.
i	RSPB	Text within Box 2.1 is not clear: "*SW England 0.5km^2 for generating 30MW* *Wales 5km^2 for an array generating 30MW*" The disparity between the two area-related figures is not helped by the lack of information on the expected generation capacity for an individual device in SW England – could the figure be clarified?
		Whilst not explicitly stated in the table, the expected generation capacity used by the SW England study was 60MW/km^2 which is similar to the figure used by the Northern Ireland SEA. The expected generation capacity used for the Welsh study was 6MW/Km^2. The differences between the generation capacities reflects the variation in expected array sizes and generation capacities that have been used by a range of relevant SEAs and other studies. This is primarily due to the current early development stage of tidal stream technologies and the present lack of arrays in the water.
j		The Welsh Assembly Government energy policy statement, *A Low Carbon Revolution* (March 2010) sets an extremely high target for wave and tidal

		stream renewables, with a combined generation target of 4GW in territorial waters by 2025. OESEA2 does not predict such a high capacity within Welsh waters, which represents a policy conflict between DECC and WAG. Targets for wave and tidal technologies have also been set in Scotland and Northern Ireland (SPR).
		The SEA does not make any predictions for wave and tidal stream generation from Welsh waters. The Welsh energy policy statement sets a target of 4GW for wave and tidal stream by 2025. Section 2.5.4 indicates that the SEA was informed by the UK Marine Energy Action Plan which envisages an installed capacity of 1-2GW by 2020 from wave and tidal stream devices. Given that several of the technologies covered in the draft plan/programme are likely to undergo rapid change, and various marine environmental management initiatives are underway, a five year time horizon for this SEA was considered appropriate. This will be periodically reviewed by DECC in the context of new information on technologies, effects, or plan/programme status.
k	TCE	Some stakeholders may be confused by the division of capacity targets across the UK and it would be useful for Government to give clarity on this issue.
		Box 2.1 summarises the wave and tidal stream scenarios used by other SEAs and relevant studies. A variety of figures have been presented due to the difficulty in accurately predicting the generation capacity of future arrays, which is a function of the current development status of wave and tidal stream technologies and the lack of arrays in the water. The scenarios developed for OESEA2 were deliberately broad in an attempt to capture the uncertainty regarding array size and capacity.
l	JNCC	3.7: "*The assessment considers the implications of the draft plan for relevant existing environmental problems including, especially, those relating to any areas of particular environmental importance, such as areas designated under the Habitats & Species and Birds Directives*." Please amend sentence to: "*....such as areas designated under the Habitats and Birds Directives*"
		Noted.
m		It is not clear whether activities will be promoted within a single plan or programme, or separately. It would be helpful to clarify the nature of, and responsibility for, any subsequent assessment of plans that will be required under the Habitats Directive.
		The activities as set out in Section 2.1.2 of the ER are considered to be a single plan/programme. Appropriate Assessments (AA) will be conducted as appropriate for different elements of the plan/programme. For example, for offshore wind, The Crown Estate has undertaken an AA of Round 3 and AAs may also be undertaken at the site/project level (as has been the case for some Round 1 and 2 projects). DECC has completed numerous Appropriate Assessments for oil and gas licensing rounds once blocks have been applied for.
n	EA	The National Emissions Ceiling Directive (NECD) sets upper limits for each Member State for the total emissions in 2010 of the four pollutants responsible for acidification, eutrophication and ground-level ozone pollution. The Indicators for air quality (Table 3.1) only relate to regional and UK levels. The plan/programme could contribute to the achievement of air quality targets for those emissions outlined in the National Emissions Ceiling Directive, as well as the UK Air Quality Strategy.
		The information is welcomed and will be reviewed for inclusion in future SEAs. The development of indicators is an evolving process, and those for OESEA2 were developed through a review of the previous OESEA indicators, stakeholder consultation at the scoping stage and Steering Group

		discussions.
o	CCW	It is not possible to clearly define many of the activities that are likely to result from the plan/programme and the ER necessarily defers assessment of the effects of some activities to the project level. CCW believes that the ability to consider environmental effects above the level of the individual project can help to reduce environmental and consenting risk. CCW recommend that higher level processes designed to support the implementation of the plan/programme (e.g. the Offshore Development Information Statement (ODIS) for grid) should address environmental issues at an early stage.
		The 2011 Offshore Development Information Statement will include additional information on the planning consent process in terms of applicable legislation, principal bodies etc. A formal industry consultation has helped to determine the form and content of the ODIS document which has subsequently been agreed with the Authority as part of the licence condition. National Grid is also carrying out a study jointly with The Crown Estate on offshore network feasibility. This study will include constraint mapping which will cover environmental issues. National Grid is in dialogue with Joint Nature Conservation Committee (JNCC).
p	MCS	DECC should omit tidal barrages from its marine energy plan, as these developments are unsustainable in any location
		DECC feel that the approach described in Recommendation 12 would allow a more thorough assessment of the suitability or otherwise of tidal barrage proposals. "The nature and uses of the range of estuaries and embayments in which tidal range developments have been and may be proposed vary widely; similarly there is a wide diversity in the type and location of installations to exploit tidal range. Consequently it is recommended that site specific assessments are undertaken before decisions can be taken on potential leasing and the desirability and acceptability of individual projects."
q	GP	Maintaining our dependence on oil undermines our ability to tackle climate change and leaves the UK exposed to oil price volatility.
		The UK must have an ordered transition to a low carbon energy future, as summarised in Section 2.1.1 "The UK Government is committed to the reduction of greenhouse gas emissions by 80% on 1990 levels by 2050, with an interim target of 34% by 2020 (as implemented in the Climate Change Act 2008 and subsequent Order revising the 2020 carbon budget). The Low Carbon Transition Plan (2009) outlines how the UK will meet the 2020 34% emission reduction. A key element in the delivery of these targets is to secure energy supplies by ensuring a supportive climate for the substantial new investment needed to bring forward low carbon infrastructure, and to maximise the economic production of offshore oil and gas to help secure the continued fossil fuel supplies required during the transition."
r		The climatological impacts of pursuing the UK's offshore energy policy are not adequately represented in the NTS. It is untrue to state that hydrocarbon extraction in UK waters has a minimal impact on total UK GHC emissions. Even though North Sea oil production is forecast to halve by 2025, DECC has estimated that 40% of our oil demand would come from domestic sources. The references in the SEA do not convey with sufficient clarity, the global climatological impacts of using oil extracted from UK waters as well as the local environmental impacts.
		Section 5.12 considers the aspects of the draft plan/programme with regards to climate change and the policy context which has developed in response to it. The plan/programme is complementary to current policy, e.g. renewable generation targets and CO_2 reduction commitments, and enhanced security of supply through a maximisation of domestic fossil fuel production. Projections of the likely energy mix suggest a dependence on fossil fuels for the foreseeable future, and certainly within the currency of OESEA2.
s		It is highly unlikely that greenhouse gas emissions reductions as set out in

		the Climate Change Act 2008 can be met if oil demand remains constant over the next 14 years, as DECC is presently forecasting.
		The UK Government is committed to the reduction of greenhouse gas emissions by 80% on 1990 levels by 2050, with an interim target of 34% by 2020 (as implemented in the Climate Change Act 2008 and subsequent Order revising the 2020 carbon budget). The Low Carbon Transition Plan (2009) outlines how the UK will meet the 2020 34% emission reduction. A key element in the delivery of these targets is to secure energy supplies by ensuring a supportive climate for the substantial new investment needed to bring forward low carbon infrastructure, and to maximise the economic production of offshore oil and gas to help secure the continued fossil fuel supplies required during the transition. The draft plan is broad ranging and covers the majority of energy related activities in the UK marine environment.
t		The Government's offshore energy policy is, at present, a hindrance to meeting our legally-binding CO_2 targets. This must be adequately reflected within the OESEA2 NTS.
		See responses to 2.2.2 r and s above. DECC has also recently published (July 2011) a Renewable Energy Roadmap http://www.decc.gov.uk/en/content/cms/meeting_energy/renewable_ener/renewable_ener.aspx which sets out a comprehensive suite of targeted, practical actions to accelerate renewable energy in the UK – driving innovation and the deployment of a wide range of renewables including offshore wind and marine renewables. It will help the UK Government meet its EU 2020 target, and should ensure that the cost of renewable energy falls over time.
u		Greenpeace has serious concerns about the government's policy to encourage exploration and extraction of fossil fuel resources in UK waters. There is no recognition in the NTS that some regions, such as the west of Shetland, present new risks in terms of technical challenges and the hostile conditions in which oil companies must operate.
		For context, blocks to the west of Shetland have been licensed for hydrocarbon exploration and production since 1965, with wells drilled since 1973 and production since 1997.
v	SPR	Is there a reason not to have a socio-economic chapter in the Environmental Report?
		This is not required under SEA regulations (see Section 1.4.3); however, there is consideration of potential effects on other users, material assets (infrastructure, other natural resources) and population and human health. The DECC Renewable Energy Roadmap and supporting report "Analysis of Renewables Growth to 2020" provide additional information on socio-economic aspects of renewable energy developments.
Process		
w	EH	The sections of the report directed at landscape/seascape (e.g. Table 3.1) should pay particular attention to an interpretation of seascape which is not focused on visual assessment methodologies. EH recommend that this approach is qualified, in reference to the definition of 'landscape' in the Council of Europe European Landscape Convention (ELC), so that the concept of landscape 'character' is adopted to fully support action to implement ELC within the UK.
		Agree. The OESEA2 objective for landscape/seascape attempts to capture the principles of the ELC – see also Section 5.8.2.6.
x		Table 3.1: EH noted the following: "*Activities avoid adverse effects on the character, quality and integrity of the historic and/or cultural landscape, including those sites which are designated or registered, and areas of potential importance*." In regard to this statement, EH consider it useful to refer to the UK Marine Policy Statement which identifies that decision making should take account of designated cultural heritage sites or of sites that are

		of particular social significance, and that such sites are finite and often irreplaceable. It is also an important matter to recognise that only a minority of sites at sea are afforded any form of statutory designation and that non-designated sites should be considered subject to the same policy principles as applied to designated heritage assets.
		Noted.
y	JNCC	SEA Objective: *"Avoids significant impact to conservation sites, including draft, possible, candidate and designated Natura 2000 sites, along with consideration of future Marine Conservation Zones and Marine Protected Areas."* MCZs will be part of the MPA network. There is a minor error in the description of Natura 2000 sites – missing classified. Recommend the following amendment: "*Avoids significant impact to conservation sites, including draft, possible, candidate, designated and classified Natura 2000 sites, along with consideration of future Marine Protected Areas*."
		Noted.
z		SEA Indicator: Biodiversity, habitats, flora and fauna: Reference should be made to either the Conservation of Habitats & Species Regulations 2010 which are the correct regulations in England and Wales, or to the equivalent Scottish Regulations. No reference is made to requirements under the Marine Strategy Framework Directive, but reference is made to good ecological status under the Water Framework Directive.
		Agreed. Reference should have been made to these regulations and to achieving or maintaining good environmental status under the MSFD. These are described in Appendix 4 Other initiatives (A4.2) of the ER.
aa		Please amend Geology & Soils indicator, as geological features may be protected in Scottish Marine Protected Areas, and therefore not just MCZs.
		Noted. GCRs and MCZs were provided as an example rather than a definitive list of designated sites.
ab		Landscape indicator, "tranquillity based on Campaign to Protect Rural England (CRPE) and CCW national mapping projects", does not cover Scottish non-designated landscapes.
		Noted. Further suggestions for indicators will be taken forward for future iterations of the OESEA.
ac		SNH recommend that the Post-Adoption Statement refer to *Assessing The Impacts On Wild Land* (February 2007). This guidance draws on the *Wildness in Scotland's Countryside SNH Policy Statement 02/03*. The map at Annex 1 of this statement shows where the main areas of wild land are likely to be found, and is intended to assist the development of plans and strategies. Accordingly, an indicator such as "*Incidence of man-made features proposed, managed or stimulated by the plan which affect wild land search areas in Scotland*" should be added to the table.
		The location of the search areas for wild land (map referenced by SNH) indicates that relevant coastal areas are primarily on the west and north west coast of Scotland. The draft plan does not cover renewable energy leasing in Scottish Territorial Waters and therefore a specific indicator as suggested by the consultee would seem to be unnecessary. Based on hydrocarbon prospectivity, it is not expected that any new offshore oil and gas development would be proposed for these areas.
ad	GP	The Code of Practice on Consultation proposes that, *"The subject matter, any assumptions the Government has made, and the questions in the consultation should all be as clear as possible."* It is in this respect that this consultation is particularly lacking. It is unclear what is being asked of respondents – such as, the extent to which, or indeed whether we agree with the assessments of impacts or the policies per se. For comparison, the initial

		scoping document outlined seven specific questions which the Government was seeking answers to, enabling respondents to properly structure their arguments in a constructive manner.
		The format of the ER has been developed over multiple SEAs incorporating the input of a wide range of stakeholders. Suggestions that improve the clarity of the ER are discussed and agreed by the SEA Steering Group.
ae		The Cabinet Office Code of Practice on Consultation suggests a number of useful ways in which Government departments can facilitate a meaningful and constructive conversation with the public. For example, it states that consultations should be held at a time when consultees can meaningfully feed into the process, and that there should be clarity about the scope and impact of the consultation.
		Consultation for OESEA2 was held at an early stage through scoping (March 2010) which outlined the geographic remit of the assessment, the aspects of the plan/programme as outlined in Section 2.1.2 of the ER (including the policy context for further leasing and licensing in these areas), as well as an initial list of potential sources of significant effects on the environment from potential plan/programme activities. Comments received from scoping, in addition to those received through three stakeholder events held between October and November 2010, were considered for inclusion in the Environmental Report which had a three month consultation period starting in February 2011, advertised in 24 national and regional newspapers, with posters sent to all coastal libraries in the UK, and via the offshore SEA website. It is regarded that the OESEA2 consultation process has been adequately inclusive and accessible, in addition to fulfilling statutory consultation requirements.
Consideration of other initiatives and wider policy goals		
af	MAREN	The MAREN and the LCRI Marine Projects can assist with information relating to the impacts of potential commercial arrays of wave and tidal stream technologies on the physical environment and habitats, and interaction of birds, marine mammals and fish with wave and tidal devices.
		The constructive comments are noted. DECC will ensure that the outputs of the projects are factored into the information base of the SEA.
ag		The MAREN project is working with high resolution models for wave, wind, tidal steam and tidal barrage that can evaluate the true current resource potential, the future resource potential (considering climate change) and the environmental impact at a 50x50m resolution and could help with Hydrodynamic data, water quality data, sediment load data, high resolution case studies, resource potential, CO_2 reduction potential and wave energy studies.
		See comment above.
ah	TEL	Pleased with the work that the Welsh Assembly Government has carried out over the last 3 years which has fed into the Marine Renewable Energy Strategy Framework. This report is now available and should be considered as part of the OESEA2.
		Noted. The work of the MRESF is referenced throughout the Environmental Report.
ai		TEL is conducting a deploy and monitor approach to its device in the Pembrokeshire Marine SAC, which will aid to reduce knowledge gaps for the future deployment of marine renewables.
		Noted. This approach is endorsed by Recommendation 19 which states that "It is recommended that for the deployment of single devices and small arrays, appropriately focussed surveys of animal activity and behaviour should be undertaken to inform commercial scale deployment risk assessments and consenting. A strategic and coordinated approach to such research is recommended since the results will be of wider application; research results should be made publicly available where ever possible."

aj	JNCC	The Joint Cetacean Protocol provides a mechanism to collate a variety of data in order to apply statistical techniques (power analysis) that will enable the best available measures of cetacean abundance and distribution to be derived. Similar techniques could be applied to seabirds and would be most useful in the offshore area where relatively little is known about their abundance and distribution.
		Noted. DECC are aware of the ongoing Joint Cetacean Protocol and will examine the potential use of techniques developed to improve the information base of the SEA.
ak	EA	• Natural Environment Framework (NEF), *A Living Wales: a new framework for our environment, our countryside and our seas* (consultation document 2010). WAG have advised that all policies and plans should follow NEF principles. The NEF focuses on managing the environment as a whole, following an "ecosystem services" approach. • *Sustainable Development for Welsh Seas: Our Approach to Marine Planning in Wales* is currently out for consultation. • *Flood and Coastal Erosion Risk Management: Development of a National Strategy for Wales.* • *Energy Policy Statement* (2010). This sets targets that reflect Wales' sustainable energy potential.
		Noted.
al	SEPA	DECC should be aware of the National Renewables Infrastructure Plan for Scotland and its associated SEA, which considers the need for offshore renewable energy port and manufacturing facilities in a Scottish context.
		The National Renewables Infrastructure Plan Stage 2 was described in the environmental baseline (Appendix 3h.2.1.3).
am		The pre-consultation draft of the Scottish National Marine Plan and its Sustainability Appraisal. SEPA recommend the post adoption statement clearly sets out how the OESEA2 and the National Marine Plan processes will interact.
		Noted. The pre-consultation draft of the Scottish National Marine Plan and an interim SA were published after the OESEA2 ER. A full SA report will be published alongside the Draft National Marine Plan for consultation later in 2011. Given the early stage of the consultation process it would be prudent to wait until the draft marine plan and accompanying SA is published. A preliminary review of the marine plan objectives related to oil and gas, CCS and renewables appear at a strategic level to complement the main objectives of the OESEA2 draft plan (Section 2.1.2), "to enhance the UK economy, contribute to the achievement of carbon emission reductions and security of energy supply, but without compromising biodiversity and ecosystem function, the interests of nature and heritage conservation, human health, or material assets and other users."
an	TNT	*A manifesto for coasts and seascapes*, drawn up by a group of NGOs and addressed to the UK Government, the devolved administrations, marine planning authorities, national agencies and coastal local authorities. The paper stems from the work/publication "*Coastal Protected Landscapes and Marine Planning*". The manifesto is born out of concern about how the new marine planning system, and in this context the OESEA2, addresses: • The concept and relevance of "Seascapes", there being no statutory basis for identifying and protecting them; and • The significance of and the role our coastal protected landscapes play in the coordinated management of the extensive lengths of our coast and adjacent inshore waters that are designated as AONB or National Park and defined as Heritage Coast.
		Noted. With respect to the manifesto, OESEA2 recognises the definition of seascape derived from the European Landscape Convention (Section 4.2.1); identifies the character and distinctiveness of coasts and seascapes (Section

		5.8.3); deploys the established principles of landscape characterisation and Landscape and Visual Impact Assessment (Section 5.8.3), and identifies areas of seascape value (Section 5.8.2.5).
ao		New draft guidance will shortly be published on seascape character assessment. We would welcome the opportunity to work with DECC, NE and CCE to secure better recognition for seascapes through a programme of seascape characterisation leading to identification/designation of those seascapes that are of national importance and to protect them for future generations.
		Noted. SEA Recommendation 11 is that "A characterisation and sensitivity study for England's seascapes would complement those completed for Wales and Scotland in relation to offshore renewables, and aid the assessment of possible impacts at a strategic level, particularly cumulative impacts. It is recommended that such a study be undertaken in order to inform subsequent offshore SEAs, future Marine Plans, and other programmes which require a high level consideration of seascape."
ap		The Manifesto for Coasts and Seascapes sets out a number of key actions that DECC can play an active part in delivering by: • Working with NE, CCW and SNH to undertake a seascape character assessment for each UK marine plan area, using the methodology currently developing as the basis for securing their long term sustainability through the marine planning process. • Playing an active part in the development of an objective approach that recognises and secures the conservation of nationally important seascapes as an integral dimension of the marine planning process thereby ensuring the long term future of their special qualities.
		See responses to 2.2.2an and ao above.
aq	CCSA	The regulatory options contained within the NERA report, "*Developing a Regulatory Framework for CCS Transportation Infrastructure*", have been consulted on by DECC as part of its Call for Evidence on the Long Term Development of CCS Infrastructure. This work should be referenced within the SEA.
		This work is referenced in Section 5.13.2.1 under Accidental events related to carbon dioxide storage.
ar	MAREN	The WAG consultation, "*Sustainable Development for Welsh Seas: Our Approach to Marine Planning In Wales*", will presumably feed into the DECC process.
		Agree. The consultation sets the WAG intention to develop a national plan for the Welsh inshore area and a national plan for the Welsh offshore area and adopt them by 2012/13. With respect to energy infrastructure, the WAG consultation indicates that the "marine environment will continue to make a major contribution to the provision of our sustainable energy supply and distribution. This includes a growing contribution from the deployment of renewable energy technologies, both offshore wind and wave/tidal devices, in response to the challenges of tackling climate change and increasing our energy security and securing our offshore energy objectives as set out within "A Low Carbon Revolution". This would appear to complement the main objectives of the OESEA2 plan (Section 2.1.2, as described in 1.2 above).

2.2.3 Assessment methodology and findings

2.2.3.1 General

a	MAREN	A separate SEA process is supported for the Severn Estuary as long as there is a coordinated integration between the two.
		Noted.
b	WDCS	SEA fails to assess impacts at a strategic level, including cumulative and in-combination effects, by deferring to project-level assessment of any form
		See response to 2.2.3.1c below.
c	RSPB	RSPB are concerned that in most cases, the lengthy literature reviews and "*Summary & Recommendations*" sections, do not contain any recommendations as such but rather they suggest that there are no significant impacts "*at the strategic level*". Potential impacts on marine wildlife are often rather too easily dismissed.
		As described in Section 5.1 the SEA covers an enormous marine area comprising all UK waters and addresses the licensing of offshore oil and gas activities, the storage of gas and CO_2, offshore wind farms and marine renewables. The assessment has therefore had to address complex issues and multiple interrelationships, where a score based matrix assessment would be simplistic and inadequate. Following discussion with the SEA Steering Group (which includes RSPB) an evidence based consideration was agreed. For most assessment sections (Sections 5.3-5.17) recommendations were made and these were taken forward to Section 6 Recommendations and monitoring. The ER describes potential impacts on marine wildlife (as listed in Box 5.1 and signposted sections) which were assessed based on the evidence base presented. Where the level of information regarding the location/extent of potential activities following leasing/licensing was very limited, assessment at the project level was recommended. This accords with Article 4 (3) of the SEA Directive "Where plans and programmes form part of a hierarchy, Member States shall, with a view to avoiding duplication of the assessment, take into account the fact that the assessment will be carried out, in accordance with this Directive, at different levels of the hierarchy. For the purpose of, inter alia, avoiding duplication of assessment, Member States shall apply Article 5(2) and (3)".
d		The lack of clarity between the evidence base and the conclusions and recommendations, and subsequently how the ER informs decision making, is a long running concern for the RSPB.
		This concern is noted although it is considered there is a clear "line of sight" between the evidence base, the assessment and conclusions.
e		The ER avoids making recommendations on tidal range schemes, instead concluding that because the exact level of impact is dependent on several variables (e.g. scheme location, operation and design, plus estuary specificity, etc.), detailed site specific survey work and assessment is necessary at the project stage. In our opinion this is an inadequate conclusion for an SEA, as site specific survey work and assessment always needs to be done at the project stage.
		See response to 2.2.3.1c above on assessment at the project level.
f		The references to the importance of data collection in the future is positive though it does not include the more ambitious types of information and data-related issues which the RSPB has been raising to date, e.g. systematic data collection to fill data gaps and update old data (e.g. seabirds at sea, a stable data repository, etc).
		The SEA makes extensive recommendations (Recommendations 15 to 20) to improve the marine management information base including filling data gaps and the archiving of valuable information.

g	JNCC	It is not clear whether DECC intends to undertake HRA in support of OESEA2 – it is our recommendation that one should be undertaken.
		As for OESEA, the competent authority will undertake appropriate assessment prior to awarding licences or leases, if required following screening. Recommendation 1 indicates that developers are made aware at the licensing/leasing stage that SAC/SPA designation may, subject to the conclusions of any Habitats Regulations Assessment, preclude development or necessitate suitable mitigation measures so as to avoid adverse effects on a designated site or species.
h		The assessment of electromagnetic fields (EMF) would benefit from clear presentation of the EMF from cable routes associated with offshore energy development. It is difficult to consider the levels reported for each species in the context of future developments. Users of the report should ensure this issue is addressed when referencing the document.
		Section 5.6.2.5 reflects current understanding of EMF associated with subsea cables and describes studies on EMF effects from offshore wind farms. To date, efforts have focused on the 50Hz AC systems used throughout all UK and most other offshore renewables projects. Longer export cable distances, bigger wind farms and technological advances mean that High Voltage Direct Current (HVDC) cables may be used in future, including for Round 3 wind farms. Although (static) magnetic fields will still be produced in the marine environment this technology offers potential advantages in that fewer cables may be required and bipole systems should retain electrical fields within the cables. The routes and type of cables to be associated with future R3 wind farms and future marine renewable developments are currently not defined and therefore difficult to assess at a strategic level.
i		Given that the nature and use of antifouling materials is considered as a potential effect in the context of renewables structures, it would seem relevant to consider this in the context of oil and gas structures as well.
		The scaling up of offshore wind farm development associated with R3 and the potential for marine renewable arrays will likely lead to a significant increase in marine structures up to 2020. In contrast, structures associated with oil and gas development will likely decrease given the large number expected to be decommissioned up to 2020.
j		The SEA understandably defers assessment of effects for some activities to the project level – suggest the ER recommends that processes that are established to support the implementation of the plan/programme (e.g. for grid, ports etc) should explore environmental issues at an early stage. There are opportunities to consider HRA early on at the strategic level.
		Noted. Environmental issues are explored within the ER with further, more detailed assessment recommended at the project level for some issues where the nature/extent/location of potential activities are not currently known. As for OESEA, the competent authority will undertake appropriate assessment prior to awarding licences or leases, if required following screening.
k		Would be possible at a strategic level to focus resources on the collection of evidence that would help address uncertainties that could act as a consenting risk.
		The SEA process has identified and commissioned or contributed to numerous surveys and studies to inform the information base as described in Section 3.4. Recommendations 15 to 20 highlight means by which uncertainties can be addressed.
l		Subsequent leasing rounds should be sufficiently flexible to allow for relocation of project proposals on the basis of strategic and iterative assessments.
		Noted. The SEA is an iterative process being informed by the results of

		strategic studies and monitoring commissioned by DECC and others, as well as project level assessments (such as EIA and HRA) and monitoring. Recommendation 22 indicates that "Siting and consenting processes for marine renewable energy developments must remain flexible to allow for technological innovation, including in mitigation measures."
m		The SNCBs consider that assessment at the strategic level is possible, and necessary, with regard to potential impacts from grid connections – the ODIS describes a range of alternative options for grid upgrades for R3 that ought to be considered more at a strategic level
		These are described in Sections 5.14.2 and 5.4.2.1. See also response to 2.2.2o above
n		The ongoing SEA process has an important role to play in identifying and addressing issues relating to wave and tidal technologies as they develop, and the ER is an important opportunity to clarify the research that is required to support consenting of demonstrator and larger projects. There is a need to: • Maximise the learning from deployed demonstrator scale and consented commercial projects and begin to identify and address the issues associated with larger scale wave & tidal arrays • Draw on the lessons from the Severn Tidal Power Feasibility (tidal range) and from ongoing research being progressed by the Crown Estate, pertinent to the Pentland Firth and Orkney Waters leasing round • Improve the baseline data for inshore marine mammal and bird (CCW) populations (all technologies, including Offshore Wind) • Assess the combined effects (through collision and disturbance) of deployments on populations of mobile species (all technologies, including Offshore Wind), and develop ways to assess the risks of such collisions (CCW) • Develop a strategic programme of environmental research to support the assessment of wave and tidal technologies similar to the COWRIE programme for offshore wind.
		Noted. Recommendations 15 to 20 are relevant to consultee comment.
o		Concerned certain '*other'* spatial constraints are not considered '*hard'* constraints. For instance mobile species which may also be features of European sites and protected under the Habitats Directive, are difficult to capture in spatial assessments though can represent a development constraint, and research in this area (e.g. sensitivity indices – recognised in the ER) should be further developed to support the spatial risk assessment/consenting, particularly for wave and tidal developments.
		Noted. As the consultee indicates mobile species by their nature are difficult to capture in a spatial assessment.
p		Work undertaken by CCW to develop sensitivity and vulnerability indices for diving seabirds and marine mammals have been incorporated into the Welsh Assembly Government's Marine Renewable Energy Strategic Framework, highlighted as the basis for a methodology which could be developed and expanded.
		The constructive comments are welcomed. Research on diving seabirds and marine mammals to inform the MRESF is described in Section 5.6.2.2 and has been used to inform the assessment process (e.g. Section 5.6.3).
q		The aim of the OESEA2 is to "*Consider the implications of DECC's plan/programme to enable further licensing/leasing for offshore energy*". It is acknowledged that the report provides a comprehensive literature review and valuable indication of the potential likely risks of further development in UK territorial and offshore waters, though Chapter 6 could be more explicit in its recommendations for future leasing rounds. It could have been informative to include the risks involved, for example, in a 4th leasing round

		for offshore wind farm projects. In the absence of this risk assessment, we recommend that such a review is conducted
		For offshore wind, the generation target used in OESEA2 is unlikely to be realised within the expected lifetime of the SEA of up to five years, and there is currently no plan for a 4th leasing round.
r	CCW	Broadly agree that the scale of effects of offshore renewables is significantly smaller than those of fisheries although the effects of other renewable activities are effectively permanent and those from technologies such as tidal barrages and tidal stream arrays have yet to be fully understood. There is considerable potential for effects from both these activities to act in combination and the relative impacts and benefits of these activities should be considered through the emerging system of marine spatial planning.
		Noted.
s		A distinction has been drawn between effects that are significant at a population or species level and effects on individuals. In cases where development activities risk injury or killing of species that receive strict protection under the Habitats Directive there is a need to recognise the potential effects on individual animals and that these will need to be addressed at the project level.
		As described in the ER, the likelihood of an activity resulting in injury or disturbance to a marine EPS will depend on the characteristics of the activity, of the environment and the species concerned, hence the need for a case-by-case approach when assessing the risk of it occurring (Section 5.3.4). Recommendation 9 is that "For areas which contain habitats/ species listed in the Habitats Directive Annexes, developers should be made aware that a precautionary approach will be taken and some areas may either not be leased/licensed until adequate information is available, or be subject to strict controls on potential activities in the field."
t		Effects of noise from CO_2 and gas storage activities are expected to be similar to hydrocarbon exploration and production. This should be verified through targeted and effective monitoring programmes.
		Noted. Partly covered by Recommendation 20 f) "Understanding of variations in ambient noise, and other anthropogenic noise sources, must be improved to assess likely effects of additional noise from geophysical survey and construction or operation of marine installations."
u		It would be helpful if the ER could more clearly identify the conclusions drawn from the recent Severn tidal feasibility study.
		Noted. The ER makes reference to the Severn tidal feasibility study throughout in respect to the potential nature and scale of environmental impacts associated with tidal range schemes. The conclusions drawn from the feasibility study are available from the DECC website.
v		CCW do not believe that [in relation to noise impacts] there is sufficient evidence to justify the conclusion, "*it seems improbable (given the spatial ranges discussed above) that injurious or severe behavioural levels of effect will coincide*." Indicative spatial ranges of effect (Southall *et al.* 2007), the size of Round 3 OWF's and temporal overlap of development suggest that significant in-combination effects are possible and that these will require mitigation.
		This conclusion is based on the available evidence on receptors, sources and effects and with the expectation that activity consenting will require that suitable mitigation measures will be taken.
w		The use of retrospective analysis of cumulative noise doses to establish limits for present day activities will require careful management of good quality noise data. There is a need for coordinated arrangements for gathering such information and ensuring that this informs licensing decisions made by individual regulators.

		Noted.
x		The statement, "*The broadscale distribution of habitats of conservation importance is relatively well mapped"* is misleading. The distribution of some habitats (e.g. those identified by the Biodiversity Action Plan) are not well described and may well be present in areas that are chosen as otherwise suitable for development.
		The statement was intended to distinguish the broad scale from the site specific. Recommendation 24 recommends that prior to decisions on activity consenting in areas with vulnerable habitats and species, developers should provide a detailed assessment and seabed information so that appropriate site specific mitigation can be defined, for example no anchoring and zero discharge.
y		The table of potentially significant effects should refer to temporary or permanent destruction of feeding areas such as sand banks.
		Noted. Section 5.4 assesses the physical damage/change to features and habitats associated with potential activities following licensing/leasing. The potential for some sand banks to be important feeding areas could have been better emphasised.
z	MCS	Support the conclusion of the Noise section that reports the MASTS workshop conclusions: that engineering solutions are required either to develop alternatives to piling (e.g. through Carbon Trust technology accelerator foundation/structures) or to decrease propagation of noise through water and/or sediments.
		Noted.
aa	NIEA	Will any of the additional environmental constraints identified in Appendix 1 be considered as "*areas to avoid/hard constraints*" in the future?
		The SEA Steering Group will review the "areas to avoid/hard constraints" for future SEAs in light of new information and understanding.
ab	EDF	The mapping presented in the 2007 report, *SEA Offshore Wind Energy Generation: Phase 1*, was extremely helpful in identifying potential areas for development. EDF Energy feels that this provided a good starting point for Environmental Impact Assessment (EIA) and it is unfortunate that this current SEA does not present conclusions in the form of spatial mapping.
		Overall spatial considerations are addressed in Section 5.15.
ac	GP	Drilling in areas where the level of risk cannot be brought to within acceptable levels should not be allowed.
		Project level consenting is based on risk assessment and where the level of risk is not acceptable, drilling will not be consented.
ad		Though the report states that "Oil spills are probably the issue of greatest public concern in relation to the offshore oil and gas industry", this is not stated in the NTS.
		The NTS presents a balanced summary of the ER describing the key sensitivities and potential impacts associated with the draft plan. Oil spills are described where relevant. It is noted that the rest of the sentence highlighted by the consultee makes the point that the majority of large spills in the UK have resulted from shipping casualties rather than activities resulting from oil and gas licensing.
ae		The non-technical summary should state the potential risks each energy source poses.
		The assessment summary section of the NTS summarises potential environmental effects associated with the different energy sources but presents the information by SEA topic. This presentation style was intended to reduce the amount of repetition.

2.2.3.2 Birds

a	RSPB	Table 5.15 fails to capture the potential 'far field effects' of tidal range devices to SPAs that share features with those listed (i.e. migratory stop-offs). There are also some breeding waterbird SPAs in Scotland and Northern Europe that may be impacted, as these species rely on estuaries further south for passage and wintering. Far field effects are detailed within the Severn Tidal Power SEA, but are equally relevant for other tidal power feasibility studies in UK estuaries, and should be included here.
		Table 5.15 in Section 6.5.3 details those SPAs and associated waterfowl species potentially vulnerable to tidal range schemes in England and Wales. The link to more far-field sites was not made. However, Recommendation 1 indicates that developers are made aware at the licensing/leasing stage that SAC/SPA designation may, subject to the conclusions of any Habitats Regulations Assessment, preclude development or necessitate suitable mitigation measures so as to avoid adverse effects on a designated site or species. The HRA would include assessment of significant far-field effects.
b		It would be presumed that there would be large scale geomorphological change associated with a Mersey tidal range device (e.g. barrage), which may impact subtidal habitat that supports the Liverpool Bay SPA features. Why is this site not included within Table 5.15?
		Those bird species at most risk from tidal range schemes are likely to be waterfowl which rely on intertidal habitats for feeding which may be significantly impacted by such schemes. These have been included in the basic strategic analysis informing Table 5.15. The extent to which subtidal habitats and associated conservation features may be affected would depend on the location, nature and extent of the tidal range device and would thus be better assessed when a proposal has been brought forward.
c		The ER can[not] assume that that the maximum predicted bird collisions at offshore wind farms to date are in the order of a few tens per year per development. Table 5.9 clearly shows that for several species at specific offshore wind farms, the number of predicted collisions is far in excess of tens of collisions (e.g. gannet and sandwich terns at Dudgeon; lesser black backed gulls at Walney; and many species at Lincs). In addition, this table does not include Race Bank and Docking Shoal, which are predicted to have sandwich tern collisions in the several hundreds.
		The vast majority of predicted collision rates detailed in Table 5.9 are in the order of a few tens per year. It is noted that the predicted collision rates in Table 5.9 are highly sensitive to assumptions on avoidance rate and those collision rates that are significantly higher tend to be those that have used zero avoidance or are lower than those suggested by Maclean et al. (2009) and highlighted in Table 5.10.
d		Broadly welcome the recommendation that a precautionary approach is taken to siting in areas known to be of importance to birds (and marine mammals), though believe that this is a weak recommendation.
		Noted.
e		Concerned that impacts on seabirds are dismissed so easily (5.13.2.3; 5.13.3; & 5.16). While there is seasonal vulnerability related to concentrations at certain times of the year, it must be noted that the UK is important for both breeding seabird populations and over-wintering populations of seabirds, seaducks and divers, and that there will be vulnerable populations throughout the year. Consideration will also need to be given to the species involved, its conservation status and the other pressures on seabirds at that time.
		Section 5.13.2.3 indicates that "The direct mortality of seabirds in the event

		of oil spill is undoubtedly the most widely perceived risk associated with the proposed licensing and subsequent activities." It also indicates that "Vulnerability is seasonal, with a general trend of high vulnerability in coastal areas adjacent to colonies during the breeding season. In winter, vulnerability in inshore waters can also be very high in some areas."
f		Just because we have been lucky enough in the past that oil spills have occurred when the sensitive seabirds are not around or have affected a population that has been able to recover reasonably quickly, does not mean that we can dismiss the impact as insignificant. The first responsibility of the sector and the regulator is to prevent damage in the first place.
		At no point does the ER dismiss the impact of major oil spills as insignificant.
g	JNCC	There is very little evidence to support or refute the suggestion that, "*It is therefore considered unlikely that offshore seismic noise will result in significant injury or behavioural disturbance to seabirds*". While JNCC agree that the very few studies that have been done do not show an effect, they tend to have taken place well away from breeding seabird colonies, and therefore there is still reason to treat these situations with caution.
		The ER notes that direct effects on seabirds resulting from seismic exploration noise could occur through physical damage, or through disturbance of normal behaviour. Mortality of seabirds has not been observed during extensive seismic operations over decades in the North Sea and elsewhere. Any proposed seismic survey planned to take place near breeding seabird colonies would have to assess the potential risk to seabirds.
h		Disagree that NRC's 2007 study on bird mortality through U.S. terrestrial wind farms and the experience of wider turbine avoidance at Nysted windfarm allows broad, "*extension to major UK offshore wind farm development*". We strongly question that the latter is "*unlikely to result in cumulative impacts of concern for biogeographic populations of such species*", because displacement and the exponentially increasing energetic cost incurred cumulatively through barriers to migrant birds has not been taken into account.
		The paragraph referenced by the JNCC attempted to provide information on the overall conservation significance of the relatively small observed and predicted number of bird collision fatalities (in relation to total population sizes), in a wider context. Whilst the NRC (2007) study was almost exclusively for land birds, the causes of mortality provided for Nysted windfarm are of direct relevance to UK offshore wind farms. With regard to the final comment, the paragraph also notes that "For migrating waterbirds and seabirds commuting between nests and foraging areas, inappropriately sited wind farms could result in cumulative effects of concern."
i		No evidence is provided in support of the statement "*Offshore wind farm developments may displace birds from migratory routes but this is unlikely to be significant*".
		The statement is found in Section 5.17 Consideration of alternatives, which is based on the preceding assessment sections. Section 5.6.2.1 indicates that "Speakman et al. (2009) modelled the impact on energy expenditure (and hence fat utilisation) of migrating common scoter, red-throated diver, whooper swan and sandwich tern having to deviate around a single wind farm facility, and found it to be trivial. For most species it would result in depletion of less than 2% of their available fat reserves, even if the birds travelled 30km out of their way to avoid the facility."
j	JNCC/CCW	The ER states an assessment of the cumulative effects of wind farms on birds cannot be conducted due to lack of information, though there is considerable scope for adverse effects – additional development in Liverpool Bay may under certain circumstances have significant effects for

		common scoter (Kaiser *et al.* 2006). The recommendation, to locate offshore wind beyond 12nm/the flexibility to adjust final position of OWFs are important ways to reduce risk, though further strategic assessment is required. Given the unique opportunity that a national energy development plan presents for the early consideration and protection of the UK's natural heritage assets, it is not clear why an analysis based on the existing strategic development zones has not been attempted.
		It is considered that there remain too many uncertainties in terms of the proposed developments, bird responses, impacts on birds, potential mitigation etc to allow a valid cumulative impact assessment to be undertaken.
k	CCW	The conclusion that, "*In the case of piscivorous species such as divers and auks, indirect effects through acoustic disturbance of prey species could be postulated, although such effects are likely to be local and not significant at a population scale*." is premature, especially given the scale of current and future projects. Displacement of prey through the cumulative effect of noisy activities has the potential to effect bird and marine mammal populations and this should be assessed.
		The conclusion was based on the scale of development anticipated within the projected 5 year life span of OESEA2.

2.2.3.3 Marine mammals

a	WDCS	WDCS has identified data gaps as a problem in all previous SEAs, but no cetacean research has been commissioned to fill these. The entire series of SEAs for oil and gas developments have highlighted the lack of information on • cetacean distribution • important areas of habitat for cetaceans • impacts of many developments • the status of most cetacean populations Until further work is carried out on these issues, the SEAs will continue to fail to adequately address cetacean conservation needs and the UK government is therefore not fulfilling its obligation for strict protection of cetaceans.
		In 2009 DECC commissioned a 3 year research project to assess the potential impact of oil and gas operations on cetaceans in the Moray Firth. Numerous marine mammal surveys have also been undertaken in UK waters to inform the SEA process (see the DECC offshore energy SEA website). Recommendation 9 also indicates that "For areas which contain habitats/species listed in the Habitats Directive Annexes, developers should be made aware that a precautionary approach will be taken and some areas may either not be leased/licensed until adequate information is available, or be subject to strict controls on potential activities in the field."
b		With regard to Section 5.3.4, Controls and mitigation, the programme of licensing is not properly defined, and as a consequence, no assessment of what effects will/may be caused by this programme is being carried out. This section needs a more detailed analysis.
		Refer to Section 2.4. Potential impacts may arise from activities undertaken following licensing/leasing (following project level assessment and consent) and control and mitigation measures associated with these activities are discussed in Section 5.3.4.
c		The assessment depends upon the JNCC Seismic Guidance and the use of Marine Mammal Observers (MMOs), but does not provide any evidence that this approach works to mitigate disturbance to marine mammals.

		MMOs do not have the power to stop surveys either during the ramp up procedure or once surveys are underway.
		The assessment assumes that adequate mitigation measures will be required, implemented (including the use of Passive Acoustic Monitoring where appropriate) and reported on. The JNCC guidelines are considered to be an important mechanism to allow animals to move away from sources of loud noise.
d		No Disturbance Guidance equivalent to that of the JNCC exists for Scottish waters, despite seismic surveys being planned there.
		Guidance Notes for Application for a licence for European protected species can be found on the Scottish Government website - http://www.scotland.gov.uk/Resource/Doc/921/0098253.pdf. The ER recommends (Recommendation 23) that DECC and others in Government should encourage the adoption of consistent guidance across the UK on the implementation of Habitats Directive requirements, for example disturbance of European Protected Species (Annex IV species). Defra is working on guidance on Deliberate Disturbance for publication later this year.
e		Concerned that the SEA considers the issue of noise can be dealt with through the Appropriate Assessment process – there are only two SACs specifically for cetaceans, though all cetaceans are required to have strict protection under Article 12 of the EU Habitats Directive.
		Recommendation 9 states that "For areas which contain habitats/species listed in the Habitats Directive Annexes, developers should be made aware that a precautionary approach will be taken and some areas may either not be leased/licensed until adequate information is available, or be subject to strict controls on potential activities in the field. Section 5.3.4 also indicates that a licence may be required for activities (e.g. seismic survey) that could result in injury or disturbance to a marine European Protected Species. The likelihood of an activity resulting in injury or disturbance to a marine EPS will very much depend on the characteristics of the activity, of the environment and the species concerned, hence the need for a case-by-case approach when assessing the risk of it occurring.
f		WDCS do not believe that the project-based Environmental Impact Assessment has been applied robustly enough to assess important issues such as effects of noise where there is considerable uncertainty.
		The views of the consultee are noted. DECC feel that the risk-based approach underpinning the EIA process is sufficiently robust to assess important issues (and with the opportunity for public involvement). Where there is considerable uncertainty, developers are and will be asked to improve the level of information and demonstrate that their activities will not have a significant impact.
g		SEA lists key areas of marine mammal sensitivity in section 5.3.6, but does not highlight: • the areas that are considered important to cetaceans which should not have developments • areas where there is currently insufficient information to make a decision at this stage, and so should be avoided on a precautionary basis • areas where there is sufficient information to propose development pending the outcome of a full Environmental Impact Assessment
		The ER highlights key areas of marine mammal sensitivity. Without project specific information on the location, nature and extent of potential activities, the value of further subdividing these areas is limited. Project-level EIA, AA and EPS disturbance licence (if required) should ensure appropriate consideration of marine mammal sensitivity.
h		The assessment states, "*Despite considerable effort in recent years, notably in relation to wind farm development, the fundamental uncertainty relating to assessment of acoustic effect remains the establishment of*

		meaningful thresholds of significant effect resulting from cumulative exposure. This is due to a combination of the complexity of influential factors, population characteristics of the target species, and conservation and ethical issues associated with direct experimentation; and it is unlikely that substantive progress will be made over the life of this SEA and the potential activities under consideration." This gives the go-ahead for developments despite the fact that effects are unknown and research needs to be undertaken. In terms of 'deliberate' disturbance, how can the assessment allow a development if the level of disturbance cannot be determined? For developments affecting SACs, an AA will be needed which has to show no impact beyond reasonable scientific doubt. This obligation should also be applicable to the SEA, but obviously cannot be fulfilled through this assessment.
		The OESEA2 assesses the implications of DECC's draft plan/programme to enable further licensing/leasing for offshore energy. It does not allow, or otherwise, give consent to a development. The SEA recommends that developers are made aware at the licensing/leasing stage that SAC/SPA designation may, subject to the conclusions of any Habitats Regulations Assessment, preclude development or necessitate suitable mitigation measures so as to avoid adverse effects on a designated site or species. See also responses to 2.2.3.3e and g.
i	RSPB	While the ER appears to include good coverage of the research carried out to date on marine mammals with respect to underwater noise from pile driving turbine foundations, RSPB cannot comment on the conclusion that cumulative noise impacts (injury or behavioural effects) on marine mammals will not be significant or that it is improbable that noise impacts will coincide with marine mammals.
		Noted.
j	JNCC	The assessment falls short of adequately assessing whether the draft plan/programme being considered carries a significant risk of negative impacts to marine mammal populations in UK waters: • The ER should provide a clear steer on how to progress research and monitoring with regard to impacts on marine mammals • The ER should recognise that noise impacts for offshore wind are not restricted to pile driving (e.g. also suction caisson, gravity base, floating, tripod, tetrapod, drilled concrete monopile) • The ER should recommend a noise and economic/geological feasibility study to be undertaken for the above foundation types. Such a study would help to fulfil the requirement of the EPS licence application process – the risk assessment and exploration of alternatives to noisy foundation methods • The biological significance of disturbance effects is difficult to quantity, though impact on favourable conservation status cannot be discounted without a detailed assessment that accounts for the accumulation of disturbance effects and other anthropogenic pressures (e.g. by-catch). It may be appropriate to model the effects of disturbance (e.g. that caused by existing and proposed developments) given these uncertainties, though this is an emerging field. If nothing is done soon, the SCNBs may have to provide more qualitative and precautionary advice to regulators that may be needed.
		The ER recommends that the findings of the MSFD Technical Sub-Group Noise (underwater noise and other forms of energy) are reviewed closely with respect to consenting of relevant activities which may result from the draft plan/programme, as well as other activities which generate noise in the marine environment. Also recommended that the understanding of variations in ambient noise, and other anthropogenic noise sources, must be improved to assess likely effects of additional noise from geophysical survey and construction or operation of marine installations. This could

		include the feasibility study recommended by JNCC. *Progress on integrated physiological/ behavioural/ ecological approaches, e.g.as suggested by NCR (2005) involving "life functions", is slow and it is difficult to envisage a practicable basis for a "detailed assessment" of cumulative disturbance. Deploy and monitor remains the only feasible approach, which implies that we need a robust programme to identify population trends at an early (non-critical) stage.*
k		If the result of the suggested assessment points towards a risk of impact on FCS above a certain piling/noise dose threshold, then the regulator might need to develop a management procedure for establishing the doses of disturbance that could affect the FCS of certain populations and/or control the amount of noise allowed. Such noise dose allowance approach could have links with one of the Marine Strategy Framework Directive indicators being progressed for noise in the marine environment.
		The development of noise dose thresholds to assess and manage activities generating noise will be informed by the ongoing MSFD process to develop noise indicators. Reporting on this process, Tasker et al. (2010)[6] indicated that such noise criteria were based on very limited data with respect to noise induced injury and identified a series of research needs. DECC will facilitate addressing these research needs where possible but it is likely that the management of relevant noise-generating activities will require a coordinated approach across different industries and activities.
l		Although Section 5.3, Noise, is very well-researched, it rejects the notion that "*either regional or local prohibitions on the activities under consideration by this SEA are justified by acoustic disturbance considerations*". Given that "*it is likely that multiple sources (including simultaneous surveys and pile-driving) will occur at the same time, and that both activities may extend throughout much of the year, and be audible to marine mammals over much of the coastal Regional Seas*", we cannot concur that "*it seems improbable (…) that injurious or severe behavioural levels of effect will coincide*." We have not seen the evidence to justify such a conclusion, or indeed that cumulative effects of successive noisy activities in an area will need to be considered, so would ask that the Post-Adoption Statement be amended accordingly.
		The SEA conclusion and recommendation is that there is no objective basis to restrict or avoid licensing/leasing ["prohibitions"] – adequate control and mitigation processes are in place, as clearly noted by the context of the cited conclusion. In addition, the SEA makes a strong recommendation in relation to cumulative noise dose.
m		Assume that the quoted <50 m threshold for injury or severe behavioural disturbance to marine mammals from seismic/piling noise refers only to impacts from a single impulse. This is not explicitly stated, and it should be clarified that this does not include cumulative effects for activities where multiple noise pulses are released.
		Assume this refers to first conclusion point: "Although quantitative observational data on injury and severe behavioural responses resulting from seismic and pile-driving sources are very sparse, such data as do exist indicate that responses are not predicted except in the immediate vicinity (<50m) of the source." Table 5.1 (immediately preceding) refers to single

[6] Tasker ML, Amundin M, Andre M, Hawkins A, Lang W, Merck T, Scholik-Schlomer A, Teilmann J, Thomsen F, Werner S & Zakharia M (2010). Marine Strategy Framework Directive Task Group 11 Report Underwater noise and other forms of energy. JRC Scientific and Technical Reports, 64pp.

		and multiple pulse criteria from Southall et al. (2007). It is noted that higher effects ranges are stated in Table 5.1 for pinnipeds assuming shallow water propagation conditions
n		A useful quantitative indicator of a disturbance response of harbour porpoise to pile-driving is that coming from studies in Horns Rev II where the furthest distance to a piling event where a reduction in porpoise detections was recorded had an associated Sound Exposure Level of around 144 dB re:1µPa2-s (M-weighted).
		Noted. The Horns Rev II studies were referenced in Section 5.3.2.1.
o		It is stated that, "*These precautionary considerations, although necessary and justified for regulatory purposes, should be viewed in the context of a lack of observed effect of seismic surveys and offshore construction activity worldwide over the last fifty years, during which there has been no conclusive evidence of significant effect on marine mammal populations*." JNCC are not aware that any studies that could provide conclusive evidence either way.
		It is recognised that there have been no sufficiently robust, quantitative studies to provide conclusive evidence either way; however, it is also noted in the SEA (immediately following cited statement) that in relation to other acoustic effects sources (notably military sonars), significant mortality was clearly detected within substantially less than 50 years.
p		..."*the spatial scales over which injury and severe behavioural effects are likely to result do not support significant groups of animals*" seems quite a broad statement. Although this may be true at any one point in time for a particular survey, seismic operations are mobile as are groups of animals, thus increasing the potential scope for overlap. It may be worth noting here that, under The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland) Section 39(2), the disturbance of any dolphin, porpoise or whale is an offence in Scottish Territorial Waters.
		The purpose of SEA is to reach broad (strategic) conclusions. It is accepted that distribution of some cetacean species (and pinniped at coastal locations) is aggregated and this is reflected in the SEA wording. EPS licensing is detailed in Section 5.3.4.
q		Do not agree that, "*On the basis of the available data, it is therefore not considered that either regional or local prohibitions on the activities under consideration by this SEA are justified by acoustic disturbance considerations."* SNH point out that in their response to the OESEA, they highlighted that there may be areas within Scottish territorial waters in which the prohibition of seismic exploration activity is warranted because of the risk to important marine wildlife. It should also be noted, especially at project-level, that The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland) describe an additional offence in relation to cetaceans and may result in different conclusions drawn about activities considered as "reckless".
		To impose regional or local prohibitions on the activities under consideration due to acoustic disturbance considerations at a strategic level would not be necessary or justified, given the existence of the AA, EIA and PON14 processes which allow the assessment of local impacts in more depth. This conclusion is dependent upon activities resulting from the draft plan/programme adhering to the regulatory controls already in place; additional controls through such prohibitions are considered unjustified at this stage in the planning process. The SEA also makes specific recommendations on key areas of marine mammal sensitivity, of which eight are in Scottish waters.
r		The Southall *et al.* (2007) criteria for injury are given as zero-peak and not as peak to peak as stated in the SEA report.
		Noted and accepted - Southall et al terminology is peak (meaning zero-

		peak). P-P source levels are about 6dB higher than zero-peak levels (Richardson et al. 1995), so the ranges summarised in Table 5.1 are in fact conservative.
s		Marine mammals in the Annex II of the Habitats Directive are the following: grey seal, harbour seal, harbour porpoise and bottlenose dolphins. All cetaceans are in Annex IV, and seals are additionally in Annex V.
		Noted.
t		Research undertaken on the Egmond aan Zee offshore wind farm provides a reference for the effects of pile driving on seals. During the construction period seals did not approach within 40km of the wind farm. Before and after construction seals were recorded within the windfarm area
		Noted. The ER makes reference to research by Edren et al. (2004) at Nysted wind farm which found a 10–60% decrease in the number of hauled-out harbour seals on a sandbank 10km away from the construction during days of pile-driving activity compared to days with no pile-driving. However, this effect was of short duration, since the overall number of seals remained the same during the whole construction phase.
u		Please replace reference "JNCC (2008). The deliberate disturbance of marine European protected species. Report, 84pp", with "JNCC, NE and CCW (October 2010). The protection of marine European Protected Species from injury and disturbance. Draft Guidance for the marine area in England and Wales and the UK offshore marine area. 78pp."
		Noted.
v	WAG	Pleased to see that the collision risk reports, commissioned to fill data gaps under Stage 2 of our MRESF have been included in the SEA's assessment. All of the reports are available for download on our project specific website at http://mresf.rpsgroup.com.
		Noted.

2.2.3.4 Fish

a	EA	Question whether EMF effects on fish will have a "*neutral*" effect on alternatives 2 and 3, or that not enough is known about the potential impact on migratory salmonids to make such a conclusion. It is thought that salmonids use the earth's magnetic field to migrate, and EMF could potentially be negative if an offshore wind farm is sited near where salmon and/or sea trout from a number of rivers congregate or pass through during migration. EMF could also have an effect on other migratory species such as eels. It is thought that the earth's magnetic field is more important for fish migration further away from the shore, although more research is needed to confirm this. Recommend the EMF effects on fish should mark Alternatives 2 and 3 as having a "*potential negative impact on topic*".
		Accepted given the current lack of definitive information with regard EMF effects.
b	RSPB	The ER does not adequately deal with the potential significant effects of pile driving on fish species (i.e. prey species for birds). The ER mentions generic mitigation for noise impacts, but it was not clear that such mitigation was considered obligatory.
		Section 5.3.2.2 describes the potential impact of pile driving on a variety of fish species. For example, a recent COWRIE study (Mueller-Blenkle et al. 2010) implied a relatively large zone of behavioural response to pile-driving sounds in marine fish, although noted that it was difficult to explain the nature and biological significance of the responses. Many responses observed suggested avoidance reactions, although it was noted that in a wild marine environment a wider demographic of animals would be present, and there would be other ecological drivers (e.g. food, reproduction) at play, both of which will influence the nature of reactions.

c		While a task group is recommended to further consider the issue and potential impacts, this is not 'mitigation'.
		No task group is mentioned in Section 5.3.4 Controls and mitigation. The SEA recognised the ongoing MSFD Technical Sub-Group Noise work to determine criteria for an indicator relating to high amplitude, low and mid-frequency impulsive anthropogenic sounds including those from pile driving, seismic surveys and some sonar systems. It recommended that the findings of this Task Group are reviewed closely with respect to consenting of relevant activities which may result from the draft plan/programme, as well as other activities which generate noise in the marine environment.

2.2.3.5 Conservation sites and species

a	WDCS	The assessment makes several references to the results of previous SEAs and relies on taking them forward, but it makes no reference to the criticisms made by WDCS and others to previous SEAs.
		The assessment process has evolved since it started in 1999 and builds on previous assessments, surveys, technical reports and comments provided by stakeholders. The post consultation documents produced following stakeholder consultation provide responses to stakeholder comments both positive and negative and every effort is made to take forward constructive stakeholder comments.
b		Further consideration needs to be given to: • the MCZ Project's FOCI and Scotland's PMF's, along with other marine protection measures, should be considered in a post-adoption statement as part of addressing implications of existing environmental issues for the OESEA2 • devolved administration publications including: blue seas - Green Energy Scottish Territorial Waters Wind Plan, the Demonstration rounds and the Survey, Deploy and Monitor Policy for marine renewables in Scotland
		Noted. Scotland's draft list of Priority Marine Features is referred to as a relevant initiative in Appendix 3a.1.1 as is the MCZ project including details of FOCI. Blue Seas - Green Energy was published after the OESEA2 and hence is not directly referenced however the draft plan and SEA were heavily referenced within the ER.
c	CCW	It should be clear in the spatial considerations that, although designation of an area as a Natura 2000 site does not preclude development, projects would not be permitted unless significant adverse effects on the integrity of the site can be eliminated or, having discounted any alternatives, there are overriding reasons of public interest for the project to proceed.
		Accepted.

2.2.3.6 Landscape/seascape

a	JNCC	The OESEA2 recommends renewable energy development to be located beyond 12nm, however it is likely there will continue to be developments sited within 12nm of Scottish waters for the short and medium term.
		The SEA notes that the environmental sensitivity of coastal areas is not uniform, and in certain cases new offshore wind farm projects may be acceptable closer to the coast. DECC is not the regulatory authority within Scottish territorial waters but as with other developments, detailed site-specific information gathering and stakeholder consultation is required before the acceptability of further wind farm projects close to the coast can be assessed.
b		Areas for wet renewables are predominately within 12nm. It is requested that further consideration is given to the effects on seascape and landscape as well as amenity, particularly visual impacts.

		Section 5.8 provides a consideration of the effects on seascape and landscape of wet renewables which is deemed appropriate to the current level of development of the industry.
c		The cumulative impacts of wet renewables in relation to landscape/seascape are of concern, as with offshore wind. Both should be assessed in relation to impacts with onshore renewable developments and in combination with other marine developments, for example aquaculture, oil and gas infrastructure. There is a need to be aware of cross-boundary issues in relation to strategic cumulative assessments.
		DECC believe that the assessment provided in Section 5.8.3 provides an appropriate level of detail on potential cumulative impacts of wet renewables and offshore wind, given the current level of development of the wet renewables industry.
d		SNH's "Cumulative Effect of Windfarms" (2005, under review) stresses that "*the whole of a region, straddling more than one planning authority, or that of a natural heritage management unit such as a National Park or Firth Partnership area*" needs to be considered. This is especially relevant for marine renewables, where national borders and administrative boundaries frequently cut through coastal areas and firths. Offshore developments have the potential to visually, and therefore cumulatively, link a much wider area of on-shore developments than is currently experienced due to on-shore renewables alone.
		Noted.
e		New installations should respect their surroundings so that the visual patterns and scale of wind and marine renewables relate to the design and balance of existing development. For example, where developments are situated across an outer firth or estuary, consideration should be given to their grouping and mass, taking into account their visual scale within the surrounding seascape/landscape and their backdrop. It is also essential to look at the cumulative design of developments as seen from key views that are assessed as having a high sensitivity.
		Noted. These are tenets of existing guidance on seascape and visual impact assessment. DECC are aware of the forthcoming draft guidance on seascape character assessment which will update the present guidance in this area.
f		Scottish Planning Policy (SPP) 2010 states, "*The special characteristics of the isolated coast should be protected, and there is a presumption against development in these areas"*. Of 40 National Scenic Areas (covering 12.7% of Scotland), 27 include coastal landscapes and seascapes where experience of the sea is an essential quality. It should be noted that the following pieces of work will shortly be available:- • Landscape Character Assessment Guidance for England, Scotland and Wales. Consultation expected late May 2011 • Seascape Character Assessment Guidance for Great Britain. Consultation expected late May 2011 • Seascape Character Assessment Around the English Coast Phase 1 trial (Marine Plan Areas 3 and 4 and the western section of Area 6) has also been completed
		Noted.

2.2.3.7 Coastal and terrestrial infrastructure

a	EA	Box 5.1 should be expanded to include effects of accidental damage and disruptions to flood defences during construction and operation in near shore areas, where there is potential to damage or disrupt defences.
		Noted. This potential effect is probably most likely with respect to tidal range developments which by their nature are situated in near shore areas.

		The potential impact of these devices on coastal flooding is described in Section 5.4.2.2.
b		Table 5.17.3 on geology and soils should be expanded to consider the impacts (including cumulative impacts) of offshore and associated onshore development on flood and coastal erosion risk. Any loss of salt marsh habitat or change in sedimentation regimes could result in additional pressure being placed on flood defence infrastructure.
		Noted. In Table 5.17.3, the consultee comment is partly covered by "Changes to sedimentation regime and associated physical effects" with relevant information on effects on flooding in Sections 5.4.2.2 and 5.5.2.
c		Recommend 5.17.5 on the water environment be expanded to include an objective on assessing and managing coastal erosion and flood risk. EA recommend that the impacts of flood risk to, and resulting from, proposals for offshore development, and associated onshore ancillary infrastructure, are fully considered. For example, booster stations for CO_2 transportation could be resilient to flooding and wherever possible areas at risk from flooding could be avoided altogether. EA recommend that consideration is given to how critical these facilities are and whether they need to remain operational during times of flood events, and the consequences (to human health/environment) of facilities not working during a flood event.
		The consultee recommendations are noted. Given the lack of detailed information on the nature/extent/location of potential onshore ancillary infrastructure with respect to areas vulnerable to flooding at the strategic level, consideration at the project level is more appropriate.
d		EA recommend that a detailed flood and coastal erosion risk assessment is carried out in estuaries and embayments which could include the implications that offshore and related onshore development will have on flood and coastal erosion risk management activities, including defences.
		Agree that detailed flood and coastal erosion risk assessment is appropriate when more detail on the location of relevant development is available e.g. at the project level or in the case of the Severn Tidal Power Feasibility Study, where a number of specific development options are being considered for an estuary or embayment. Furthermore, a consideration of the potential impacts from, and on, marine and coastal developments by marine planning authorities (e.g. the MMO) is outlined in the UK Marine Policy Statement, and will be considered further in Marine Plans.
e		The environmental effects of offshore activities and related on-shore development could be assessed and the impacts fully considered, such as grid connections, cables and other supporting infrastructure. Assessment of the potential for shoreline impacts of offshore and related onshore development is important, including the risks to shoreline species and habitats, water quality, flood and coastal erosion risk management systems and sustainable access to water based recreation. For instance, ancillary development which is either onshore or which crosses the coast from marine to terrestrial locations, may have an effect on sedimentary processes closer to shore, and could therefore cause or exacerbate flood or coastal erosion risks. Ancillary development could also have impacts on the coast during installation, operation and decommissioning stages and post decommissioning if structures are left in place. Recommend Section 5.17.9 on Other users and material assets, includes the potential impacts of onshore ancillary works.
		Noted. The potential impacts of onshore ancillary works are described in Section 5.14.
f	RSPB	Consider section 5.14, *Ancillary development,* provides scant consideration of the impacts of port development related to R3 offshore wind. For example it lacks consideration of the in-combination effects with offshore wind, wave, tidal, etc.

		Further relevant information is also presented in Appendix 3h2.1.3. The ER notes in Section 5.14 that the influence of wave and tidal development within the scope of OESEA2 on port and manufacturing facilities development will be comparable in nature, but considerably smaller in scale, than that associated with offshore wind. For port development, the existing planning and regulatory framework, including the EIA (and potentially SEA) process, will consider the cumulative considerations in detail to ensure appropriate management of any potentially significant effects.
g	JNCC	Do not agree that the impacts of ancillary development in the coastal environment are generally well understood. Existing planning procedures and regulatory controls, including project-specific EIA and HRA, should be shaped by the OESEA2 conclusions, rather than treated as independent mechanisms for managing potentially significant environmental effects.
		In future the Marine Management Organisation and the Marine Policy Statement will be key factors in the management and regulation of potential impacts in the coastal environment. DECC anticipate that the findings and conclusions of the OESEA2 will help inform the developing marine plans. A final set of energy National Policy Statements were laid before Parliament for approval on 23 June 2011. These set out the Government's policy for delivery of major energy infrastructure. Relevant statements for coastal ancillary development include gas supply infrastructure and gas and oil pipelines (EN-4), and the electricity transmission and distribution network (EN-5).
h		The Environmental Report states that a high degree of coordination and cooperation for devolved energy development matters is required for ancillary developments that take place in offshore waters traversing territorial waters. Stress the continued need for close communication between the different administrations and The Crown Estate to maintain transparency and consistency in marine spatial planning. This is particularly true for proposals for an offshore grid network, as well as interconnecting and onshore infrastructure and port facilities.
		Noted. DECC will continue to work closely with TCE, MMO, NG and others.
i	CCW	Do not agree with the suggestion that "*although the amount of cabling required to support the expanding development of OWF sites will increase significantly, the potential effects are temporary and localised*". The ER recognises the substantial impact of landfall and the Offshore Development Information Statement indicates the possibility of significant new grid infrastructure in parts of north west and west Wales. Significant parts of intertidal and subtidal areas in west Wales are designated as SAC or SSSI and this may have implications for grid connection plans.
		Noted, and grid connections proposals will require assessment in this context.

2.2.3.8 Geology and geomorphology

a	CCSA	The CCS Directive sets out criteria to ensure suitable selection of safe geological storage and to minimise the risk of leakage and that only suitable sites will be licensed.
		Noted. Attention is also drawn to the European Commission guidance documents to support the implementation of the CCS Directive (http://ec.europa.eu/clima/policies/lowcarbon/ccs_implementation_en.htm).
b		15.3.2.1: it is stated that it is impossible to quantify with any confidence the likelihood of accidental release of CO_2. This is contradicted by reference to a report by DNV (Risk analysis of the geological sequestration of carbon dioxide, 2003) which estimates the leakage potential. The confidence and knowledge regarding storage sites is now more advanced that at the time

		this report was published. The DNV report states that the view of a "panel of experts" is that the average quantity released would be a small fraction (less than 2.4% of the amount sequestered). This is highly misleading as there is currently no established correlation between the amount of carbon sequestered and the size of any potential leak and no reliable methodology for predicting what proportion of a store could leak. We would ask that these limitations on the modelling are explained.
		It is explained in the section referred to that, inter alia, the DNV report findings, "...[took] account of the very large uncertainties in the risk estimates", and, "...the estimates were all very speculative, and that the methodology attracted the support of only a minority of the experts that were consulted."
c		The risk of leakage reduces over time through a combination of CO_2 migration and trapping under cap rock, residual storage in rock pore spaces, dissolution storage in surrounding brines and mineral storage by CO_2 chemically binding to the rocks – these physical/chemical processes that ensure the security of CO_2 storage increase over time should be acknowledged.
		Noted.
d		5.16.11: welcome the statement that DECC and The Crown Estate should coordinate licensing and leasing decisions, to facilitate and promote the coexistence of uses where practicable, to minimise potential conflicts and industrial land take of the sea, and the inadvertent "sterilisation" of areas. CCSA would welcome the opportunity to input into how to make this an effective process.
		Noted.
e		In relation to noise, there is already extensive mapping and knowledge of existing oil and gas wells that will inform CCS storage decisions and reduce the need for additional seismic surveys
		Noted, although periodic resurvey by seismic may be needed as a method of systematic monitoring of storage sites.
f	RSPB	The ER concludes physical disturbance on a strategic scale is likely to be remote. RSPB do not agree with this in respect to tidal range schemes.
		Section 5.4.5 Summary of findings and recommendations states "Physical disturbance associated with activities resulting from proposed oil and gas licensing and OWF, wave and tidal stream leasing will be negligible in scale relative to natural disturbance and the effects of demersal fishing. The potential for significant effects, in terms of regional distribution of features and habitats, or population viability and conservation status of benthic species, is considered to be low. The potential impacts of tidal range schemes however, could be very significant with the potential loss of large areas of inter-tidal habitats and salt marshes as a result of a change in water levels and sediment transport within an estuary or river channel."
g	CCW	The potential for "*changes to sedimentation regime and associated physical effects*" from offshore wind farm development is excluded (Section 5.4.1). Consider that there is significant potential for such an effect, particularly where gravity based foundations are deployed.
		Noted. The potential impact of OWF foundations on sediment regime and associated effects is described in Section 5.4.2.1 (e.g. Table 5.2).

2.2.3.9 Cultural heritage

a	HS	Welcome that the comments we provided on the Scoping Report in April 2010 have been taken into account during the preparation of the Environmental Report. It is clear that a great amount of effort has gone into the preparation of the assessment and HS is content to agree with its findings in relation to our historic environment interests. As no strategic

		level controls have been identified for the historic environment, the onus of specific impact identification and mitigation is handed down to lower level assessments. HS is content to agree with this approach.
		Noted.

2.2.3.10 Other users and material assets

Shipping		
a	CoS	The development of Offshore Renewable Energy Installations (OREI) should not be detrimental to navigational safety or the economic and environmental performance of the shipping industry, and this should be placed at the forefront of leasing, planning and development processes.
		Noted.
b		Open and transparent dialogue between OREI developers, the Crown Estate and navigational stakeholders should be encouraged in order to reduce the potential for conflict.
		Noted.
c		Early identification of navigational activities in a given area should be highly desirable for developers in order to avoid costly site redesign during the latter stages of the application process.
		Noted. Sections 5.7/5.15 and Appendix 3h provide a strategic overview of areas of shipping use/primary navigation routes. Moreover, the assessment considers the contents of inter alia Marine Guidance Note 371, for instance that an ES should consider, "...whether any features of the OREI, including auxiliary platforms outside the main generator site, mooring and anchoring systems, inter-device and export cabling, could pose any type of difficulty or danger to vessels underway, performing normal operations, including fishing, or anchoring."
d		In future leasing rounds, the Crown Estate should seek to engage with navigational stakeholders prior to finalising lease areas and awarding development rights.
		Noted.
e		Marine Scotland's report ,"*Economic Assessment of Short Term Options for Offshore Wind Energy in Scottish Territorial Waters: Costs and Benefits to Other Marine Users and Interests*" should be used as a point of reference for the type of analysis that can provide a clearer indication of potential economic impacts facing the shipping industry. CoS recommend that similar analysis is undertaken on a UK-wide basis. Analysis of economic impacts should, as a minimum, cover: • Increased steaming distance/time • Potential long-term loss of revenue • Reduction of scope for shipping lane expansion to increase trade/supply opportunities • Loss of jobs and reduction of opportunities for job creation. Analysis of the following issues should be required: • Changes to existing navigational arrangements requiring additional buoyage • Interference with marine navigation radar systems • Displacement of recreational craft into commercial shipping lanes • Increased collision risk at sea; and Displacement of anchorages/fouling of anchors on cables.
		Noted.
f		In order to mitigate shipping impacts, major navigational routes should be mapped using AIS and radar data ahead of proposing any area for OREI

		development. Analysis should seek to take account of seasonal variations in traffic densities and developers should seek to avoid proposing sites in areas that coincide with major shipping lanes.
		Noted. At the strategic level, OESEA2 has attempted to document major shipping routes through an analysis of AIS data (see Section A3h.2.1.2) for four periods during 2008, and shipping displacement resulting from wind farm installation (Section 5.7.2.3) has also be considered using AIS data.
g		The MCA's Marine Guidance Notice (MGN) 371 should be used to determine safe clearance between site boundaries and lanes.
		Noted, MGN 371 was referenced in the ER with respect to navigational risk assessment (Section 5.7.2.1) and spatial constraints mapping (Section 5.15.2).
h		The Report's definitions of the primary navigation network and Primary Navigation Routes are unsatisfactory and require further clarification (see sections 5.15.2 and 5.7.4). It is recommended that the following be considered as elements of the primary navigation network: • Approaches and routes to and from UK ports (direct access) serving key import/export corridors for UK PLC (we consider a key route to be where 90 percentile of commercial shipping movement takes place) • Bad weather routes and alteration points • Anchorage areas and drifting grounds • Internationally agreed routeing measures, traffic separation schemes and areas defined in Mariners Routing Guide for safe navigation around the UK coast • proximity of other OWF developments • the need to expand major navigational routes in the future • the possibility of future offshore renewable leasing rounds
		Noted. The SEA recommends "Precision on the offshore distribution of navigation to allow the identification and maintenance of priority navigation routes (good quality AIS data coverage typically only extends 50km from shore)." Port approaches should be covered by the hard constraint, "Primary Navigation Routes 1 (PNR1) with 1nm buffer (derived from MCA 'siting not recommended' areas (draft and unpublished "OREI 1" primary navigation routes) and OESEA AIS data analysis)" due to the volume of traffic in these areas, and IMO vessel routeing measures are certainly a hard constraint for offshore development. Any impact on more localised areas including anchorages and refuge areas are more appropriately considered at the project level, though these have been highlighted in Appendix 3h of the OESEA.
i		There appears to be a suggestion within the Report that vessels will adjust their routes in accordance with the development of OREI sites. While the AIS data suggests that this may be the case, successive re-routing measures/cumulative impacts are likely to be required if the extent of future OREI developments is realised. Such a reduction in navigational space can have a particular impact on vessels' ability to re-route in bad weather, significantly increasing the risks posed to crew and passengers in such scenarios.
		Noted. The SEA recognises the issue and recommends that "identified priority navigation routes are treated as "Clearways" in the siting and consenting of marine developments. These "Clearways" require agreement for all UK waters as well as international coordination for transboundary routes since there are wind farm and other development proposals in the waters of adjacent states."
j		Traffic Separation Schemes (TSS) can help to maintain navigational safety at "pinch points" though should not be over deployed in an attempt to mitigate the effects of large-scale OREI development. OREIs should be sited and designed in such a way that there is little need for a TSS to be

		considered as a necessary mitigation measure. The need for unconstrained navigational routes is highlighted in Section 5.15.1 and this principle should be adhered to.
		Noted.
Fishing		
k	NFFO	Not clear how stakeholder inputs into siting and mitigation decisions are to be made – no mention of a process through which economic and social factors are to be considered.
		The SEA provides a route for stakeholders to input to strategic level decisions on areas for potential development. Stakeholder input during the project level EIA process when the proposed nature, extent and location of a project are better defined will allow input to siting and mitigation decisions as well as offering a route for local economic and social factors to be considered. Fishing sector issues are addressed at a strategic level by the Fishing Liaison with Offshore Wind and Wet Renewables (FLOWW) Group. This group comprises offshore developers, government and fishing industry representatives from across the UK. It produced "Best Practice Guidelines for Fishing Liaison" in 2007, which are currently being updated.
l		Though co-location is mentioned with regards to MCZs, the process of designation is almost over and therefore mechanisms for co-location may come too late.
		Noted. Mechanisms of co-location will be explored as part of the ongoing marine plan making process. Section 5.15.3 indicates that "The Marine Policy Statement (MPS) and the Marine Plans currently being developed will give coastal regulators and communities further opportunities to have a say in the way the marine environment is managed, in addition to the existing routes for consultation as part of the development consent process."
m		NFFO disputes that sufficient mitigation of displacement may come from other factors (e.g. reefs). The role assigned to reefs in mitigating the impact of windfarms would appear to be over optimistic. The spillover effects are not quantified and the lack of a planned network is likely to minimise any positive effects that they may have.
		Noted. The ER indicates (Section 5.7.2.2) that a "reef effect" has been noted for offshore wind farms (for example at Barrow) and was the subject of a RAG commissioned study (Linley et al. 2008); although this is unlikely to be significant at a strategic level, in view of the limited spatial area affected by habitat alteration."
n		SEA notes that there is a potential issue with MCZs, though fails to account for the cumulative effect of MCZs with windfarm footprints, and no provision has been made for additional research in this area. Impact on Inshore fishermen is already considerable and will only increase.
		Noted. The ER makes a number of recommendations for additional research relevant to this topic including "h) Finer scale distribution of fishing effort, gears and catches for smaller vessels (<15m)," and j) Effects (both short and longer term) on fishing activity in and immediately adjacent to constructed wind farms." See also research described in Appendix 3h.13.2.2 under the heading Spatial planning.
o		The footprint of the demersal fleet is overestimated. Its size has halved since 2000, as have its activities by a comparable amount.
		Noted. The data used for OESEA2 came from the analysis carried out for OESEA in 2009 with updates where relevant (see Appendix 3h13). The data was obtained largely from the Marine and Fisheries Agency (MFA) (now replaced by the MMO), who collected Vessel Monitoring System (VMS) data and carried out aerial surveillance of fishing activity (along with the Scottish Fisheries Protection Agency (SFPA)) and the UK Sea Fisheries Statistics Unit, who collected landings and logbook data.

Other comments		
p	EA	Recommend revisions to the Waste Framework Directive (2008) are taken into account within the SEA. The objectives of the Waste Framework Directive include protecting human health and the environment, which includes the flora and fauna of the sea. If any waste is brought back to land, then the SEA could recommend that the plan specifies that this is dealt with in line with the Waste Hierarchy as set out under the Directive, rather than "*disposed of appropriately*". The Hierarchy requires first prevention, then preparing for reuse, then recycling, then recovery for use and finally disposal.
		Noted. The Directive on Waste (2006/12/EC) and Revised Directive on Waste 2008/98/EC (2008) are listed in Appendix 4.9 as relevant initiatives. They were described more fully in Appendix 4.2 of OESEA with respect to their relevance to the SEA.
q		Recommend that the alternatives are reassessed to establish the degree to which they would enable the management of waste from offshore and onshore facilities in line with the Waste Framework Directive.
		Noted. Partly covered in Section 5.17.9 by the assessment of alternatives against the guide phrase - Properties and quantities of waste and litter resulting from plan activities do not cause harm to the coastal and marine environment. This will be reviewed for future SEAs.
r	TEL	Considers the socio-economic impacts of employment generation is a material consideration and that this should be included in the assessment.
		Noted, though the objective of the SEA is foremost to provide for environmental assessment and protection. Socio-economic considerations are not an explicit requirement of the SEA Regulations, but they have been considered in Appendix 3h of OESEA2 (as was done in the 2009 OESEA).
s	CCSA	There is uncertainty as to whether The Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations 2005 regulations apply to aquifer discharges that may result from CO_2 storage in saline aquifers. CCSA hope that the proposed permitting mechanism to cover aquifer discharges is proportionate to the risk and their potential harm, and we would welcome the opportunity to inform their development.
		The Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations 2005 (as amended) have been applied to the CCS regime, but are only relevant if any discharge relating to the storage operations contains "oil". If no "oil" is present in the water to be discharged, the EIA process would identify the potential environmental impact of aquifer discharges and whether that impact needs to be mitigated by limits imposed on the discharge. Any appropriate conditions are likely to be incorporated into the storage licence or storage permit.
t		CCSA believe the Lake Nyos natural disaster is an extremely unhelpful and misleading example of the potential impact of a CO_2 leak from a storage site. It is physically impossible for all of the CO_2 to leak from a storage site/rapidly be released. Permitting and monitoring as per the EU CCS (2009/31/EC) Directive would not allow for the use of storage sites which may lose containment. Monitoring of pipeline transport would take place, and the volume of transported CO_2 would be many times less than the Lake Nyos incident.
		Noted. The Lake Nyos natural incident was only used as a reference to the potential effects of a very large release of CO_2. The same paragraph highlights that "Monitoring evidence from the North Sea Sleipner project suggests that all the gas injected into the formation has remained in situ, spreading throughout the formation (currently covering about 3km^2 of the 26,000km^2 available), with no leakage to the surface."
u		The economic and energy security benefits from Enhanced Hydrocarbon Recovery by deployment of CCS should be explicitly acknowledged.

		Noted.

2.2.3.11 Transboundary effects and international considerations

a	RSPB	The SEA Directive requires consultation with environmental authorities in other countries where significant environmental impacts may be experienced. Development of Dogger Bank would be likely to have some significant effects on German and Dutch waters, but the ER suggests these are not significant. Consequently it is unclear whether consultations with other countries have taken place, and if they have, what the outcomes are.
		Potential significant effects on adjacent states will be further considered as appropriate as part of the consenting process. Adjacent member states have been notified of the start of consultation on the Environmental Report directly and also through OSPAR mechanisms. The Infrastructure Planning Commission has published recent guidance on transboundary issues.
b		RSPB question the assumption that transboundary issues are not significant, as there are many discussions taking place under various forums regarding the wider Dogger Bank with respect to not only wind farms, but nature conservation protection (under the EU Birds and Habitats Directives) and fisheries. These multinational discussions have not reached any decisive conclusions to date on how the wider Dogger Bank should be managed sustainably.
		Noted.

2.2.3.12 Atmospheric emissions and climatic factors

a	EA	Alternatives 2 and 3 are recorded as having a "*potential minor positive impact*" on "*reduction in net greenhouse gas emissions*". Suggest the report is clarified to specify that this is only correct for oil/gas exploration where Carbon Capture and Storage (CCS) is viable, and not where the technology is not yet available.
		Noted, although CCS (in the lifetime of this SEA at least) is likely to be associated with coal and perhaps gas fuelled power generation. The minor positive impact reflects the UK Government CO_2 reduction commitments, and the contribution that the CCS and renewables elements of the plan/programme can make towards this.
b		While maximisation of domestic fossil fuel reserves is important for maintaining a secure supply of energy, it is unclear how this is a "*solution for low carbon energy production*" – page 374.
		The Low Carbon Transition Plan (2009) outlines how the UK will meet the 2020 34% emission reduction. A key element in the delivery of these targets is to secure energy supplies by ensuring a supportive climate for the substantial new investment needed to bring forward low carbon infrastructure, and to maximise the economic production of offshore oil and gas to help secure the continued fossil fuel supplies required during the transition.
c	GP	The NTS understates impact of CO_2 from extraction and use of oil on the global climate.
		The views of the consultee are noted. The implications of the ultimate use of oil and gas production from UKCS for greenhouse gas emissions and on UK commitments e.g. under the Kyoto Protocol are not considered here; these are subjects for different high level policies, fora and initiatives including UK energy policy, security of supply considerations, emissions trading etc.

2.2.3.13 Cumulative effects

a	EA	OESEA2 could be considered within a wider policy context. Links can be made to the National Policy Statements, Marine Policy Statement and their Appraisals of Sustainability, emerging Marine Plans and Shoreline Management Plans. Cumulative impacts could be considered in the light of all these potential future developments.
		Refer to Section 2 and Appendices 3 and 4 of ER. The Government published its finalised Energy National Policy Statements (NPSs) in June 2011 in order for them to be debated in Parliament.
b		Particular regard could be made to the potential cumulative effects of clusters of offshore licensed activities as well as associated onshore ancillary development.
		Noted. Without details of the nature, extent and location of activities likely to be undertaken following licensing, it is very difficult to undertake the analysis recommended by the consultee at a strategic level. Recommendation 5 indicates that "In areas of prospective interest to multiple energy technologies (including renewable energies, hydrocarbon production, and hydrocarbon and carbon dioxide gas storage) DECC and The Crown Estate should coordinate licensing and leasing decisions, to facilitate and promote the coexistence of uses where practicable, to minimise potential conflicts and industrial land take of the sea, and the inadvertent "sterilisation" of areas."
c	JNCC	The difficulties in analysing cumulative effects (particularly for birds) mean that these have not been incorporated into the spatial analysis. Cumulative effects are a significant consenting issue and methods will need to be developed to take account of this in planning strategically for offshore energy.
		Noted.
d		By dismissing cumulative impacts of the "*likely demonstrator scale of this development over the lifetime of the SEA (3-5 years)*", an important opportunity to manage expectations about larger marine arrays that are to follow has been missed.
		The deploy and monitor approach recommended by the SEA would help to provide information with which to assess the potential impacts of larger scale arrays at a later date.
e	JNCC/CCW	There is considerable scope for the effects of offshore wind plans/programmes to act in combination. The capacity of certain areas to accommodate further development would benefit from further assessment before decisions about individual developments are made.
		Noted.

2.2.4 Consideration of alternatives

a	NFFO	Pleased to note Alternative 3 has been recommended as it recognises the requirements of the government's energy policy and also seeks to set temporal and spatial restrictions on development. The fishing industry is pleased to note that important fishing grounds should not be consented for development, but experience to date with Round 3 (particularly for the Dogger Bank) has not been very positive.
		Noted.
b	TCE	The chosen alternative would be clearer if the following wording is adopted: "*To restrict the areas offered for leasing and licensing temporally or spatially unless detailed technical and environmental investigations prove that such restriction is not warranted*"
		Noted. As members of the SEA Steering Group, The Crown Estate had opportunity to feed into the development of SEA alternatives at an early

		stage. The comment will be noted for future iterations of the OESEA.
c	CoS	Although alternative 3 may still have a potential negative impact on shipping activities, the impacts would most likely be reduced from those observed under alternative 2, where temporal and spatial restrictions are not enforced. Section 5.17.9 clearly supports this suggestion, and therefore the enforcement of temporal and spatial restrictions on OREI developments should be considered as an option in any future leasing/licensing rounds.
		Noted.
d	WDCS	It is stated that spatial and temporal restrictions "*may allow a precautionary approach to be taken*". As the assessment does not specify what these restrictions may be, it is impossible to assess if they are acceptable.
		Refers to the area offered being restricted spatially through the exclusion of certain areas together with a range of mitigation measures to prevent, reduce and offset significant adverse impacts on the environment and other users of the sea.
e		WDCS favours alternative 3 to the draft plan/program for future offshore wind leasing, oil and gas licensing and gas storage.
		Noted.
f	RSPB	RSPB continues to be extremely concerned that the alternatives are not sufficiently detailed, realistic or spatial.
		The SEA Steering Group has been regularly asked to consider and suggest other valid alternatives to the draft plan/programme; to date none have been proposed that have met with consensus agreement.
g		The alternatives should consider different location-specific plans, e.g. different sizes of coastal buffers, complete exclusion of development in Natura 2000 areas, greater or lesser weighting to various 'soft' constraints, etc. The result being that there should be alternatives within Option 3.
		See response above.
h		As we have said in previous responses, Option 2 "*To proceed with a leasing and licensing programme*" is not a real alternative given the existence of known "hard" constraints.
		See response above.
i	EA	Recommend that the three alternatives be assessed for the extent to which they would have an effect on ecosystems, not just designated sites and protected species, which would link up with Defra and WAGs activities on an ecosystem services approach.
		Noted. The potential sources of effects and guide phrases assessed against the alternatives in Section 5.17 do not just assess the impact on designated sites and protected species but rather attempt to take a more ecosystem based approach e.g. the guide phrase "The plan recognises the ecosystem importance of land-sea coupling, for instance its role in species migration". An ecosystem-based approach is complex and DECC will explore with relevant organisations and agencies how this can be further integrated within the SEA process.
j		Alternative 3 is likely to require a number of mitigation measures to prevent, reduce and offset significant adverse impacts on the environment and other users of the sea. The impacts of proposals regarding precautions, areas to be withheld, and operational controls could be fully considered. We support informed decisions being made based on sound data and evidence to result in the best environmental outcome. This includes taking a precautionary approach when assessing the potential effects of electromagnetic fields on migrating fish.
		Noted.
k	MCS	If DECC is to meet its legal requirements under the SEA Directive it must make clear how it will spatially restrict the areas offered for licensing and

		hence how it will ensure that the objective of the Directive as stated in Article 1 is "*to provide for a high level of protection of the environment*" is met.
		Noted, the areas recommended for withholding are given in the Environmental Report Recommendations.

2.2.5 Recommendations and monitoring

2.2.5.1 General comments on recommendations

a	SEPA	It would be useful if further detail was provided in the post adoption statement to establish the way in which best practice measures will be implemented: who is responsible for them, when should they apply and how will they be enforced etc.
		Noted.
b	EA	Suggest that a further recommendation for monitoring could be included to encourage developers to share data with regulators. The Water Framework Directive (WFD) requires ecological monitoring and status assessment of our coastal and estuarine/transitional waters. To ensure the best possible confidence in our status assessments we aim to utilise as much suitable data as possible. Using approved standard monitoring, for example WFD standards, and sharing results, would improve our understanding of the environment and the impacts on it. We have established a WFD marine ecological monitoring programme, and this could also be applied in these situations. However, a significant amount of monitoring carried out by external organisations, for example, consultancies undertaking Environmental Impact Assessment or research projects, could also be used to improve the evidence base, and aid future decision making.
		Noted. DECC agree and Recommendation 19 states that "research results should be made publicly available where ever possible." Also of relevance in Section 6.1 under SEA objectives monitoring is that "Data from the monitoring of the effects of the implementation of this draft plan/programme would be included in future such reports as well as those reporting on the achievement of good environmental status as required by the Marine Strategy Framework Directive."
c	RSPB	Disappointed the use of the information in the literature review work to assess the impacts of developments on seabirds is still only at the recommendation stage. For example, producing a Species Sensitivity Index (SSI) and sensitivity mapping for birds with respect to offshore wind farms, as done for German offshore wind development (see pg.384, para 16) is recommended, but not undertaken. A cumulative impacts assessment for birds is also referred to but not carried out.
		DECC has commissioned a large number of aerial and boat-based surveys to inform the SEA assessment process and the ER recommended that the data should be incorporated in the distributional database used to map the SSI and an updated version of the OVI to surface pollutants. Existing initiatives to develop Population Viability Analysis for sensitive species should also be progressed, including, if necessary, research to improve the accuracy of inputs to the models. The ER highlights a number of data gaps (20c & d) which should be filled which would inform the development of SSI and cumulative impacts assessment. Given the national/regional scale of SSI and CIA a coordinated approach with other government departments, devolved authorities, agencies and stakeholders is likely to be the most efficient approach with the development of marine plans representing a potential vehicle for such analysis.
d	JNCC	There is a need for guidance on the consenting and assessment (under

		EIA in particular) for carbon capture and storage. It is important for DECC to identify how and in what timescale guidance may be agreed and implemented.
		The EIA guidance has been updated to include reference to carbon capture and storage. However, DECC anticipate expanding the guidance text relating to CCS in due course. Pending incorporation of the additional text, DECC are advising operators considering preparing an ES for the offshore elements of a carbon storage project to meet directly with officials to discuss the EIA requirements in more detail.
e		Care needs to be taken that the three aspects of monitoring (emissions, effects and SEA objectives monitoring) are not separated out, as the effects monitoring will help to inform further iterations of the Plan and subsequent OESEAs.
		Noted.
f		The recommendations did not suggest further research/monitoring into the potential for "stepping-stones" effects for invasive species. Due to the large increase in offshore infrastructure that will occur within the UKCS it would seem valuable for work to be conducted on this topic.
		Noted. Section 5.6.2.4 described the potential for "stepping stones" effects and the initiatives with respect to further research. The section also indicated that such "islands" are widespread and numerous in UK continental shelf areas, for example on glacial dropstones and moraines without obvious "stepping stone" effects.
g		The monitoring of offshore wind farms under FEPA has not, to our knowledge, produced a body of empirical evidence by which to assess the impacts to the ornithological and marine mammal features at a site – for example, little or no information collected on collisions with turbines/avoidance rate, and on the magnitude of mammal displacement during construction. The monitoring regimes seem unlikely to produce adequate data to assess displacement effects during and post construction. Ornithological and marine mammal monitoring must be improved to gather much needed data on potential impacts from offshore wind.
		Section 5.6.2.2 described the CEFAS (2010) review of OWF monitoring data collected as part of FEPA licence conditions. This indicated that monitoring has generally found little significant effects, but this may be because the monitoring techniques are less well developed. The CEFAS review recommended that standardised methodologies be developed for all aspects of ornithological monitoring to provide guidance to developers. A number of SEA recommendations include improving the information base for birds and marine mammals (e.g. 15, 19, 20 c, d, e). Recommendation 8 also indicates "A firm base of information is required to inform risk assessments and adaptive management, and consequently in respect of ecological receptors a precautionary approach to facility siting in areas known to be of key importance to bird and marine mammal populations is recommended unless evidence indicates otherwise."
h		Tidal range, tidal stream and wave devices are regarded as having "insignificant" environmental implications due to the demonstrator-scale of projects over the lifespan of OESEA2. A demonstrator scale tidal or wave energy project may have a greater impact on specific habitats than similar demonstrator projects for offshore wind devices which can be deployed over a wider area and over a wider range of habitats. It is recommended that further assessment of the impacts of these devices are carried out during project specific levels and not based upon knowledge of impacts in relation the installation and operation of demonstrator projects using different technology.
		The ER indicates that tidal range devices could have potentially significant

		impacts, with demonstrator scale tidal stream and wave projects generally unlikely to result in significant effects (depending on extent, location etc). Without details of the technology type, anchoring system etc. it is very difficult to assume that demonstrator scale tidal or wave energy projects may have a greater impact on specific habitats than similar demonstrator projects for offshore wind devices. Agree that project specific assessment should be based on knowledge of effects of similar technologies.
i	JNCC/SEPA	JNCC generally agree with the recommendations, though DECC should be more specific about how, who and when the recommendations should be delivered. It may be helpful to 'map' the recommendations onto existing initiatives that may deliver the work that is required.
		Noted.
j	JNCC/CCW	Suggest the SEA recommends an examination of the relationship between planning for offshore energy and marine plans, in particular how evidence gathered for OESEA2 can contribute to the evaluation that will be needed for Marine Plans.
		Noted. Whilst the Marine Policy Statement has been produced, the development of Marine Plans is still at a very early stage. Evidence gathered by OESEA2 will inform the development of Marine Plans but the exact nature of the relationship is currently not defined.
k	CCW	The recommendations should reflect the fact that more work is needed to better understand the implications of the issues that are likely to be generic to tidal range projects (e.g. on fish migration, flooding, habitat loss and coastal processes).
		Recommendation 12 of the ER indicates that "The nature and uses of the range of estuaries and embayments in which tidal range developments have been and may be proposed vary widely; similarly there is a wide diversity in the type and location of installations to exploit tidal range. Consequently it is recommended that site specific assessments are undertaken before decisions can be taken on potential leasing and the desirability and acceptability of individual projects." Whilst there are generic issues associated with tidal range projects, without potential project level information (location, technology type etc) the value of such strategic research would be limited.
l		ER should recommend that planning for increased grid and ancillary infrastructure should take account of the risks to the environment at an early stage.
		Noted. The early consideration of environmental risks is an integral part of the EIA/SEA process which any grid/ancillary infrastructure project or plan would be subject to. These processes, along with the existing planning and regulatory framework, will contribute towards appropriate management of any potentially significant effects. The recently published energy National Policy Statements also provide guidance with respect to the assessment of relevant projects and the decision making process.
m		The CEFAS review of FEPA monitoring made a series of recommendations aimed at improving survey and monitoring design, standardisation and sharing of data, and the rigor and power of analysis – the SEA recommendations should highlight these as good practice.
		With respect to general monitoring, the CEFAS review recommended "The Licensing Authority, the Statutory Nature Conservation Agencies and Cefas to work together with other relevant organisations to consider novel approaches to monitoring of offshore wind farms and the most appropriate mechanism to take this recommendation forward. Industry (and the Crown Estate) input should be sought once the basic mechanisms are established. A feasibility study would be required to ensure that any approaches are achievable and scientifically robust." DECC would support the establishment of such a feasibility study which could feed into

		developing good practice.
n		Recommendations should identify the need for guidance to minimise the likelihood of the introduction of invasive and non-native species and for that guidance to be adhered to as good practice. There is also a need to mitigate introductions from construction vessel fouling, perhaps by cleaning before use in the construction area.
		A number of national and international initiatives exist aiming to recommend and introduce safeguards to limit the transport of invasive species, including the GloBallast Partnership Programme and the Invasive Non-native Species Strategy for Great Britain (2008). The MSFD also covers non-indigenous species and they are being considering in the MSFD implementation programme.
o	EA	Pleased to see proposals to monitor emissions, the effects of offshore energy activities and the SEA objectives. Monitoring of both negative and positive environmental effects is important in tracking SEA performance over time and in identifying any remedial action which needs to be taken to reduce any negative impacts.
		Noted.
p		The environmental effects of offshore, onshore and across the shore infrastructure could be included within a comprehensive monitoring strategy, including monitoring sedimentary processes to assess the impacts on coastal flooding and erosion.
		Noted.
q		Any research, including that arising from the recommendations of the SEA, could be incorporated into the delivery timetable of offshore and onshore facilities.
		Noted.

Recommendation 1

"As part of the Natura 2000 initiative, further offshore SACs and extensions to SPAs are being identified. Although existing and future Natura 2000 sites are not intended or treated as strict no-go areas for other activities, competent authorities have a responsibility to ensure that favourable conservation status is maintained or restored. It is recommended that developers are made aware at the licensing/leasing stage that SAC/SPA designation may, subject to the conclusions of any Habitats Regulations Assessment, preclude development or necessitate suitable mitigation measures so as to avoid adverse effects on a designated site or species."

a	JNCC	It is important to emphasise the requirements of the Habitats Regulations with respect to new designated sites and new leased areas. JNCC are committed to early provision to industry of information on the progress of new site selection and designation and also the importance of embedding the HRA process alongside Environmental Impact Assessment (EIA) at as early a stage as possible.
		Noted.
b		Suggest rewording of the third sentence to, *"It is recommended that developers are made fully aware, at the leasing stage by The Crown Estate, and at the onset of Licensing, by the Regulator that SAC/SPA designation may (…)".*
		The suggested rewording is noted but the existing text is considered to be sufficiently explicit.
c		Whilst the Natura 2000 initiative for SPAs may include the identification of extensions for existing SPAs, the process of identification is not limited to extensions. Marine SPAs may be identified in offshore areas (including beyond 12nm), for both breeding and non-breeding birds – this does not

		necessarily preclude development.
		Noted.
d	EA	Support the recommendation on making developers aware of the potential implications of proposing development in SACs and SPAs and the likelihood of mitigation measures being required. However non-designated sites also have ecological value, so impacts on the wider ecosystem could also be assessed and mitigated for where necessary. For example, EMF effects on fish.
		Accepted.
e	MCS	Developments, individually or cumulatively, should avoid blocks within or adjacent to SACs or SPAs (whether designated, candidate or proposed) and also sites of importance for Annex I habitats or Annex II species but which do not qualify. Sublittoral sandbanks are the only SACs where energy developments are less likely to have an adverse affect, and co-location may be possible, unless it is also important for marine mammals.
		The views of the consultee are noted. The designation of a SAC or SPA does not, subject to HRA, preclude other activities within or adjacent to the site. Activities outwith a designated site may also be subject to HRA if it is deemed there is potential that there is a likely significant effect on the qualifying features of that site. DECC will continue to take project-specific advice from the relevant statutory nature conservation body regarding the significance of such features.
f		Welcome DECC's acknowledgement of the importance of SACs and SPAs, but believe it needs to offer clearer guidance
		Noted.
g	WDCS	Recommendation states that new SACs/SPAs may be designated and then will be subject to Habitat Regulations. The assessment does not mention existing sites, or that Cardigan Bay is already subject to an unfavourable AA, so should not be licensed.
		The second sentence of the recommendation states – "Although existing and future Natura 2000 sites are not intended or treated as strict no-go areas for other activities, competent authorities have a responsibility to ensure that favourable conservation status is maintained or restored." The AA of blocks in Cardigan Bay was not unfavourable, it concluded that further information on site features was required to inform a licensing decision.

Recommendation 2

"Efforts are underway to identify offshore Marine Conservation Zones/Marine Protected Areas under the Marine Strategy Framework Directive, OSPAR and the Marine and Coastal Access Act (and the Marine Act in Scotland and similar Bill in Northern Ireland). Where marine renewable energy and other large footprint developments are proposed that do not conflict with the conservation objectives of an MCZ, opportunities for collocation should be explored which could mitigate potential spatial conflicts with existing users."

a	MCS	Developments, individually or cumulatively, should avoid sites that may be designated as MPAs (or MCZs), as should sites of importance for Annex I habitats or Annex II species but which do not qualify to be designated.
		See response to Recommendation 1e above.

Recommendation 3

"It is recommended that leasing/licensing and any subsequent consenting of activities must ensure the minimisation of disruption, economic loss and safety risks to other users of the sea and the UK as a whole. In particular, developments, individually or cumulatively, should

aim to avoid:

a) impingement on major commercial navigation routes, significantly increase collision risk or cause appreciably longer transit times (see also recommendation 20 i) below);
b) causing alteration to the ease and safety of navigation in port approaches or reduce the commercial attractiveness of the ports e.g. through increases in vessel insurance premiums;
c) occupying recognised important fishing grounds in coastal or offshore areas (where this would prevent or significantly impede sustainable fisheries)
d) interference with civilian aviation operations necessary to ensure aviation safety, efficiency and capacity, including radar systems, unless the impacts can be mitigated, deemed acceptable, are temporary or can be reversed
e) jeopardising national security for example through interference with radar systems or unacceptable impact on training areas unless the impacts can be appropriately mitigated or are deemed acceptable
f) causing significant detriment to tourism, recreation, amenity and quality of life as a consequence of deterioration in valued attributes such as landscape, tranquillity, biodiversity and hydrographic features."

a	NIEA	In addition to blocks west of 14 degrees (see Recommendation 7), are the areas outlined above, and those identified in spatial constraints mapping (5.15.2), also intended to be exclusion areas?
		They are not intended as defined exclusion areas but to inform potential developers of areas which should be avoided. In reality, the project consenting process will ensure that development does not impinge on these areas.
b	TCE	There is an urgent requirement to share existing information on shipping movements and to improve the existing data where gaps have been identified in order to ensure that decisions on the placement of offshore renewable energy arrays are made on the best possible evidence base. TCE would also encourage further constructive dialogue between the industries and relevant stakeholders, to which Recommendation 3 should ideally refer.
		Noted.
c	EA	Suggest that recommendation 3f is expanded to include a consideration that offshore and associated onshore developments, individually or cumulatively, could avoid causing adverse impacts to existing infrastructure, including flood and coastal erosion risk management assets.
		Whilst not explicitly stated in recommendation 3f, the broad nature of the recommendation with respect to "valued attributes" could cover flood and coastal erosion risk management assets.
d	WDCS	What about the minimisation of impacts on wildlife to achieve 'strict protection' as required under the Habitats Directive?
		See Recommendation 9.

Recommendation 4

"Reflecting the previous OESEA and the relative sensitivity of multiple receptors in coastal waters, it is recommended that the bulk of new offshore wind farm generation capacity should be sited away from the coast, generally outside 12 nautical miles (some 22km). The environmental sensitivity of coastal areas is not uniform, and in certain cases new offshore wind farm projects may be acceptable closer to the coast. Conversely, siting beyond 12nm may be justified for some areas/developments. As with other developments, detailed site-specific information gathering and stakeholder consultation is required before the acceptability of further wind farm projects close to the coast can be assessed."

a	JNCC	Whilst supporting this recommendation, the current information base regarding the abundance, distribution and use of UK waters by marine birds should be robustly assessed and built upon.
		Agree, as reflected in Recommendations 15, 19, 20c & d.
b		There is enormous value in locating the bulk of offshore wind farm generation capacity to beyond 12nm. DECC should be aware that this general recommendation does not necessarily fit with the views of all of the devolved administrations.
		Noted.
c	MCS	Suggest recommendation is made clearer: no blocks within 12 nautical miles of the coast (20km) will be licensed.
		There is wide variation in the environmental sensitivity of coastal areas and many areas within 12nm are likely to be acceptable for development. The requirements of the project consenting process will ensure that potential significant impacts on sensitive receptors are identified and mitigated prior to consent. See also response to 2.2.3.6a above.

Recommendation 5

"In areas of prospective interest to multiple energy technologies (including renewable energies, hydrocarbon production, and hydrocarbon and carbon dioxide gas storage) DECC and The Crown Estate should coordinate licensing and leasing decisions, to facilitate and promote the coexistence of uses where practicable, to minimise potential conflicts and industrial land take of the sea, and the inadvertent "sterilisation" of areas."

a	JNCC/SEPA	In advance of Marine Planning, which JNCC see as the most appropriate means to coordinate leasing and licensing, it is essential that the appropriate planning/licensing authority is actively and equally involved with The Crown Estate (and DECC as appropriate) in the coordination of leasing and licensing decisions. Further detail about how the co-ordination process will operate and the roles of the key players would be useful in order to ensure that this recommendation is implemented effectively (SEPA).
		Noted.

Recommendation 6

"*The potential for any further capacity extensions to existing Round 1 and 2 wind farm leases requires careful site-specific evaluation since significant new information on sensitivities and uses of these areas is now available (see also recommendation 4 above) and there is increasing potential for cumulative impacts. Similar considerations apply to other new marine wind farm sites proposed near the coast."*

a	JNCC	A lack of understanding on key issues could act as a significant constraint on development. Examples include those identified by Recommendation 16, e.g. the lack of population models for a number of bird species, but especially those whose populations are declining at SPA colonies and where the birds from those colonies may interact with project proposals. There is a lack of evidence to inform potentially influential parameters for any population model e.g. density dependence. Collision risk models are another example where the important parameter of avoidance rate is informed by very little or no evidence in many cases.
		Noted.

Recommendation 7

"For the area to the west of the Hebrides (covered in SEA 7) it is recommended that blocks west of 14 degrees west should continue to be withheld from oil and gas licensing for the present. This recommendation also applies to the deepest parts of the Southwest Approaches. This is in view of the paucity of information on many potentially vulnerable components of the marine environment, and other considerations. Once further information becomes available, the possible licensing in these areas can be revisited."

a	JNCC	Agree with this recommendation.
		Noted.
b	MCS	MCS believe this should be extended all deep waters below 200m and hence also include the area to the West of the Shetlands and the "white zone" to the south-east of the Faroes.
		Such a blanket approach to licensing is not supported by the extent of understanding of many UK deepwater areas including west of Shetland available from academic, government, industry and other studies.
c	WDCS	The AA for the Cardigan Bay SAC showed a lack of information to allow oil drilling within or next to the SAC – this must be true in many areas but is not reflected here.
		A technical report by the Sea Mammal Research Unit for the Appropriate Assessment (AA) of the 3 Cardigan Bay blocks applied for in the 24th Offshore Oil and Gas Licensing Round emphasised that "Knowledge of bottlenose dolphins in the Cardigan Bay/Pembrokeshire area is less developed than in the Moray Firth", the only other resident population of bottlenose dolphins known in UK waters for which an SAC has been established. At that time there was a substantial body of information on the size and distribution of the Moray Firth bottlenose dolphin population but no comparable information on the population in Cardigan Bay. Knowledge on the location of, and seasonal variation in, the areas used by a resident population for breeding and foraging is important to understanding the potential adverse effects on the integrity of a European Natura 2000 site (the purpose of an AA) and in particular, how any such effects might be mitigated.

Recommendation 8

"The offshore wind and marine renewable industry remains relatively young, with appreciable technological development expected in for example, turbine size, rotation speed, foundation structure, spacing and potentially rotational axis. A firm base of information is required to inform risk assessments and adaptive management, and consequently in respect of ecological receptors a precautionary approach to facility siting in areas known to be of key importance to bird and marine mammal populations is recommended unless evidence indicates otherwise (see also recommendation 20 below)."

a	JNCC	The Post-Adoption Statement must be more specific in terms of mechanisms for achieving the suggested outcomes.
		Noted.

Recommendation 9

"For areas which contain habitats/species listed in the Habitats Directive Annexes, developers should be made aware that a precautionary approach will be taken and some areas may either not be leased/licensed until adequate information is available, or be subject to strict controls on potential activities in the field."

a	JNCC	The recommendation should be more explicit in how the precautionary approach is to work and/or what information is required from potential developers. DECC should note the likely future significance of both FOCI in English waters and Welsh offshore waters through the MCZ Project, and PMFs for Scottish waters.
		Noted.
b	WDCS	For harbour porpoise this equates to most of the UK's waters.
		The ER recognises that a better understanding of the ecology of most marine mammal species and in particular important areas for breeding, foraging and resting is required (Recommendation 20e). At the project consenting stage, the onus will be on the developer to provide adequate information to inform the required risk assessments. DECC and other regulators can also impose strict controls with respect to potential activities.

Recommendation 10

"Regarding the effects of noise on marine mammals particularly from piling and seismic survey, previous SEAs have recommended consideration of the establishment of criteria for determining limits of acceptable cumulative impact; and for subsequent regulation of cumulative impact. The SEA is cognisant of the ongoing MSFD Technical Sub-Group Noise work to determine criteria for an indicator relating to high amplitude, low and mid-frequency impulsive anthropogenic sounds including those from pile driving, seismic surveys and some sonar systems. It is recommended that the findings of this group are reviewed closely with respect to consenting of relevant activities which may result from the draft plan/programme, as well as other activities which generate noise in the marine environment. The establishment of noise criteria and the consenting of activities will require a coordinated approach across different industries and activities, possibly through the future marine planning system."

a	JNCC/CCW	In developing the plan/programme it would be essential that Government is clearer about the mechanisms and, critically, timescales to deliver coordination of noisy activities to inform consenting decisions. An assessment of the risk of negative impacts to marine mammal populations arising from cumulative effects of disturbance should be undertaken and would link in with such a noise management strategy.
		Noted.
b	JNCC	Strongly support the recommendation and urge that clarity is given over what the suitable mechanism is for coordinating licensing activity. A similar recommendation was made in the previous SEA: the recommendation would benefit from having a timescale attached and that given the needs of projects already in the planning system, it would seem appropriate to address this issue in the next 12 months.
		DECC will work with JNCC and other stakeholders on progressing the recommendation.
c	WDCS	As with other points, the assessment is relying on implementing something that has yet to be agreed. This is so vague it cannot be used to come to a positive conclusion about future licensing.
		It would seem sensible to align the SEA approach with respect to the MSFD and the establishment of noise criteria to provide an indicator of environmental status.
		Fails to consider the potential cumulative impact on cetaceans.
		The SEA makes robust recommendations in relation to restricting cumulative noise dose in areas of high sensitivity for marine mammals, a precautionary position in view of the strategic conclusion that effects ranges are limited and that there is no evidence of long-term effect of

		acoustic disturbance on marine mammal conservation status in UK waters.

Recommendation 11

"The increasing footprint of offshore renewables (and potential future expansion of gas storage facilities) could result in significant incremental and cumulative visual effects from the shore and at sea. A characterisation and sensitivity study for England's seascapes would complement those completed for Wales and Scotland in relation to offshore renewables, and aid the assessment of possible impacts at a strategic level, particularly cumulative impacts. It is recommended that such a study be undertaken in order to inform subsequent offshore SEAs, future Marine Plans, and other programmes which require a high level consideration of seascape."

a	JNCC/CCW	Incorporating assessments of seascape effects in future energy related SEAs is of particular importance. Work is underway to develop seascape character assessment guidance for England, Scotland and Wales. This study is due to be completed shortly and would provide a suitable basis for the further assessment of seascape sensitivity to offshore development.
		Noted.
b	CCW	In our experience there is some uncertainty about the status of IALA recommendation on the marking of man-made offshore structures (referenced in the SEA in relation to wave and tidal deployments), and there is a risk of confusion when considering this guidance alongside advice on minimising visual effects. Further work might be undertaken to provide some best practice guidelines on marking of wave and tidal structures that integrates health and safety concerns with the need to minimise seascape and landscape impacts.
		Noted.
c	EH	Note in section 5.8.6 the statement: "…*in keeping with the European Landscape Convention, all landscapes should be considered in seascape assessment*"; this is an important matter which the report also identifies, how "*England's seascape presently lacks a comprehensive characterisation or high level analysis with regards to the sensitivity or capacity of particular seascapes to offshore development*". EH offer Historic Seascapes Characterisation methodology as a mechanism to support addressing this matter.
		Noted.

Recommendation 12

"The nature and uses of the range of estuaries and embayments in which tidal range developments have been and may be proposed vary widely; similarly there is a wide diversity in the type and location of installations to exploit tidal range. Consequently it is recommended that site specific assessments are undertaken before decisions can be taken on potential leasing and the desirability and acceptability of individual projects."

a	JNCC	JNCC agree that site specific assessments of tidal range deployments should be undertaken prior to decisions about leasing tidal range projects.
		Noted.
b	EA	Suggest that monitoring of sedimentary processes could also be undertaken to establish the baseline and measure the impacts of offshore and associated inshore development, particularly the impacts on flooding and coastal erosion, where infrastructure crosses the coast.
		Noted.

Recommendation 13

"*A study for the MCA in 2000 assessed incident frequencies and the likelihood of different types of accidental events in causing coastal pollution to guide the placement of tugs (Emergency Towing Vessels) in different locations around the UK coastline. The tugs provide important mitigation of the risk of vessel collision and coastal pollution and the UK arrangements for their provision are due to change from September 2011. Offshore wind farm and other developments over the last decade, and those projected in the near future have, and will, alter the collision and spill risk profile around the UK. Consequently, it is recommended that periodic reviews of the availability of tugs should be undertaken to ensure that adequate response capability is maintained. Specifically, the location of tugs must continue to be based on periodic strategic assessments of risk."*

a	JNCC/SEPA	Assuming that they encompass all UK waters, it is recommended that the periodic reviews include locations leased for wave and tidal energy extraction given the inherently challenging working conditions which exist there. The Post-Adoption Statement should highlight the need for ongoing reviews for location of tugs to deal with pollution and oil risk contingency plans in response to the changing accident risk profile.
		Accepted.

Recommendation 14

"There is wide scale existing use of CO_2 for industrial and other applications. However, it is likely that transport of CO_2 to offshore storage facilities will be as dense phase or supercritical fluid. The HSE note the limited operating experience in the handling of supercritical CO_2 offshore (in comparison to hydrocarbon processing), the current lack of internationally recognised standards and codes of practice specific to dense phase or supercritical CO_2 plant and equipment, substantial operational experience, understanding and validated models of the behaviour of CO_2 when released from dense phase. Similarly, the environmental implications of subsea accidental releases of dense phase or supercritical CO_2 are poorly understood. A range of research is underway (under various auspices) on these issues and it is recommended that the results of these studies are periodically synthesised to provide guidance for consideration of development applications and to allow gap identification."

a	JNCC	Agree with this recommendation, though there is no timescale identified for when the Health and Safety Executive may provide further guidance on carbon storage and transport.
		Noted.
b	EA	Agree that research is needed on the environmental implications of the accidental releases of dense phase of supercritical CO_2. There may be adverse impacts on protected habitats and species resulting from accidental releases of CO_2. In addition, there may be onshore infrastructure required to facilitate the storage of CO_2 (such as onshore pipelines or storage facilities). The cumulative and knock-on effects of onshore facilities required to facilitate the transport of dense phase or supercritical CO_2 could be assessed.
		Noted. Section 5.14.4 indicates that "Some new onshore development will be required for natural gas and carbon dioxide storage projects, namely modifications to existing facilities, new pipelines, and potentially the construction of compressor booster stations for gas transport. From a strategic perspective, this will be of relatively small scale and likely limited to a very small number of projects, all of which will be subject to planning procedures and regulatory controls, including project specific EIA and Habitats Regulation Assessment."

c		The timing of any research (and recommendations arising) into CO_2 accidental releases may impact on the timetable for the delivery of the required onshore and offshore infrastructure. The SEA could recommend that a plan should be made for undertaking the required research.
		The Office of Carbon Capture and Storage is in the process of developing a CCS Roadmap to 2050 which may represent a better vehicle for promoting CCS research requirements. The Roadmap will set out potential trajectories for CCS deployment and the barriers that will need to be addressed to enable CCS to be commercially deployed and contribute to the UK meeting the commitment to reduce greenhouse gas emissions to 80% of 1990 levels by 2050. The Roadmap will be a living document and action plan used to track progress and will provide a framework to identify and address new issues.
d	SEPA	Support Recommendation 14, and consider that this synthesis of ongoing research should be frequent enough to ensure that any emerging guidance is put into place in time to effectively inform decision making.
		Noted.

Recommendation 15

"Although there has recently been significant survey effort in coastal waters, there is a general lack of modern data on waterbirds in offshore areas. Adequate data on waterbird distribution and abundance is a prerequisite to effective environmental management of activities, for example, in timing of operations to avoid periods of particular sensitivity. A study has been initiated to compare the results of data collected in 3 representative areas of the North Sea with older data; this will inform decisions on the adequacy of the existing information base on waterbirds offshore."

a	JNCC	The SNCBs have not seen the analysis of the 3 representative areas for which data has been collected and would be interested to understand the strengths and weaknesses of the approach taken. This recommendation does not provide a clear timescale in which this study may report or how the findings may be considered.
		The report of this analysis will be circulated to the SNCBs and once finalised, placed on the SEA website.

Recommendation 16

"The Offshore Vulnerability Index (OVI) to surface pollutants developed by the JNCC should be reviewed in the light of results from recent aerial and boat based bird survey data, and updated if necessary. The potential application of a Species Sensitivity Index (SSI) for wind farms (Garthe & Hüppop 2004) is noted; and it is recommended that consideration is given to the practicality and utility of the development of UK-specific individual SSI and their mapping in UK waters. The recent aerial bird survey data should be incorporated in the distributional database used to map the SSI and an updated version of the OVI to surface pollutants. The existing initiatives to develop Population Viability Analysis for sensitive species should also be progressed, including, if necessary, research to improve the accuracy of inputs to the models."

a	JNCC	A considerable amount of activity is proposed in this recommendation which may be improved if further clarity is provided on each aspect. Reference should be made to the work of Strategic Ornithological Support Services (SOSS) and/or The Crown Estate's Enabling Action funds.
		Noted. The work of the Strategic Ornithological Support Services (SOSS) is still at an early stage. Five Scopes of Works are currently underway, with the aim of delivering a series of outputs to assist with planning on

		consenting. Study areas all relate to improving industry and regulatory understanding of the risk of impacts of offshore wind farms on birds, including a review of bird migration routes in relation to offshore wind farms and a review of methods to estimate the risk of bird collisions with wind turbines.
b		Ideally a UK-specific Species Sensitivity Index (SSI) for birds should assess the sensitivity to all marine developments, (wind, wave, tidal, oil, gas, aggregate extraction etc), however, the ability to develop a reliable sensitivity index is limited by the evidence base of the impacts from these industries. To develop an understanding of the vulnerability of species to impacts, any sensitivity index must be supported by robust abundance and distribution data of the species in question. A full program of collation and analysis of existing data to inform the development of a survey program to collect new data on seabird distribution and abundance would be of huge benefit.
		Noted.
c		There is an opportunity to use power analysis as a tool to help inform a number of applications including the Offshore Vulnerability Index (OVI), a SSI, models that makes use of abundance and distribution parameters and marine planning policies (for new marine plans). Statistical power analysis is likely to give the best available measures of abundance and distribution for bird and cetacean species in areas where there is considerable uncertainty about their current status (especially beyond 12nm). The results of such an analysis can be used to prioritise future survey methods and their geographical scope. It can also be interpreted, possibly in combination with other data such as colony information, tracking surveys or bathymetric data, to build a more coherent picture of those areas in the marine environment where projects might be at risk of not obtaining consent. An example of an application that adopts an approach using power analysis is JNCC's seabirds and oil project proposal that could be used as a basis for updating the Oil Spill Vulnerability Index. As with any statistical approach, power analysis has its strengths and weaknesses and a clear understanding of how it will inform specific applications is required.
		Noted.

Recommendation 17

"The information collected by offshore renewables and oil industry site surveys and studies is valuable in increasing the understanding of UK waters. The initiatives such as the UKDEAL, Cowrie and UKBenthos databases to ensure that such information is archived for potential future use should be continued and actively promoted during the consenting processes. Similarly, there should be encouragement for the analysis of this information to a credible standard and its wider dissemination."

a	JNCC	All environmental information should be collected and analysed to an agreed standard, and made publicly available.
		Noted.

Recommendation 18

"There is little empirical data on the impacts of wave and tidal stream technologies in particular on the array scale effects of energy removal on the physical environment and biotopes; further research is needed into the effects and cumulative impacts of arrays of these devices."

a	JNCC	Recommendation 18 and 19 Support the need for coordinated research (and the mechanism for such coordination – CCW) into the effects of wave and tidal technologies. It is important that future research programmes commended or instigated by DECC take full cognisance of research programmes presently being taken forward in Scotland and Wales, so as to avoid duplication of effort. There is also a need to be more specific about the research that is needed.
		Noted. DECC will coordinate with the SNCBs with regard to the identification of research needs.
b		There is a corresponding lack of empirical data on impacts from offshore wind, particularly for the key species in the offshore environment (i.e. pelagic species) and at the size and scale of the currently proposed and future developments.
		Agree. Section 5.6.6 indicates that "Other potential effects relating to physical presence (e.g. fouling); and effects relating to receptors other than birds (e.g. fish and marine mammals), are considered unlikely to be significant at a strategic level, although further information on aspects such as collision risk and displacement will be required prior to the development of larger marine renewable arrays." Recommendation 20 contains a number of recommendations for filling relevant data gaps (e.g. b, c, d, e).
c	CCW	SEA research programme should explore ways of supporting additional monitoring and research through demonstrator projects and the dissemination of information emerging from this.
		Noted.
d	WAG	The Marine Renewable Energy Strategic Framework (MRESF) acknowledges the current stages of the emerging technology and need for further research, especially gaining knowledge from 'deploy and monitor' demonstrators. WAG therefore strongly support the need for coordinated research into the effects of wave and tidal stream (Recommendations 18 and 19) and would like to see the OESEA list the type of research that it feels is needed.
		Noted. See response to a) above.

Recommendation 19

"There is little information available on the interaction of birds, marine mammals and fish with surface and submerged wave and tidal devices. It is recommended that for the deployment of single devices and small arrays, appropriately focussed surveys of animal activity and behaviour should be undertaken to inform commercial scale deployment risk assessments and consenting. A strategic and coordinated approach to such research is recommended since the results will be of wider application; research results should be made publicly available where ever possible."

a	JNCC/CCW	Welcome the recommendation to deploy and monitor small scale developments to inform commercial deployment risk assessment and consenting.
		Noted.
b	CCW	The ER might usefully recommend that guidance be produced to assist the development of 'deploy and monitor' approaches and mitigation techniques for early deployments in the wave and tidal sector.
		Noted. DECC will explore the potential for producing guidance with the SNCBs and other relevant stakeholders.
c	WDCS	Welcome the suggestion for "*strategic and co-ordinated research*" made in Recommendations 18 and 19. Useful research has been collected in the Moray Firth to inform decision making. Whilst we do not agree with

		DECC's decision to allow seismic surveys here, we do believe that this level of field research to inform decision making should be routine throughout the UK's marine territories where development is proposed.
		Noted.

Recommendation 20

"Although the information base continues to improve, there remain a number of subject areas for which information is limited and should be enhanced to support future marine spatial planning as well as project-specific consenting. These information gaps include aspects of the natural world and human uses, with regional context and long-term trend data notably lacking. These gaps include:

a) Seabed topography and texture. For some areas there is excellent data for example from multibeam mapping undertaken variously including by the MCA, BGS and the SEA programme. The NERC Marine Environmental Mapping Programme (MAREMAP) is noted. Significant gaps in coverage remain, and continued effort should be focussed on developing comprehensive coverage of the UKCS, prioritising areas of industrial and conservation interest.

b) Recent information on the distribution of fish eggs and larvae, and variability in space and time

c) Detail of bird migration patterns, and variability in space and time including flight heights in different weather conditions

d) Further understanding of the marine areas routinely used by breeding birds for foraging, in particular those adjacent to SPAs

e) Better understanding of the ecology of most marine mammal species and in particular important areas for breeding, foraging and resting

f) Understanding of variations in ambient noise, and other anthropogenic noise sources, must be improved to assess likely effects of additional noise from geophysical survey and construction or operation of marine installations

g) Data are required on the spatial scale at which marine mammals and their prey respond to well characterised noise sources, and whether this varies according to individual characteristics, behavioural state or other environmental variables

h) Finer scale distribution of fishing effort, gears and catches for smaller vessels (<15m). A study of fishing effort in Round 3 wind farm zones funded by The Crown Estate and DECC may partially address this.

i) Precision on the offshore distribution of navigation to allow the identification and maintenance of priority navigation routes (good quality AIS data coverage typically only extends 50km from shore); it is recommended that the identified priority navigation routes are treated as "Clearways" in the siting and consenting of marine developments. These "Clearways" require agreement for all UK waters as well as international coordination for transboundary routes since there are wind farm and other development proposals in the waters of adjacent states

j) Effects (both short and longer term) on fishing activity in and immediately adjacent to constructed wind farms

k) The ecological significance of field responses of fish to electromagnetic fields associated with cables; it is recommended that the research needs identified by Gill et al. (2009), and Bochert & Zettler (2006) are considered in the context of the Defra review of Round 1 and 2 wind farm monitoring. Similarly, research is needed on the behavioural response of seals to electromagnetic fields (extrapolating from the unexpected results of Forrest et al. 2009), to understand if there is a potential for exclusion from the footprints of developments with a network of electric cables such as large marine renewable energy arrays."

a	JNCC/CCW	The Environmental Report should support initiatives such as the Joint Cetacean Protocol, which by promoting the standardisation of cetacean data collection and reporting, and enabling data integration between different monitoring programmes (including baseline data collected as part of environmental impact assessments) will allow a more realistic picture of cetacean abundance and distribution in UK waters.
		DECC fully support the ongoing JCP and have contributed data from aerial surveys between 2001-2008.
b		The list of research should specifically identify the need for work to judge the scale and significance of marine mammal ship strike impacts that seem likely to be caused by ducted propeller technology, as well as include work to better understand the sensitivity of seals to noise.
		Noted. Section 5.6.6 indicates that the SEA process may represent an appropriate mechanism to facilitate further research on this issue and promote appropriate mitigation measures. Research examining the foraging patterns and usage of areas by seals has been funded through the SEA and this could be extended to examine the potential for interaction with boat/industrial usage (possibly through analysis of AIS tracking data). In general, the SEA recommends that a collaborative approach between the relevant offshore marine activities that utilise dynamic positioning vessels would be the most effective mechanism to fund research required to determine the extent of the problem and develop appropriate mitigation if required. Recommendation 25 also relevant. With respect to understanding sensitivity of seals to noise feel that covered by Recommendation 20g.
c	JNCC	There is a need for a coordinated approach to developing marine mammal baseline data that also takes account of the need for finer scale resolution data on inshore marine mammal populations.
		Noted.
d		Instead of trying to better understand of the ecology of most marine mammal species and, in particular important areas for breeding, foraging and resting, it will be more useful to improve our knowledge of the effects of disturbance caused by noisy activities considered in OESEA2, both on individuals and populations.
		Noted and partly covered by Recommendations 10 and 20g.
e		In UK waters the existing evidence suggests that most cetacean populations are wide-ranging, and their distribution and abundance will vary considerably in time and space and be influenced by both natural and anthropogenic factors. For many species it is therefore inadequate and inefficient to try and identify and protect specific areas whose importance might vary considerably from year to year.
		Noted. Covered by Recommendation 9 which indicates that "For areas which contain habitats/species listed in the Habitats Directive Annexes, developers should be made aware that a precautionary approach will be taken and some areas may either not be leased/licensed until adequate information is available, or be subject to strict controls on potential activities in the field."
f		20g: should seek data on both the spatial and temporal scales of effects (JNCC) and include work to better understand the sensitivity of seals and cephalopods to noise (CCW).
		Noted.
g		UKSeaMap is missing from the resources for benthic information that are mentioned.
		Noted.
h	CCW	Should include research to improve understanding of the distribution of BAP species and habitats so these can be more effectively included in future constraints mapping.

		DECC will coordinate with the SNCBs/MMO etc with respect to potential research on improving information on the distribution of BAP species and habitats.
i		Better modelling and mapping (spatial/temporal) of OWF construction noise (piled/non-piled foundations and vessel traffic) is required and could be associated with work on demonstration wind and other marine renewables developments.
		Noted.
j		The potential for effects from new, larger foundation types on the seabed and coastal processes should be investigated.
		Noted. Research examining economic and environmental considerations associated with OWF foundations has been undertaken on behalf of DECC, and there is a range of published European research on this general topic.
k		CCW presented their view on priority areas of research for wave and tidal devices (though also with some applicability to offshore wind) covering two main themes; the development of environmental baselines, and impacts research. The full response is too large to replicate in this document, though it may be viewed in the post-consultation section of the SEA website. The high level themes identified by CCW have been outlined below. With regard to improving baseline information, CCW indicate that key environmental information is poor for some areas of Welsh waters likely to be of interest to wave and tidal developers, particularly for tidal stream energy which would be geographically restricted to areas which are also a distinct and limited ecological resource. Key areas of research outlined include: • Improved definition of size, range and connectivity of marine mammals • Improved productivity rate estimates for marine mammal species and populations • Improving estimates of local density site fidelity of mammals • Understanding functional use of areas of high tidal energy by marine mammals • Diving behaviour and depth distribution of marine mammals in high tidal energy areas • Estimates of sightings rates of seals at sea • Hearing in seals • Improved definition of size, range and connectivity of seabird populations • Improving estimates of local sea bird density and fidelity of seabirds • Functional use and behaviour of seabirds in areas of high tidal stream and wave energy • Sensory ecology of mobile marine species • Characterisation of fish communities associated with areas of high marine energy • Determining the functional importance of areas of high marine energy for fish species • Seascape Character Assessment CCW indicated that impacts of marine renewables, particularly with regards to collision prediction, can only be researched in a deploy and monitor environment in association with validated and intelligent modelling based on data collected during monitoring. CCW highlighted a number of specific research priorities which include:

		• Monitoring the behaviour of marine mammals and diving birds around operating marine renewable devices – quantifying avoidance and evasion • Establishing suitable techniques for monitoring underwater behaviour of mobile species • Establishing suitable techniques to monitor mobile species collisions • Effects of noise from underwater devices on fish/benthos/birds • Modelling to predict the impacts of arrays of devices Modelling to predict the cumulative impacts of multiple arrays of devices
		DECC welcome the annex provided in CCW's response which outlines their recommendations for research in the area of wave and tidal stream technologies. Many of the themes presented are consistent with those areas of research outlined in Recommendation 20a-k above, and DECC will fully consider CCW's response with those other comments received in consultation feedback.
l	EA	Agree that further research needs to be considered in the context of the Defra review of Round 1 and 2 of wind farm monitoring. If offshore wind farms are to be sited before this research is complete, then a precautionary approach could be taken. For example with regards to the effects of EMF on fish, sub-sea power cables could be buried or insulated in order to protect migratory fish.
		Noted.
m	WDCS	No proposals are made to fill the data gaps. WDCS has identified data gaps as a problem in all previous SEAs, but no cetacean research has been commissioned to fill these. The entire series of SEAs for oil and gas development have highlighted the lack of information on cetacean distribution, important areas of habitat for cetaceans, impacts of many developments and the status of most cetacean populations. Until further work is carried out on these issues, the SEAs will continue to fail to adequately address cetacean conservation needs and the UK government is therefore not fulfilling its obligation for strict protection of cetaceans.
		See Response to 2.2.3.3a.

Recommendation 21

"To minimise permanent habitat change and to ensure areas developed as a result of the current draft plan/programme are left fit for previous or other uses after decommissioning, the volumes of rock used in cable armouring, foundation scour protection and pipeline protection must be minimised and there should be active promotion of alternative protection methods through the consenting process."

a	JNCC	The need to minimise scour protection and promote alternatives is a concern raised on a regular basis at individual project level. We suggest working with the industry to provide a best practise note on what seems suitable for development in a variety of situations, rather than the present case-by-case approach.
		The constructive comment is welcomed and DECC will examine the potential for producing such a note.

Recommendation 22

"Siting and consenting processes for marine renewable energy developments must remain flexible to allow for technological innovation, including in mitigation measures."

a	JNCC	It is not clear what is meant by the need for flexibility to siting, consenting

		processes and mitigation for marine renewable energy developments in practice, and would ask for clarification in the Post-Adoption Statement. Suggest this recommendation is reworded to take account of the emerging industry, but also the unknown issues that need to be addressed.
		Constraints mapping (Section 5.15) indicated that there are areas of the UKCS in which "hard" constraints currently preclude feasible development (e.g. MoD danger areas, oil and gas platform/infrastructure, existing offshore wind farms), and therefore leasing in these areas will of necessity be spatially restricted. At a local site specific level, other constraints may be significant while some hard constraints described may be less exclusive (more flexible in spatial and/or temporal terms) dependent upon technological innovation and/or mitigation measures employed.

Recommendation 23

"To assist developers and the achievement of conservation objectives, DECC and others in Government should encourage the adoption of consistent guidance across the UK on the implementation of Habitats Directive requirements, for example disturbance of European Protected Species (Annex IV species)."

a	JNCC	This recommendation could be clarified to provide details of the emerging guidance that is being prepared, as well as the register of all activities to ensure cumulative effects on European Protected Species are being monitored.
		Good practice guidelines and protocols have been produced by JNCC (with contributions from the SNCBs) for marine industries on how to assess the likelihood of committing an offence to EPS, how to avoid it and whether a licence to carry out activity might be required or not. This has resulted in the production of several sets of detailed guidelines covering seismic surveys, pile driving operations and the use of explosives. It is considered that adherence to these guidelines constitutes best practice and will minimise the risk of committing an injury offence. Defra are to publish disturbance guidance later this year.
b		May also be helpful to have consistent guidance across the UK on how to make judgements in the HRA process at the likely significant effect stage, and in relation to how to interpret the Waddenzee judgement's requirement to achieve certainty beyond reasonable scientific doubt, especially for plans and projects in the marine environment where the existing evidence baseline is often low, and it is not always practical to remove all scientific uncertainty. Currently, different competent authorities and the nature conservation bodies can have slightly different approaches to these issues which can introduce inconsistency and risk for all concerned.
		Noted. DECC welcome the opportunity to work with the SNCBs to ensure consistency is achieved within the HRA process.

Recommendation 24

"In areas with vulnerable habitats and species such as cold water coral reefs mitigation may be required for physically damaging activities such as rig/vessel anchoring and discharges of drilling wastes (from hydrocarbon, gas storage or renewable energy related activities). Prior to decisions on activity consenting in such areas, developers should provide a detailed assessment and seabed information so that appropriate site specific mitigation can be defined, for example no anchoring and zero discharge."

No comments were made on this recommendation.

Recommendation 25

"Depending on the outcome of further investigations of seal injuries currently attributed to ducted propeller nozzles or thrusters, mitigation measures may be required in important areas for seals for longer term vessel operations e.g. facilities installation."

a	JNCC	This recommendation, linked to our comments on Recommendation 20, needs to be strengthened and further clarity provided on how it might be taken forward, as well as clarifying what mitigation measures may be required. Please refer to the joint SNCB letter on the issues of seal injuries caused by vessels with the propeller types identified in the Sea Mammal Research Unit's report.
		The research is still at an early stage with further research required before guidance and mitigation measures can be proposed. DECC will maintain a watching brief and if relevant may facilitate research into this subject.
b	TCE	Further investigation is urgently required in order to establish the nature of any link between offshore renewable energy (use of ships with ducted propellers) and harm to seal populations.
		Noted.

Recommendation 26

"DECC should seek and give consideration when consenting new oil and gas developments to CO_2 emission reduction proposals in relation to disposal of precombustion CO_2 from gas treatment offshore."

a	JNCC	JNCC agree with this recommendation.
		Noted.

Recommendation 27

"Carbon dioxide storage in saline aquifers may result in the production and discharge of aquifer water. The Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations 2005 apply to discharges containing reservoir hydrocarbons and although they have been amended to apply to carbon storage, it is not yet clear whether they will apply to aquifer discharges. The quality of water between aquifers is variable and the concentrations of elements and compounds of potential environmental concern are poorly characterised; a permitting mechanism is needed to ensure that such discharges can be controlled."

No comments were made on this recommendation.

2.2.6 Environmental Baseline

a	JNCC	Section 4.2.2 does not capture the full range of draft, possible and candidate Special Areas of Conservation (SACs) although some have been mentioned, e.g. Regional Sea 4 and 5 is missing Wight-Barfleur draft SAC (dSAC), Regional Sea 6 is missing Pisces Reef dSAC and Regional Sea 11 is missing Hatton Bank dSAC.
		As described at the start of Section 4.2.2, the text describes the broad physical features of each Regional Sea, including the features upon which their boundaries are based. Detailed information on key features of each of the Regional Seas was provided by the various subappendices of the environmental baseline. Figure A3j.2 in Appendix 3j details UK coastal and offshore SACs which includes the full range of SACs.
b	CCW	Maerl is referred to, incorrectly, as a species listed on Annex II of the Habitats Directive.

		Accepted. Maerl (Lithothamnium coralloides and Phymatholithon calcareum) are listed on Annex V of the Habitats Directive.
c		MCZ consultation is now expected in October/November 2011.
		Noted.
d		'*When the Tide Goes Out'* CCW 2007 is a better review of the biodiversity and conservation of the intertidal of Wales than the papers cited in section A3a.3.1.5.
		Noted.
e		The statement: "*Using the extensive European Seabirds at Sea database the report identifies a total of 6,013 hot spots as meeting the 5% threshold and 2,201 seabird hotspots at the 1% threshold*" implies that population thresholds are being used, which is not the case, the thresholds referred to relate to the top 1% and 5% from the Getis Ord * statistical package.
		Refer to footnote on page 37.
f		Existing SPA colonies with proposed colony extensions (p38) shows Carmarthen Bay SPA but not Liverpool Bay SPA.
		As cited in the text, this figure is sourced from Kober et al. (2010).
g	NIEA	Two additional possible inshore Special Areas of Conservation in Northern Ireland were published for public consultation during January 2011 • The Maidens possible Inshore SAC • Skerries and Causeway possible Inshore SAC
		Noted.
h		The most recent information on air quality in Northern Ireland (including air quality management areas) can be found at: www.airqualityni.co.uk
		Noted.
i		Wrecks and intertidal/submerged archaeological features within territorial waters adjacent to the coast of Northern Ireland can be protected by scheduling under the Historic Monuments and Archaeological Objects (Northern Ireland) Order 1995.
		Noted. As listed in Appendix 3i.1.1 and described in OESEA Appendix 3i.10.1.
j		A number of points were made relating to Appendix 3i and 3j of the OESEA (DECC 2009) baseline.
		Those comments relating to the OESEA baseline are noted and will be considered in any future iteration of the OESEA.
k	JNCC	A3a.8: Advise some caution when referring to Clark & Hoyt (2010), as some of the conclusions were based on statistical methods that are likely to be insufficiently robust to detect areas of importance (e.g. for harbour porpoises). In addition, this report does not acknowledge that the distribution of most cetacean species in UK waters is intrinsically linked to prey availability and is therefore variable. Odontocetes generally breed and feed throughout their range and have long periods when the calf is dependent upon the mother, which can be for over one year. The term "critical habitat" therefore might not easily apply to UK species.
		Noted and presume referring to Clark et al. (2010) on page 53 (Clark J, Dolman SJ & Hoyt E (2010). Towards Marine Protected Areas for cetaceans in Scotland, England and Wales: a scientific review identifying critical habitat with key recommendations. Whale and Dolphin Conservation Society, Chippenham, UK, 178pp).
l		The comments regarding Paxman & Thomas (2010) are inaccurate. Currently it is stated: "*An analysis of data from the southern Irish Sea assesses how useful Joint Cetacean Protocol (data, gathered and integrated from around Europe, may be in detecting changes in the abundance and distribution of cetacean species in UK waters (Thomas 2009, Paxton & Thomas 2010 (In Prep). The study showed that there was a limit to the power of analysis using this data (it is estimated to be able to*

		detect a 15-30% annual decline in abundance), although there is scope for further development of methods of analysis." The 15-30% relates only to the work of Thomas 2009. In contrast, Paxman & Thomas (2010) found that for harbour porpoises, bottlenose dolphins and common dolphins, trends of the order of 0.3-2.2% decline in abundance over a 6 year period could be detected with 80% power. For other species the declines that were detectable were much larger due to CVs.
		The clarification is welcomed.

2.2.7 Other issues raised/comments

a	WDCS	WDCS is concerned that since the demise of OREEF, there is now no central forum to identify and prioritise research requirements. Whilst OREEF was not without its considerable flaws, not having such a forum means that there is no formal setting to discuss issues of concern.
		The Offshore Renewables Research Steering Group, chaired by the MMO, is intended to: *a) Provide a collaborative forum for dialogue, co-ordination and dissemination of research and evidence on the impacts of offshore wind, wave and tidal technologies.* *b) Through the work of the group:* • *identify collaborative research opportunities that target strategic impacts and stakeholder concerns;* • *ensure value for money by avoiding duplication with existing research and;* • *raise the profile of research programmes beyond participating organisations and ensure wide dissemination of results;* *c) Increase understanding of the impacts of offshore renewables to reduce the risk of strategic gaps in knowledge presenting a barrier to deployment.* *The group membership comprises DECC, Defra, MMO, The Crown Estate, Marine Scotland, Scottish Government, Welsh Assembly Government, Northern Ireland Executive, NERC (for the RCUK Energy Programme), Department for Business Innovation and Skills, DfT, MCA, MoD (Defence Estates). Membership of the steering group has been limited to budget holders, but it is intended that views and input will be sought as appropriate from other interested parties, including the statutory agencies.*
b		WDCS would appreciate a meeting with DECC to discuss our concerns.
		Noted.
c	IoM	Any marine developments within or adjacent to the Isle of Man territorial waters could potentially impact on Manx commercial fisheries, so it would be appreciated if updates were provided on any progress being made by the Company Fishing Liaison Officer.
		Noted.
d		Further information on the location and details of Isle of Man conservation sites and protected species (in Manx legislation) within the proposed area can be provided.
		Noted and the constructive involvement of the Isle of Man Government is welcomed.
e		The importance of the Irish Sea for basking sharks is emphasised – detailed information now exists for basking shark distribution in Manx waters and beyond – 74% of public sightings in 2009 were reported from the Isle of Man. Recent tagging work by the Manx basking shark watch may provide additional insights. Attention is also drawn to research by the Manx whale and dolphin watch on Risso's dolphins and other cetaceans.

		This input is welcomed.
f		Would appreciate if acknowledgement is given to Manx shipping routes and established infrastructure in the Irish Sea zone.
		OESEA2 and the draft plan do not cover the waters of the Isle of Man. Information on shipping routes (including those to and from the Isle of Man) and established infrastructure in UK waters informed the spatial consideration in Section 5.15 to determine potential areas available for development. Coordination between DECC and the Isle of Man authorities will ensure that activities resulting from implementation of the draft plan do not have a significant impact on the Isle of Man and its waters. The close cooperation between the Isle of Man, the British Isles and Ireland with respect to exploiting offshore wind and the marine energy resource was further strengthened by the signing of the All Islands Approach to energy resources on 20 June 2011. This will encourage and enable developers to exploit commercial opportunities for generation and transmission, facilitate the cost-effective exploitation of the renewable energy resources available, and increase integration of markets and improves security of supply.
g	SPR	No mention of the Crown Estate's Round 1 leasing in the Pentland Firth and Orkney Waters in made in the NTS.
		Noted but it is described in Section 2.4.4. The OESEA2 draft plan does not cover leasing in Scottish Territorial Waters.
h		In relation to the UK's wave energy resource, the only commercial wave leases are in the Pentland Firth and Orkney Waters R1 strategic area. References to the "Western Isles" should perhaps be changed to "western coastlines" of Scotland?
		The clarification is welcomed. The same sentence indicated that "Wave energy resource in the UK is broadly concentrated on the Atlantic facing coastline".
i		In relation to noise impacts, it should be recognised in the NTS that there are mitigation measures in place, including marine mammal protocols.
		Noted. The NTS states "both planning and operational controls cover noise from relevant marine activities, including geophysical surveying and pile driving." Further extensive information is provided in Section 5.3.
j		Not all offshore wind and other renewables devices will require pile driven foundations.
		Noted.
k		The section in the NTS on European Protected Species (EPS) should mention EPS licensing.
		Noted. EPS licensing is detailed in Section 5.3.4.
l		The section in the NTS on noise should acknowledge that the draft GES indicator being developed by Defra has the potential to limit many key activities carried out as a necessary part of the construction of offshore wind farms and tidal devices, including piling events and technical surveys, and could potentially lead to significant impacts on costs and programme. SPR would like to see a commitment from the UK Government that renewable energy projects should be sited, constructed and operated to minimise noise, according to the principle of Best Available Technique, an established and accepted principle widely used in other areas of environmental management.
		Noted, and the Centre for Ecology , Fisheries and Aquaculture Science and the Joint Nature Conservation Committee are carrying out further technical work to support Defra and the Devolved Administrations in finalising proposals for UK targets and indicators for GES. DECC will continue to work with Defra on this issue.
m		There should be the inclusion of a temporal baseline which does not give an unrealistic starting point from which activity in the immediate future will be measured and constrained, and a suitable spatial scale that

		accommodates the geographic spread of construction activities which are currently planned.
		Noted; it is considered that OESEA2 Recommendation 10 will allow due consideration of both these concerns. The need for a historic baseline is noted in section 5.3.7 of OESEA2
n		The section in the NTS on cumulative effects should make clear the distinction between cumulative and in-combination effects.
		Noted. As described in Section 5.16.2 - Cumulative effects are considered in a broader context, to be potential effects of activities resulting from implementation of the plan which act additively or in combination with those of other human activities (past, present and future); in an offshore SEA context notably fishing, shipping (including crude oil transport) and military activities, including exercises (principally in relation to noise).
o		The final section of the NTS could mention the opening up of tidal demonstration areas in England and Wales.
		Noted. The Crown Estate manages the demonstration leasing process using a competition framework which is planned to have a series of six-month application windows (process was updated in September 2010). The first application window opened on 11 October 2010 and the second on 15 April 2011. To date no demonstration leases have been awarded through the updated process.
p	NIEA	Would welcome a compilation of the best practice/mitigation measures identified throughout the SEA as we consider this would be a very useful resource.
		Noted.
q	GP	The impact of fossil fuel extraction and consumption far outweighs the limited and location-specific impacts of renewable energy production. This is not obvious from the NTS because of the relative space given over to minor impacts from renewables, and the lack of any meaningful discussion of the real impacts of offshore drilling, especially in deep water.
		The real impacts of offshore drilling are properly considered in the Environmental Report
r		It could be argued that the impact of even a relatively minor oil spill on birdlife and biodiversity is likely to outweigh the cumulative impact of offshore wind farms.
		The assessment documented in the Environmental Report was made on the basis of available evidence; there is no evidence to support the above conjecture.
s		Oil companies currently receive priority access to the sea bed. Leases of offshore wind projects contain a clause which gives the Secretary of State the power to switch from offshore wind to oil and gas should new reserves be found. This creates huge uncertainty for investors in renewables. It is a clear example of the institutional priority given to fossil fuels over clean energy and threatens Britain's ability to meet its 15% renewable energy commitment by 2020. The Government should address this in the Energy Bill by enacting legislation that at the very least gives equal access to renewable energy companies.
		The Government's position is that both offshore renewables, including wind, and oil & gas are required in the UK energy mix, and oil companies have no priority in obtaining exploration or development rights. Where spatial conflicts arise, suitable consultation, planning and phasing will in most cases allow both developments to achieve their objectives in full or with only minor compromise. But TCE renewables leases do provide for determination of a lease, in whole or part, if necessary to accommodate oil and gas works. However, the Government has recently confirmed that it would not seek any such intervention except where the oil company was prepared to offer appropriate compensation. On 12 July a statement was

		laid in Parliament clarifying this. Government will work with both industries to develop further guidance and to help ensure early consultation between them.
t		Greenpeace does not believe that the OESEA2, as currently drafted, is fit for purpose, and urges the Government to amend it, in line with our recommendations, prior to publication.
		Noted.

2.2.8 Comments relating to the Deepwater Horizon event and drilling in deepwater areas of the UKCS

a	EA	With regard to the text on page 371, that that there is a "*Low risk of occurrence of major spills*" – could this be considered as still the case following the 2010 Gulf of Mexico oil spill?
		Text on p371 is part of a summary table of sources of potentially significant effect. As discussed in some detail in the SEA, risk is comprised of probability and consequence. The probability of a major spill resulting from the activities under consideration remains low, and for various reasons the probability of an event comparable to the Deepwater Horizon spill is very low. However, DECC (working in collaboration with other Government Departments and Industry) will continue to review the causes of the Deepwater Horizon spill, together with the UK's oil spill response capability and industry co-ordination.
b	GP	Greenpeace USA has been working closely with independent scientists to identify the probable impacts of the Deepwater Horizon spill. Their research has demonstrated that the US Government and BP have actively downplayed the impact of the spill.
		Any additional information which may be provided by Greenpeace will be reviewed and incorporated into the SEA process as appropriate.
c		We do not believe that the SEA adequately recognises the full environmental impacts of current offshore energy policy, especially the risks and impacts of a spill in deep water. The Government should amend the OESEA to fully account for the potential impact of a major oil spill arising from offshore oil and gas extraction. It is particularly important for this information to be included and clearly signposted within the NTS, as that section of the assessment is aimed at the general public.
		Government fully recognises the potential consequences of oil spills and takes an objective and balanced view of the risks associated with diverse activities and environmental sensitivities in UK waters. Drilling and reservoir conditions in UK deep water areas are not directly comparable with those in the Gulf of Mexico. Agree that the potential impact of a major oil spill could have been more clearly signposted within the NTS although it is noted that mitigation in the form of risk assessment and contingency arrangements is well established. The UK has established and robust procedures already in place. However, DECC are currently reviewing these to ensure that such arrangements continue to be adequate in light of the Deepwater Horizon spill in the Gulf of Mexico.
d		The safety lessons from the Deepwater Horizon incident have not yet been learned, as not all of the official investigations into the cause of the disaster have been published. To date, conclusions point to systemic, industry-wide problems which cannot be quickly tackled overnight or by making slight changes to the regulatory regime.
		The SEA recognises significant differences between the regulatory regimes and industry practices in the US at the time of the Deepwater Horizon spill, and those in place in the UK. The SEA also describes extensive UK Government and industry response to the Deepwater Horizon event through the work of OSPRAG. OSPRAG's second interim report was

		published in April 2011, following publication of OESEA2.
e		The results of the forensic examination of the BOP used on the Macondo well calls into question the safety of every offshore platform currently in operation.
		OSPRAG's technical review group has completed its review of the UK offshore oil and gas industry's practices in the following areas: well examination verification and primary well control, blow-out preventers (BOPs) and competency, behaviours and human factors. This work concluded that there is a high degree of confidence in the UK regulatory regime and that it drives the right safety and environmental behaviours. The Well Life Cycle Practices Forum (WLCPF) will advance recommendations made by OSPRAG and facilitate the dissemination of lessons from Macondo and other similar events, with a specific focus (among others) on BOP issues, including liaison with the HSE on the recommendation made by the House of Commons Select Committee that it examines the case for prescribing the equipment of BOPs on the UKCS with two blind shear rams.
f		Greenpeace believes that the Government's decision to license new drilling off the coast of Shetland without properly considering the evidence from Deepwater Horizon, or waiting for its own independent review of Deepwater Horizon to produce its findings is unlawful. Greenpeace believes that there must be an Appropriate Assessment under the Habitats Directive of any plan or project to drill for oil in deep water.
		DECC are aware of Greenpeace's views on this matter, and take a different view of the implementation of the Habitats Directive.
g		BP's investigation, the Bly report, identified a series of failures, both human and technological, pointing to a systemic failure to embed health and safety concerns into day-to-day operating procedure and mirrors the conclusions drawn by the UK's Health and Safety Executive about the safety of offshore drilling in UK waters.
		The BP investigation report findings are presented in some detail in the SEA. Conclusions drawn by the Health and Safety Executive, in the press release cited by Greenpeace, do not suggest systemic failures in the industry. The increase reported by HSE in major and significant hydrocarbon releases to a provisional total of 85 is, in part, a result of the extremely good performance in the preceding year (61 in 2008/09 − the lowest since HSE began regulating the industry)
h		January 2011 report by the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling noted that, "*Transocean failed to adequately communicate to its crew lessons learned from an eerily similar near-miss on one of its rigs in the North Sea four months prior to the Macondo blowout… Transocean has suggested that the North Sea incident and advisory were irrelevant to what happened in the Gulf of Mexico… [But these] are largely cosmetic differences. The basic facts of both incidents are the same. Had the rig crew been adequately informed of the prior event and trained on its lessons, events at Macondo may have unfolded very differently*".
		The National Commission (January 2011) report on the Deepwater Horizon spill identifies a number of management failures on the parts of BP, Halliburton and Transocean (and also regulatory failures)which contributed to the sequence of events which ended with total loss of control of the Macondo well. The communication failure quoted by Greenpeace is one example, although the differences in technical detail and potential consequence between the North Sea incident and the Macondo event are more than cosmetic. However, DECC and HSE are generally satisfied that the specific management failures identified, are not representative of industry practice on the UKCS, and that regulatory and management procedures are robust and provide adequate confidence. It is also noted

		that corrective measures to address failures in well design, operating procedures, training and management have been implemented throughout the offshore oil and gas industry following the Deepwater Horizon spill.
i		The UK has belatedly begun its independent review of the offshore oil and gas regulatory regime, and announced the appointment of a number of people to the review panel in April 2011. The review panel is unlikely to reach even initial findings for several months, yet the UK continues to approve new deep water drilling licenses, despite not knowing properly what caused the Deepwater Horizon disaster (and therefore whether such an accident is likely to occur in British waters).
		As noted in OESEA2, High Temperature High Pressure (HTHP) reservoirs comparable to the Macondo well target are not known to be present in deep water on the UKCS. Immediately following the Deepwater Horizon event, DECC instituted a review which concluded that a moratorium was not justified; while the Energy and Climate Change Committee (06 January 2011) also concluded following a comprehensive review that a deep water drilling moratorium was not necessary. *In addition, as discussed in detail in OESEA2, the proposed licensing programme does not imply automatic permission to drill (anywhere on the UKCS); there is a comprehensive regulatory regime in place in relation to specific drilling plans. The OSPRAG TRG, via its sub-groups, has undertaken a comprehensive review of the UK's current regulatory process and industry best practice with respect to well design, modification, commissioning, construction, equipment, operation, maintenance, suspension and abandonment. The review, which encompassed the vast majority of relevant companies active on the UKCS, covered, inter alia, well design and examination; verification; well control equipment specification (including drilling and intervention BOPs), operation and performance; competence; procedures; and the role of company representative and the offshore installation manager (OIM) on the drilling facility. The TRG members are unanimous in their conclusion that they have a high degree of confidence in the current UKCS regulatory regime and that it drives the right health, safety and environmental behaviours.*
j		The plans for controlling blowouts in a UK context are no better than those of the US: The UK government recently released oil spill response plans submitted by BP setting out how they would respond to an oil spill in wells in UK waters. In this plan, BP admit that – "*the oil spill consequences of a catastrophic failure of a deep sub-sea well head, either due to equipment failure or accidental damage, have never been considered in detail*".
		The consultee's assertion is not accepted. The plan quoted above is cited from a newspaper article and dates from August 2009. As a consequence of the Macondo spill, UKCS Oil Pollution Emergency Plans are required to have a greater emphasis on response to catastrophic failures. The OSPRAG Oil Spill Emergency Review Group was established to deliver an assessment of the capability of the UK to respond to a significant and ongoing release of oil from exploration or production operations on the UKCS. The five initial work streams have been expanded to: • *The Counter Pollution 'Toolkit'* • *Subsea Dispersant Injection Work Group* • *UK Dispersant Stockpile* • *Operating Procedures* • *Integrated Shoreline Response* • *Waste Management* • *Spill Modelling (joint with IIRG)* • *OPEP Work Group* • *Environmental and Socioeconomic Sensitivity Mapping*

		• *Response Exercises*
k		Attempts to model the impact of major spills using computer programmes have failed, being unable to cope with modelling the specifics of spills in deep water and lasting more than a few weeks. OSIS 4.2, the industry standard for such modelling, has only been validated in sea trials lasting no more than three days. DECC's evidence to the ECC Committee acknowledged that OSIS "*has limitations with regard to predicting long term spill and deep water predictions*"
		Limitations in oil spill modelling result from several factors, and the robustness of long-term stochastic modelling will depend on a range of assumptions in relation to environmental conditions. The OSPRAG review includes oil spill modelling.
l		DECC inspectors have, on average, examined a total of 8 rigs per year, although they envisaged at least 16 inspections in 2010. DECC told the ECC Committee that it had doubled the rate of deep water inspections from 1 to 2 per year, and increased the number of inspectors from 6 to 9. It is doubtful that the number and frequency of DECC rig inspections is enough to affect working practices on offshore rigs, because the frequency of companies failing inspections indicates a systemic failure to take adequate precautions to protect staff and prevent oil spills from offshore exploration and extraction.
		During 2009 and 2010, the Department's Inspectorate undertook 72 and 71 offshore visits respectively, covering both inspection and investigation activities. In 2010, there was an increased focus on mobile drilling rigs with 22 inspections being carried out, compared to 6 inspections in 2009. The Department has increased the size of both the Environmental Management Team and the Offshore Environmental Inspectorate to deal with the additional workload resulting from the strengthening of its assessment and enforcement activities relating to drilling activities. Two Environmental Managers have been recruited to bring the team's technical specialist complement up to twelve. Three new Offshore Environmental Inspectors were recruited in Autumn 2010, to enable the Inspectorate to dispense with consultancy support for its review of OPEPs and to implement the Secretary of State's commitment to increase the number of offshore environmental inspections of mobile drilling rigs. In addition, five further individuals have recently been recruited as Offshore Environmental Inspectors and four additional posts will be advertised in Autumn 2011, to bring the Inspectorate's technical specialist complement up to nineteen. An additional Senior Environmental Investigator was also recruited in Spring 2011 to enhance the Inspectorate's incident investigation activities. All environmental approvals of complex or high risk wells are now subject to a Quality Assurance check undertaken by a Senior Environmental Manager or the Team Leader, to ensure that all the relevant issues have been taken into consideration. In addition to the increase in offshore inspections, the Inspectorate has also initiated an onshore review process for complex or high risk wells, involving the offshore operator and the drilling contractor, to discuss issues such as operator/contractor interface, staff competency, pollution response, equipment maintenance and regulatory compliance.
m		The HSE reports annually on the offshore industry's safety record, and this year issued a stern warning over the increase in both serious accidents and spilled oil. It labelled the industry's performance 'not good enough'.
		See (g) above; HSE comments are quoted out of context
n		There is no reference to the impact a spill would have on the wildlife or ecosystems to the west of Shetland anywhere in the NTS - any spill would be highly likely to cause harm to a number of delicate ecosystems, e.g. the waters are home to: • Endangered Fin and Sei whales, vulnerable Sperm whales, as well as

		Killer, Humpback, Minke and Long-Finned Pilot whales. • Several species of dolphin and porpoise and three species of seal. • 48 species of seabird, including Fulmars, Manx Shearwater, European and Leach's Storm Petrels. • Two SACs – Darwin Mounds, designated for its cold water corals, and Wyville Thompson Ridge, proposed for its stony reef species and bottle nose dolphins.
		The NTS, and OESEA2 as a whole, takes a strategic overview with focus on specific regional areas where appropriate. Oil spill effects have the potential to be very significant anywhere in the UKCS, as explicitly recognised by OESEA2. *None of the species listed are endemic to west of Shetland, and there is no evidence that the ecosystem in Regional Sea Areas 8 and 9 is more delicate than elsewhere.*
o		There is a greater risk of an oil spill from deep water drilling.
		There is no evidence that probability of hydrocarbon release is related to water depth (the Deepwater Horizon circumstances combined HTHP with deep water, resulting in conditions which do not occur on the UKCS). It is recognised that the technical difficulties in tertiary well control and the uncertainties regarding fate of spilled oil are greater in deep water. When considering approval of individual projects and/or developments, risk factors are taken into consideration.
p		The extreme temperatures and conditions off Shetland would hinder cleanup efforts, exacerbating the damage caused by any oil spills. Oil in cold water naturally disperses more slowly than the in the Gulf of Mexico, and microbial dispersants would be less effective. The ECC Committee concluded that "*There are serious doubts about the ability of oil spill response equipment to function in the harsh environment of the open Atlantic in the West of Shetland*."
		Temperatures and metocean conditions (including water depth) off Shetland cannot be considered extreme in the context of offshore exploration and production. Oil dispersion depends on a number of variables, including the characteristics of the oil itself. Cultured microbial dispersants are not a component of the UK national dispersant stockpile, nor the enhanced "toolkit" stockpile being implemented by OSPRAG. Effectiveness of individual Operator OPEPs and the NCP have been evaluated in the context of environmental conditions west of Shetland and elsewhere on the UKCS, with a systematic review undertaken through the OSPRAG Oil Spill Emergency Response Review Group.
q		It is helpful that there are at least tacit nods in the NTS to the impact an oil spill might have on geological sediment and the water environment. However, it does make the glaring omission of any reference to the risk of a spill on biodiversity, tourism and the coastal economy all the more peculiar.
		Oil spill consequences in relation to the above are fully recognised and discussed within the main text of OESEA2
r	RSPB	The conclusion that potential for significant effect from oil and gas activities is largely related to noise underplays the risk of oil pollution, especially from accidental events. While it may be argued that the likelihood of the event happening is low, the impacts from any such pollution could be very serious and the costs of clean up very high – accidental events must not be discounted so easily.
		It is inaccurate to state that the consequences of accidental events are discounted by DECC, the offshore industry or by OESEA2. *A distinction is drawn between sources of potential effect (such as noise) which are very likely to result from the proposed activities, difficult to*

		mitigate, have substantial uncertainty in terms of their significance, and which may have potentially large spatial areas of effect; and major accidents which have a low probability of occurrence and are subject to comprehensive contingency planning and provisions.
s		Despite their inclusion in the ER, the conclusions of the report from the Parliamentary Energy & Climate Change Committee on the implications of the Deepwater Horizon event for UK deepwater drilling are ignored. Pertinent conclusions which we urge greater consideration of in the ER include: • The offshore oil and gas industry is responding to disasters rather than anticipating worst-case scenarios and planning for high-consequence, low probability events. • The drilling-licence process [requires] companies to consider their responses to high-consequence, low-probability events. The Government should not automatically accept claims that companies have mitigated away the risk of such worst-case scenarios. • There are serious doubts about the ability of oil spill response equipment to function in the harsh environment of the open Atlantic in the West of Shetland. The Government should ensure that any capping, containment and cleanup systems are designed to take full account of the harsh and challenging environment West of Shetland.
		As noted in OESEA2, regulation of the oil and gas industry is under continuous review. Technical, procedural and organisational response capabilities are subject to ongoing development through the work of DECC, HSE, MCA, Operators and collaborative organisations such as OSPRAG. *The joint government response[7] to the ECCC report has addressed each of the points listed in the RSPB comment above. Rather than repeat the text verbatim, the RSPB comments are explicitly addressed in points 4, 15 and 22 in the joint government response.*
t	JNCC	Oil spill risk is considered to be of potential minor negative impact on Biodiversity, habitats, flora and fauna, however if a spill did occur then the impact could potentially be very significant. The assumptions made in this section are purely based on risk – the process through which this risk has been defined should be clearly outlined to the reader.
		Risk as used in the OESEA2 assessment is defined as combining probability and consequence. It is noted that ongoing work on various aspects of risk is being undertaken through several of the Review Groups under OSPRAG.
u	MCS	Until technology improves sufficiently to reduce the risk of blowouts, and just as importantly allow for the capping of the wellhead swiftly in deepwater, MCS calls on the UK Government to introduce a moratorium on deepwater drilling. (See Marine Conservation Society Evidence to the Energy & Climate Change, Select Committee Inquiry into UK Deepwater Drilling – implications of the Gulf of Mexico oil spill).
		See (i) above

[7] House of Commons Energy and Climate Change Committee (2011). UK Deepwater Drilling - Implications of the Gulf of Mexico Oil Spill: Government Response to the Committee's Second Report of Session 2010–11
http://www.publications.parliament.uk/pa/cm201011/cmselect/cmenergy/882/882.pdf