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The Scottish Government

SEAGREEN ROUND 3 OFFSHORE WIND FARM PHASE 1, FIRTH OF FORTH

Scoping Opinion

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THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2000.

SCOPING OPINION FOR THE PROPOSED
SECTION 36 APPLICATION FOR THE SEAGREEN ROUND 3 OFFSHORE WIND FARM PHASE 1, FIRTH OF FORTH

1. Introduction

I refer to your letter of requesting a scoping opinion under the Electricity Works (Environmental Impact Assessment) (Scotland) (EIA) Regulations 2000 enclosing a scoping report.

Any proposal to construct or operate an offshore power generation scheme with a capacity in **excess of 1 megawatt** requires Scottish Ministers' consent under section 36 of the Electricity Act 1989.

Schedule 9 of the Act places on the developer a duty to "have regard to the desirability of preserving the natural beauty of the countryside, of conserving flora, fauna and geological and physiological features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest". In addition, the developer is required to give consideration to the Scottish Planning Policy on Renewable Energy other relevant Policy and National Policy Planning Guidance, Planning Advice Notes, the relevant planning authority's Development Plans and any relevant supplementary guidance.

Under the Electricity Works (Environmental Impact Assessment)(Scotland)(EIA) Regulations 2000, Scottish Ministers are required to consider whether any proposal for an offshore device is likely to have a significant effect on the environment. Scottish Ministers have considered your request for an opinion on the proposed content of the ES in accordance with regulations and in formulating this opinion; Scottish Ministers have consulted with the relevant organisations.

Please note that the EIA process is vital in generating an understanding of the biological and physical processes that operate in the area and may be impacted by the proposed offshore wind farm. We would however state that references made within the scoping document with regard to the significance of impacts should not prejudice the outcome of the EIA process.

It is important that any development of renewable energy sources should be accompanied by a robust assessment of its environmental impacts. The assessment should also consider how any negative environmental impacts could be avoided or minimised, through the use of mitigating technologies or regulatory safeguards, so that the quality and diversity of Scotland's wildlife and natural features are maintained and enhanced. Scottish Ministers welcome the commitment given in the report that the EIA process will identify mitigation

measures in order to avoid, minimise or reduce any adverse impacts. We would suggest that the range of options considered should be informed by the EIA process in order that these objectives can be achieved. Consultation with the relevant nature conservation agencies is essential and it is advised that this is undertaken as appropriate.

2. Aim of this Scoping Opinion

Scottish Ministers are obliged under the EIA regulations to respond to requests from developers for a scoping opinion on outline design proposals.

The purpose of this document is to provide advice and guidance to developers which have been collated from expert consultees whom the Scottish Government has consulted. It should provide clear advice from consultees and enable developers to address the issues they have identified and address these in the EIA process and the Environmental Statement associated with the application for section 36 consent.

3. Description of your development

From your submitted information it is understood, Seagreen plans to develop the Firth of Forth Round 3 zone in three phases with phase 1, in the northern area, being developed first. The scoping document proposes that two wind farms will be developed in Phase 1 Seagreen Alpha and Seagreen Bravo. Phase 1 of the zone lies ~ 25km offshore from the Angus coastline, comprising of an area of 597km2 located on the Scalp bank. The maximum installed capacity is constrained by the grid connection and is estimated to be 1075MW.

4. Land Use Planning

The Scottish Government's planning policies are set out in the National Planning Framework, Scottish Planning Policy, Designing Places and Circulars.

The National Planning Framework is the Scottish Government's Strategy for Scotland's long term spatial development.

Scottish Planning Policy (SPP) is a statement of Scottish Government policy on land use planning and contains:

• The Scottish Government's view of the purpose of planning,
• The core principles for the operation of the system and the objectives for key parts of the system,
• Statutory guidance on sustainable development and planning under Section 3E of the Planning etc. (Scotland) Act 2006,
• Concise subject planning policies, including the implications for development planning and development management, and
• The Scottish Government's expectations of the intended outcomes of the planning system.

Other land use planning documents which may be relevant to this proposal include:

- PAN 42: Archaeology–Planning Process and Scheduled Monument Procedures
- PAN 45: 2002 Renewable Energy Technologies
- PAN 50: Controlling the Environmental Effects of Surface Mineral Workings
- PAN 51: Planning, Environmental Protection and Regulation
- PAN 56: Planning and Noise
- PAN 58: Environmental Impact Assessment
- PAN 60: Planning for Natural Heritage
- PAN 62: Radio Telecommunications
- PAN 68: Design Statements
- PAN 69: Planning and Building Standards Advice on Flooding
- PAN 75: Planning for Transport
- PAN 79: Water and Drainage
- Marine Guidance Note 371 (M)
- The Highland Structure Plan
- West Highland and Islands Local Plan (WHILP).

5. Natural Heritage

Scottish Natural Heritage (SNH) has produced a service level statement (SLS) for renewable energy consultation. This statement provides information regarding the level of input that can be expected from SNH at various stages of the EIA process. Annex A of the SLS details a list of references, which should be fully considered as part of the EIA process. A copy of the SLS and other vital information can be found on the renewable energy section of their website – www.snh.org.uk

6. General Issues

Economic Benefit

The concept of economic benefit as a material consideration is explicitly confirmed in the consolidated SPP. This fits with the priority of the Scottish Government to grow the Scottish economy and, more particularly, with our published policy statement "Securing a Renewable Future: Scotland's Renewable Energy", and the subsequent reports from the Forum for Renewables Development Scotland (FREDS), all of which highlight the manufacturing potential of the renewables sector. The application should include relevant economic information connected with the project, including the potential number of jobs, and economic activity associated with the procurement, construction operation and decommissioning of the development.

7. Contents of the Environmental Statement (ES)

Format

Developers should be aware that the ES should also be submitted in a user-friendly PDF format which can be placed on the Scottish Government website. A description of the methodology used in assessing all impacts should be included.

It is considered good practice to set out within the ES the qualifications and experience of all those involved in collating, assessing or presenting technical information.

Non Technical Summary.

This should be written in simple non-technical terms to describe the various options for the proposed development and the mitigation measures against the potential adverse impacts which could result. Within an ES it is important that all mitigating measures should be:

- Clearly stated;
- Fully described with accuracy;
- assessed for their environmental effects;
- assessed for their effectiveness;
- Their implementation should be fully described;
- How commitments will be monitored; and
- If necessary, how they relate to any consents or conditions.

Given that the layout and design are still developing and evolving, the exact nature of the work that is needed to inform the EIA may vary depending on the design choices. The EIA must address this uncertainty so that there is a clear explanation of the potential impact of each of the different scenarios. It should be noted that any subsequent components/scenario's procured after the ES is submitted would be subject to further environmental assessment and public consultations period if deemed to be significant.

Baseline Assessment and Mitigation

Refer to Annex 1 for consultee comments on specific baseline assessment and mitigation.

8. Archaeology and Cultural Heritage

General Principles

The ES should address the predicted impacts on the historic environment and describe the mitigation proposed to avoid or reduce impacts to a level where they are not significant. Historic environment issues should be taken into consideration from the start of the site selection process and as part of the alternatives considered.

National policy for the historic environment is set out in:

- Scottish Planning Policy *Planning and the Historic Environment at:* http://www.scotland.gov.uk/topics/built-environment/planning/National-planning-policy/themes/historic
- The Scottish Historic Environment Policy (SHEP) sets out Scottish Ministers strategic policies for the historic environment and can be found at: http://www.historic-scotland.gov.uk/index/heritage/policy/shep.htm

Amongst other things, SPP paragraph 110–112, Historic Environment, stresses that scheduled monuments should be preserved *in situ* and within an appropriate setting and confirms that developments must be managed carefully to preserve listed buildings and their settings to retain and enhance any features of special architectural or historic interest which they possess. Consequently, both direct impacts on the resource itself and indirect impact on its setting must be addressed in any Environmental Impact Assessment (EIA) undertaken for this proposed development. Further information on setting can be found in the following document: Managing Change in the Historic Environment http://www.historic-scotland.gov.uk/managing-change-consultation-setting.pdf.

Historic Scotland recommend that you engage a suitably qualified archaeological/historic environment consultants to advise on, and undertake the detailed assessment of impacts on the historic environment and advise on appropriate mitigation strategies.

Baseline Information

Information on the location of all archaeological/historic sites held in the National Monuments Record of Scotland, including the locations and, where appropriate, the extent of scheduled monuments, listed buildings and gardens and designed landscapes can be obtained from www.PASTMAP.org.uk

Data on scheduled monuments, listed buildings and properties in the care of Scottish Ministers can also be downloaded from Historic Scotland's Spatial Data Warehouse at
http://hsewsf.sedsh.gov.uk/pls/htmldb/f?p=500:1:8448412299472048421::NO
For any further information on those data sets and for spatial information on gardens and designed landscapes and World Heritage Sites which are not currently included in Historic Scotland's Spatial Data Warehouse please contact hsgimanager@scotland.gsi.gov.uk. Historic Scotland would also be happy to provide any further information on all such sites.

9. Navigation

The Environmental Statement should supply detail on the possible the impact on navigational issues for both Commercial and Recreational craft, viz.

Collision Risk
Navigational Safety
Risk Management and Emergency response
Marking and lighting of Tidal Site and information to mariners
Effect on small craft navigational and communication equipment
Weather and risk to recreational craft which lose power and are drifting
In adverse conditions
Evaluation of likely squeeze of small craft into routes of larger
Commercial vessels.
Visual intrusion and noise

10. Ecology, Biodiversity and Nature Conservation

Refer to Annex 1 for consultee comments on ecology, biodiversity and nature conservation.

Species

The ES needs to show that the applicants have taken account of the relevant wildlife legislation and guidance namely, Coast Protection Act 1949 section 34, Council Directives on The Conservation of Natural Habitats and of Wild Flora and Fauna, and on Conservation of Wild Birds (commonly known as the Habitats and Birds Directives), the Wildlife & Countryside Act 1981, the Nature Conservation (Scotland) Act 2004, the Protection of Badgers Act 1992, the 1994 Conservation Regulations, Scottish Executive Interim Guidance on European Protected Species, Development Sites and the Planning System and the Scottish Biodiversity Strategy and associated Implementation Plans. In terms of the SG Interim Guidance, applicants must give serious consideration to/recognition of meeting the three fundamental tests set out in this Guidance. **It may be worthwhile for applicants to give consideration to this immediately after the completion of the scoping exercise.**

It needs to be categorically established which species are present on the site, and where, before the application is considered for consent. The presence of protected species such as Schedule 1 Birds or European Protected Species must be included and considered as part of the application process, not as an issue which can be considered at a later stage. Any consent given without due consideration to these species may breach European Directives with the possibility of consequential delays or the project being halted by the EC. Likewise the presence of species on Schedules 5 (animals) and 8 (plants) of the Wildlife & Countryside Act 1981 should be considered where there is a potential need for a licence under Section 16 of that Act.

11. Water Environment

Developers are strongly advised at an early stage to consult with SEPA as the regulatory body responsible for the implementation of the Controlled Activities Regulations (CAR), to identify 1) if a CAR license is necessary and 2) clarify the extent of the information required by SEPA to fully assess any license application.

All applications (including those made prior to 1 April 2006) made to Scottish Ministers for consent under section 36 of the Electricity Act 1989 to construct and operate a electricity generating scheme will require to comply with new legislation. In this regard we will be advised by the Scottish Environment Protection Agency (SEPA) as the regulatory body responsible for the implementation of the Water Environment (Controlled Activities) (Scotland) Regulations 2005, and will have regard to this advice in considering any consent under section 36 of the Electricity Act 1989.

SEPA produces a series of Pollution Prevention Guidelines, several of which should be usefully utilised in preparation of an ES and during development. These include SEPA's guidance note PPG6: Working at Construction and Demolition Sites, PPG5: Works in, near or liable to affect Watercourses, PPG2 Above ground storage tanks, and others, all of which are available on SEPA's website at http://www.sepa.org.uk/guidance/ppg/index.htm. SEPA would look to see specific principles contained within PPG notes to be incorporated within mitigation measures identified within the ES rather than general reference to adherence to the notes.

Prevention and clean-up measures should also be considered for each of the following stages of the development;

- Construction.
- Operational.
- Decommissioning.

Construction contractors are often unaware of the potential for impacts such as these but, when proper consultation with the local fishery board is encouraged at an early stage, many of these problems can be averted or overcome.

- Increases in silt and sediment loads resulting from construction works.
- Point source pollution incidents during construction.
- Obstruction to upstream and downstream migration both during and after construction.
- Disturbance of spawning beds during construction - timing of works is critical.
- Drainage issues.
- Sea Bed and Land Contamination

The ES should identify location of and protective/mitigation measures in relation to all private water supplies within the catchments impacted by the scheme, including modifications to site design and layout.

Developers should also be aware of available CIRIA guidance on the control of water pollution from construction sites and environmental good practice (www.ciria.org). Design guidance is also available on river crossings and migratory fish (SE consultation paper, 2000) at http://www.scotland.gov.uk/consultations/transport/rcmf-00.asp.

12. Other Material Issues

Traffic Management

The Environmental Statement should provide information relating to the preferred route options for delivering equipment etc. via the trunk road network. The Environmental Impact Assessment should also address access issues, particularly those impacting upon the trunk road network; in particular, potential stress points at junctions, approach roads, borrow pits, bridges, site compound and batching areas etc.

Where potential environmental impacts have been fully investigated but found to be of little or no significance, it is sufficient to validate that part of the assessment by stating in the report:

- the work has been undertaken, e.g. transport assessment;
- what this has shown i.e. what impact if any has been identified, and
- Why it is not significant.

13. General ES Issues

In the application for consent the applicant should confirm whether any proposals made within the Environmental Statement, e.g. for construction methods, mitigation, or decommissioning, form part of the application for consent.

Consultation

Developers should be aware that the ES should also be submitted in a user-friendly PDF format which can be placed on the Scottish Government website. Developers are asked to issue ESs directly to consultees. Consultee address lists can be obtained from the Energy Consents Unit. The Energy Consents Unit also requires 8 hardcopies to be issued internally to Scottish Government consultees.

Where the developer has provided Scottish Ministers with an environmental statement, the developer must publish their proposals in accordance with part 4 of the Environmental Impact Assessment (Scotland) Regulations 2000. Energy consents information and guidance, including the specific details of the adverts to be placed in the press can be obtained from the Energy Consents website; http://www.scotland.gov.uk/Topics/Business-Industry/Energy/Energy-Consents

Gaelic Language

Where s36 applications are located in areas where Gaelic is spoken, developers are encouraged to adopt best practice by publicising the project details in both English and Gaelic (see also Energy consents website above).

OS Mapping Records

Developers are requested at application stage to submit a detailed Ordinance Survey plan showing the site boundary and all turbines, access tracks and onshore supporting infrastructure in a format compatible with the Scottish Government's Spatial Data Management Environment (SDME), along with appropriate metadata. The SDME is based around Oracle RDBMS and ESRI ArcSDE and all incoming data should be supplied in ESRI shape file format. The SDME also contains a metadata recording system based on the ISO template within ESRI ArcCatalog (agreed standard used by the Scottish Government); all metadata should be provided in this format.

Difficulties in Compiling Additional Information

Developers are encouraged to outline their experiences or practical difficulties encountered when collating/recording additional information supporting the application. An explanation of any necessary information not included in the Environmental Statement should be provided, complete with an indication of when an addendum will be submitted.

Application and Environmental Statement

A developer checklist is enclosed with this report to help developers fully consider and collate the relevant ES information to support their application. In advance of publicising the application, developers should be aware this checklist will be used by government officials when considering acceptance of formal applications.

Consent Timescale and Application Quality

In December 2007, Scottish Ministers announced an aspirational target to process new section 36 applications within a 9 month period, provided a PLI is not held. This scoping opinion is specifically designed to improve the quality of advice provided to developers and thus reduce the risk of additional information being requested and subject to further publicity and consultation cycles.

Developers are advised to consider all aspects of this scoping opinion when preparing a formal application, to reduce the need to submit information in support of your application. The consultee comments presented in this opinion are designed to offer an opportunity to consider all material issues relating to the development proposals.

In assessing the quality and suitability of applications, Government officials will use the enclosed checklist and scoping opinion to scrutinise the application. Developers are encouraged to seek advice on the contents of ESs prior to applications being submitted, although this process does not involve a full analysis of the proposals. In

the event of an application being void of essential information, officials reserve the right not to accept the application. Developers are advised not to publicise applications in the local or national press, until their application has been checked and accepted by SG officials.

Judicial review

All cases may be subject to judicial review. A judicial review statement should be made available to the public.

Signed
Fiona Thompson

Authorised by the Scottish Ministers to sign in that behalf

Enclosed - Developer Application Checklist

14. Annex 1

Consultee Comments Relating To SEAGREEN ROUND 3 OFFSHORE WIND FARM PHASE 1, FIRTH OF FORTH

The following organisations provided a scoping opinion in relation to the Seagreen Round 3 Offshore Wind Farm Phase 1, Firth of Forth

Statutory Consultees

JNCC
SEPA
Dundee City Council

Non Statutory Consultees

RSPB
Civil Aviation Authority
NERL Safeguarding
Maritime & Coastguard Agency
Northern Lighthouse Board
MOD
ASFB
RYA Scotland
Ports and Harbours
Historic Scotland
Transport Scotland
Canoe Scotland
Marine Scotland

JNCC Comments

The Zonal Appraisal & Planning Process

For Round 3 development, the zonal appraisal and planning (ZAP) process broadly characterises each zone and sets the (environmental) context for each individual wind farm site within the zone. For Zone 2, this context is set out in Seagreen‟s report on Zonal
Appraisal and Planning; Firth of Forth Zone Characterisation (submitted to JNCC and SNH July, 2010).

As identified by Seagreen, the key benefits of zonal appraisal with respect to EIA are that:

- It provides a better opportunity for understanding the wider context of environmental issues, particularly in respect of potential cumulative impacts.
- A wider development zone presents greater flexibility for locating development away from sensitive areas.
- The ZAP process provides a framework for discussion of key issues across a number of stakeholders.

In respect of this Phase 1 scoping consultation, it is therefore highly relevant to consider Seagreen‟s ZAP report as this summarises the work on zonal characterisation and the (baseline) data available for this zone. It also indicates the further research that will be commissioned to help improve our knowledge of this area. This process of zonal appraisal will inform, and provide the context to, each individual EIA for progressive phases of development within the zone.

We therefore advise that the Phase 1 scoping report cannot be reviewed alone as much of the supporting detail is presented in the ZAP report. We recommend that the two reports are more fully integrated so that it is clear which aspects of zonal characterisation and research will be used to inform the Phase 1 EIA for the Alpha and Bravo wind farms. The scoping advice that we present in this response incorporates our comments on both reports.

Our advice relating to the development in general is presented in Annex A and our scoping advice on the environmental interests that should be considered under the Phase 1 EIA is presented in Annex B. Annexes C and D provide detail of our recommendations on the scope for the HRA, and Annex E provides further background on the HRA legislation process and guidance on European Protected Species.

General Approach to EIA

It is relevant at this point to clarify the aims of EIA, in order to frame our advice on how it should be undertaken appropriately. EIA is a statutory process which should highlight the potential positive and negative impacts of a project, and identify how effects can be prevented, offset or reduced through mitigation, enabling the regulator to make a decision on whether to consent. For complex and large-scale development proposals the EIA process may not be straightforward, and we highlight that there may be opportunities to improve its practice.

In respect of offshore wind farm development, it is important to highlight the much larger scale and geographic spread of Round 3 compared to Rounds 1 and 2 of development. Therefore, while lessons are being learned from Rounds 1 and 2 sites, there is the potential for a different range and / or a greater level of impacts to arise from Round 3 development. Consequently, considering the levels of uncertainty in the EIA process we are advising that EIA is undertaken in the context of risk management and we identify the need to consider what level of confidence in the data it will be realistically possible to achieve, and how this will be presented to enable conclusions to be reached.

We welcome the zonal appraisal and planning process as this presents an opportunity to better understand the environmental context of individual Round 3 wind farm sites, and we consider that the ZAP process suggested by Seagreen is a reasonable one. However, we
would highlight that development is still constrained by the fixed limits of the zone, and therefore mitigation is also restricted within this area (i.e. the relocation of development away from sensitive areas is limited). We note that that there are limitations as to the ability to adequately represent environmental interests within the mapping tools used to prioritise areas for development, largely due to the data gaps in the information that is available for these interests. We provide more detailed comment on constraints mapping in Annex A.

Finally, we note that EIA should consider the environment holistically, and not as a discrete set of individually sensitive receptors. Within the ZAP report, Seagreen have made a number of suggestions regarding work that could be undertaken to help us understand the (ecosystem) linkages between receptors, and to determine how impacts on one receptor may influence others (such as impacts to fish which may be important as prey species for birds and marine mammals). We consider that such inter-relationships are likely to be key in interpreting the environmental impacts of Round 3 development and we therefore welcome the applicant‟s intention to integrate these aspects as part of the EIA process.

Habitats Regulations Appraisal

As part of our scoping advice we include the range of interests and potential impacts that may need to be considered in relation to the The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (applying to the offshore zone beyond 12 nautical miles) and to the Conservation (Natural Habitats, &c.) Regulations 1994 as amended (applying to Scottish territorial waters). These regulations protect Natura

(European) sites – a network of designated sites across Europe which are internationally important for threatened habitats and species – encompassing Special Protection Areas (SPAs) designated for a range of important bird species, and Special Areas of Conservation (SACs) which include a variety of sensitive or rare marine habitats.

Under the above regulations, Habitats Regulations Appraisal (HRA) is the process whereby potential impacts to Natura sites – SPAs and SACs – are considered. We provide more detail on the process of HRA in Annex E. We provide our advice on HRA tailored to the potential impacts of Phase 1 of wind farm development (Alpha and Bravo wind farms) in the Round 3 zone in Annex C for SPAs and Annex D for SACs.

Key Environmental Issues

In Annex B we present our advice on the range of environmental interests that need to be addressed through EIA: as noted above we strongly recommend that the inter-relationships between these interests are fully considered.

Our key concerns are as follows and we consider that these issues will need thorough consideration through EIA and close discussion between Marine Scotland, Seagreen and ourselves:

- The potential effects of this development proposal on birds during all phases of development encompassing displacement, indirect effects (through impacts on prey species) and collision mortality – both at a project-level and cumulatively.

- Potential effects on marine mammals from noise during construction – both at a project-level and cumulatively.

- Potential effects on fish, including those that are important as prey species for birds and marine mammals – both at a project-level cumulatively.

Further Liaison and Advice

This Round 3 zone lies close to other proposed wind farm sites in Scottish territorial waters in the outer Firths of Forth & Tay – the Neart na Gaoithe, Forth Array and Inch Cape proposals. Therefore we welcome the collaborative working that is being undertaken by Seagreen and the other developers in the Forth & Tay Offshore Wind Developers Group (FTOWDG). This will be of particular use in the assessment of

cumulative impacts and we will continue to liaise with FTOWDG over this work to ensure that it can be used to help answer the questions that will be posed during the consenting process.

The further development of offshore wind farms presents an opportunity to learn from previous development and to further refine survey and monitoring methods to ensure that the practicality and effectiveness of methods employed ensure that key data gaps are addressed. There is therefore a role for consenting authorities, developers and consultees to increase the understanding of the effects of offshore wind farms as well as securing best practice in future developments.

We encourage Marine Scotland and the developer to approach JNCC and SNH to discuss any issues raised within this response.

ANNEX A – ADVICE RELATING TO THE DEVELOPMENT IN GENERAL

The advice herein refers to the Zonal Appraisal and Planning Document, Approach to Environmental Impact Assessment (EIA), including Phases of Development, Consultees and Cumulative / In-combination Assessment, and Habitats Regulations Appraisal (HRA).

1.1 We would like Marine Scotland to note that the issues that need to be addressed within this EIA are faced strategically by offshore wind developers around the UK, and there is a need to prioritise the sharing of information among developers, regulators and statutory consultees. This is to ensure that best practice is applied on the best available information in all locations, maximise consistency and to minimise duplication of effort where possible.

THE ZONAL APPRAISAL AND PLANNING DOCUMENT

1.2 Seagreen submitted a Zonal Appraisal and Planning document in July 2010, which supports the scoping for the Phase 1 Scoping Report. Overall the ZAP document is useful, however it was disappointing to not see this referred to or integrated within the Scoping Report, as generally greater detail on data collection and research is found in the ZAP document. It is therefore relevant for us to provide comments on the ZAP document, which is an integral part of this, and future, scoping exercises. We also reference the ZAP document throughout the other appendices.

1.3 We fully support the approach to ZAP identified, and would be happy to engage in the iterative process and review interim reports as they arise. However we highlight that it is necessary to integrate this process as fully as possible into the EIA of the forthcoming developments. Presently it is not clear what will be undertaken to inform Phase 1 development (e.g. of the proposed actions to address data gaps relating to ornithological interests).

1.4 We note the consideration of the possibility that site boundaries would be refined based on the outputs of the ZAP process (p.7 of ZAP), and we wish to be clear about the possibilities and benefits of this at the scoping stage. The assessment of a wider area than is necessary for development provides flexibility for moving development sites within the zone away from sensitive areas which was not possible at sites during Rounds 1 and 2. To enable such location decisions, it is necessary to define, with sufficient confidence, areas which are of high sensitivity and therefore less preferable for development.

1.5 We are keen to be realistic about these options at this stage, to ensure that the maximum benefits of this mitigation options are obtained. Firstly, it is important to clarify that although sites may be moved within the zone, there is a limit to the influence of this on reducing potential environmental effects (and it will not be possible to consider areas outside of the zone which may have been of lesser environmental importance). Secondly, the robustness environmental information needed to inform such siting decisions requires a certain level of statistical confidence, and the definition of survey scopes at this stage should be considerate of this.

1.6 We highlight that although the developer has proposed that site boundaries may be "refined;" and "sites will be designed to be flexible in response to environmental or technical issues that may be identified," this doesn"t explicitly acknowledge that it may be necessary to reduce site boundaries in some cases to reduce risk to the environment. JNCC and SNH are wholly supportive of appropriate development of offshore renewable energy projects, however it is important to emphasise at this stage that there are significant risks involved, and the management of these risks (e.g. collision risk to bird species) could, if other mitigation is insufficient, necessitate restrictions on the capacity of development within the Zone.

1.7 We therefore recommend that the developer ensures that the objectives of data gathering are set appropriately to obtain data of sufficient detail and confidence to enable environmental sensitivity to inform the scale and location of development to enable mitigation through location to be considered.

Constraints Mapping

1.8 We note that GIS has been used to highlight suitable and unsuitable locations for development through constraints mapping, and we request further clarification of the approach undertaken to date, and how this might be further refined and reflected within the EIA process and in particular the assessment of alternatives (in assessment of alternatives, see Annex A). There have been significant advancements in the incorporation of data into decision support tools and for consenting purposes it is imperative that these processes are undertaken in a transparent, consistent manner and involving independent experts. This includes the use of MaRS (Marine Resource System) both within the Crown Estate, and the use of the system by developers, as per their zonal agreements.

1.9 In particular we would appreciate clarity on:

- How data is expressed within the mapping tool in their GIS; e.g. has aerial survey data been incorporated into the tool?

- How has uncertainty / lack of data been incorporated into decision making?

- How has weighting been applied to each layer, particularly, but not exclusively, including „ornithology and other marine ecology interests" Table 3.1? It would be extremely useful to see a map of the environmental constraints only, and presentation of a range of outputs would help to understand how the changing of „weightings" and other scoring can affect the range of outcomes.

1.10 We note that “Weights applied to each constraint informed by the initial Zone Appraisal and constraints mapping exercise undertaken by Royal Haskoning (2009b),” however we have not seen this report and would welcome discussion with the developer on how sufficiently this considers statutory nature conservation interests.

1.11 The ZAP report states that the process has utilised; “rigorous, data-driven, GIS-based site selection process which identifies areas of least environmental constraint,” (p.14 of ZAP), but we would query whether the parameters identified in Table 3.1 are sufficiently represented by robust data to enable making definitive decisions on location at this stage? Where mapping / modelling tools are used to justify decision making, it is important to clarify where there are uncertainties, including the general lack of data and knowledge regarding potential environmental effects. It may be appropriate at this stage to maintain flexibility on site location, until further environmental information has been collected and siting decisions can be

made in discussion with statutory consultees and in response to the need for mitigation.

1.12 We query the statement that the work has been “supplemented with expert third party opinion in the further reports identified in Table 3.2,” as the reports listed are JNCC, 2005 and Camphuysen, 2005, with limited scope of information on constraints, and we welcome focussed discussion to ensure more up to date expert engagement in this process. It is necessary to understand the flexibility in the mapping so far

undertaken, to ensure that there remains the opportunity to adjust development plans in response to new information – this is currently not clear from the ZAP document.

1.13 We note that “ZAP will allow Seagreen to manage the risks to consenting,” however we query whether constraints mapping in this form is the best way to present „risk to consenting"? We note that it is easier to map „hard" constraints, but the rating of environmental factors as „soft" suggests they are of lower importance, however they are potentially significant and are only not „absolute" because of the limitations in data availability and the methods for representing them in GIS tools. Further, environmental constraints could be considered as more fixed than other „hard" constraints as they cannot be influenced directly; e.g. the pattern of occurrence and abundance of protected birds (such as SPA seabirds) are not moveable, however aspects such as military training areas, shipping lanes, could be moved through negotiation if the need arose. We note the proposal to amend boundaries later but advise caution in considering environmental factors as of less of a consenting risk at this stage.

1.14 We would therefore welcome the opportunity to discuss the constraints mapping further, to identify the processes undertaken to date, highlight any limitations and discuss how these might be resolved or how data layers may be further refined to provide a more accurate reflection of environmental constraints. It would be preferable for this to be discussed sooner rather than later to assist in both the EIA work for the current two wind farm proposals, but also in identifying knowledge gaps to further inform the ZAP characterisation.

Link to Strategic Environmental Assessment

1.15 The developer should consider the on-going SEA for Offshore Wind in Territorial Waters for adjacent development, and the Offshore Energy SEA 2 (looking at, alongside other energy development, further rounds of offshore wind farm leasing in the UK Renewable Energy Zone and the territorial waters of England and Wales), as which is of direct relevance to the development area. We would be happy to share our comments raised at this strategic level to help inform both the zone appraisal and individual site assessment work that Seagreen are carrying out.

APPROACH TO EIA

Assessment of alternatives

1.16 It is recommended that the applicant‟s Environmental Statement (ES) contains discussion of the main alternatives they considered for location of the developments (referring to comments regarding mapping, above), with an explanation of the reasons for their final choice of project location, taking into account environmental sensitivities.

1.17 We are satisfied that within the assessment of projects that the „Rochdale Envelope‟ principle will be applied (as discussed on p.21 of Scoping Report), to ensure that the consent is sufficient to encompass the worst-case scenario of potential impacts, where multiple options exist for an aspect of the project plan. However we also wish to highlight that due to the significant time until decision on project design specifications, and external factors such as the influence of supply chain, etc, it is challenging to consider all possible design scenarios within the ES in order to maintain sufficient flexibility within the consent.

1.18 We encourage the developer to ensure that issues raised at this scoping stage of EIA are also considered in their project design stages, as there may be opportunities / necessity to influence design as way of ensuring sufficient mitigation for potentially significant impacts. For example, it is noted that decision on turbine design will not be made until consents are in place - we emphasise that the environmental merits of different foundations should be considered, if for example, it is deemed that there is a significant risk to marine mammal populations from the piling of monopile turbines, therefore from a consenting perspective it may be in the interest of the developer to focus on installation techniques which avoid / reduce these impacts (this may be required by the consent). We acknowledge that there is

significant uncertainty in this area, however the risks are sufficient that it is advisable to consider other options during early stages of project design.

1.19 We recognise that there are multiple challenges requiring innovation across the industry, and strongly encourage coordinated discussion on technological solutions which could provide mitigation and minimise risk to developers at the consenting stage.

1.20 It would also be appropriate to discuss within the ES, the alternative locations of development which were evaluated as part of the ZAP process, (discussed above), and how these were informed by the assessment of environmental sensitivities. This will enable the regulator to review the environmental merits of the proposed development, in comparison to other potential options (as reasonable alternatives).

Assessing the Significance of Impacts

1.21 With respect to identification and evaluation of impacts (p.20 of Scoping Report), we note that "where an impact can be quantified, thresholds will be applied to determine the significance of an impact, unless otherwise stated;" and if not possible to quantify, a subjectivity scale is proposed. We support this approach and highlight that there is currently high uncertainty in defining thresholds of significance for certain sensitive receptors will necessitate a qualitative appraisal of results in most cases. Guidance applied in wind farm development thus far has been weak and sometimes arbitrary, and as the information base is lacking to enable a statement of quantified thresholds, we strongly encourage appropriate consideration of the information collected pertaining to this specific area and development, and close consultation with relevant experts to ensure that there is on-going agreement between the developer, SNCAs and Marine Scotland as to what is deemed to be significant, in proportion to the anticipated effects. (Please see Annex B for more detail on this).

1.22 With regard to Table 4.2 (p.2 of Scoping Report) and the significance of impacts, this may not place sufficient emphasis on effects at the site level, as here they are represented as minor, presumably due to the scale of effects decreasing at a smaller spatial scale. However it is important to note that effects at a „smaller" but site-specific scale may have greater implications for the site/feature in question due to the effects on a relatively larger proportion of the feature. This emphasises the need for a location / sensitivity specific judgement of significance, relative to the extent of the feature. This is most relevant to sites/features which are designated (i.e. of determined extent) and should also therefore be considered as part of the Habitats Regulations Appraisal (HRA) assessment, along with reference to the Conservation Objectives for specific assessment objectives regarding significance.

1.23 Further, it is necessary to ensure that „magnitude" includes consideration of the other criteria listed in 4.3.1; i.e. temporal extent, reversibility, etc; and for clarity it would be

appropriate to separate environmental effects in to the development phases (construction, operation and decommissioning).

1.24 It is of benefit to recognise where there have been limitations in EIAs to date, and that efforts should be focussed on assessment of effects on target species, but also through developing understanding of the ecological links between different receptors. We recommend that an holistic approach to EIA is taken, identifying potential links between environmental features and the potential for indirect impacts.

It may be useful to consider whether there is a way to „map" effects, diagrammatically? This would be complex but could highlight where the EIA effectively overlaps (e.g. effects on fish on their own merit, and as prey species for marine mammals and birds).

1.25 Within the ES, terminology should be carefully explained, for example, within the Scoping Report, Marine Ecology is used, however, this phrase could represent all the environmental receptors in the marine area, rather than specifically the benthic habitat. It may be more relevant to title this chapter „Benthic Ecology."

1.26 We agree with the principal assessment of parameters in Table 8.1, and note that all environmental impacts are currently scoped into the EIA.

1.27 Modification of the baseline – it is relevant to consider within the EIA the potential changes to the baseline environmental processes and pathways, e.g. through climate change, which will have an effect on how impacts are predicted, assessed and monitored.

PHASES OF DEVELOPMENT

1.28 The EIA for this proposal (to be reported in the ES) should address the following phases of wind farm development:

 Construction - The ES should include details on proposed construction methods including information on project management – contractor arrangements, „chain of command", roles and responsibilities of key staff – and timetabling – the phasing/sequencing of proposed works – especially if this has been identified as a mitigation measure for environmental, visual or other effects. Information should also be included on the proposed construction equipment, and intended delivery routes and port facilities.

 Operation - The ES should include details of operation, including maintenance activities and an assessment of any impacts that could arise – considering any potential environmental, navigational and / or other effects. Discussion regarding the effects associated with maintenance activities could be strengthened within the report.

 Decommissioning. The process and methods of decommissioning should also be considered, and reviewed, at this (pre-application) stage, with an options appraisal present in the ES. This is to ensure that there not likely to be consenting issues associated with decommissioning, and highlights where early design may need to be influenced by the decommissioning scenario (for example, ensuring that stabilisation materials are removable, if removal was deemed necessary) The SR currently does not present sufficient detail regarding decommissioning, and it is not sufficient to compare to impacts expected during construction, or to defer to a subsequent EIA.

1.29 We don"t feel that the impacts of decomissioning have been fully scoped into the EIA process, with assumptions being made as to the comparability of impacts of the construction phase, and deferring assessment until a subsequent EIA. Although it is difficult to define at these early stages, in order to assess the project fully, (and ensure that there are feasible options) it is necessary to consider the worst case scenario of impacts arising during decommissioning, particularly where the impacts will differ from that during construction. For example, in terms of impacts to marine mammals, there will be no piling but may involve other noise sources (e.g. cuttings or explosives) which needs to be assessed pre-emptively to ensure that removal is feasible without significant environmental impact.

1.30 It is also necessary to clarify whether there is any „repowering" planned for the development, to ensure that the effects of this are also considered and do not hinder operations through consenting at a later stage. It is important to be clear on what repowering entails and whether there is likely to be any relocation of subsea infrastructure or alteration of the wind farm layout. This includes whether further scour protection is required for foundations in the same, or in new, locations across the wind farm site. Any alterations to the locations of offshore elements for repowering may require an update to the benthic survey work and assessments that have previously been carried out.

1.31 We note that the Scoping Report considers the phases of development within each receptor-specific chapter, however it would be useful to present the temporal aspects of the impacts more clearly within the ES, perhaps including a timetable of the phases and expected impacts. This is helpful for the overall assessment of the magnitude of different impacts, and is particularly relevant to the assessment of cumulative impacts.

CONSULTEES

1.32 We recommend that the Whale and Dolphin Conservation Society (WDCS) are also consulted at this stage. It may also be appropriate to consult with Natural England, if there are impacts which are anticipated within their area of jurisdiction.

CUMULATIVE AND IN-COMBINATION EFFECTS

1.33 Cumulative and in-combination effects are of significant concern, for planned development in the Firth of Forth and at a national scale. This includes the potential for cumulative impacts arising with other operational, planned and in-construction marine activities in the area, primarily the development of offshore wind farms within Scottish territorial waters. In respect of this, we agree with the proposed activities outlined in Table 4.4 (p.24 of Scoping Report).

1.34 The co-ordinated approach of Seagreen through the Forth and Tay Offshore Windfarm Developers Group (FTOWDG) to cumulative impact assessment is welcomed, as it is clear that due to the wide ranging and mobile nature of species of concern (birds and marine mammals), the assessment, mitigation and monitoring may be more easily addressed at a wider level. We have already commented on the „East Coast Discussion Document – Cumulative Impacts' (Royal Haskoning, September 2009) and the process it describes for considering the cumulative effects that may potentially arise from the four offshore wind farm proposals in the Firth of

Forth within Scottish Territorial Waters. We will supply further comments on the next iteration directly to the FTOWDG, copied to Marine Scotland. Thus far, we have advised that further information should be included in further iterations of the

cumulative assessment document on the standardisation of methods and data sharing across the developers to facilitate better cumulative impact assessment.

1.35 We request that greater information is provided in further iterations of the Cumulative Studies Report, on the standardisation of methods and data sharing across the developers to facilitate better cumulative impact assessment (CIA).

1.36 We agree that it is in the zonal developer‟s interest to consider the full zone capacity in CIA (p.28 of Scoping Report), as omitting this risks precluding further development if a significant threshold is predicted to be reached. Zonal consideration presents a wider range of options to minimise effects, and maximise development.

1.37 It may be helpful for the developer to present their activities in a table format, defining what they consider to be the activities to be considered in-combination with the proposed development, considering both the spatial and temporal aspects. This could be presented for each phase of development (i.e. construction, operation and decommissioning) as this would clearly set out the justification for the scope of CIA, and would provide a useful starting point for discussion with other operators and consultees, as required.

1.38 We also provide the topic-specific advice on cumulative impacts in this response within further annexes.

HABITATS REGULATION APPRAISAL (HRA)

1.39 With regard to Habitats Regulation Appraisal for the proposed developments, detailed advice on the regulations are provided in Annex E and information provided in Annex B for specific receptors.

1.40 As a general point, we advise that the HRA assesses whether a plan or project will have an adverse effect on site integrity, and not „significant impact‟ as stated on

p.22 of the Scoping Report. We also note the reference to the HRA undertaken by the Crown Estate, as competent authority for the Round 3 plan (undertaken December 2009), and the need to undertake further assessment at the project level. We highlight to Marine Scotland, that due to the strategic nature of that assessment, it was not possible to conclude that there wouldn"t be an adverse impact and therefore the substance of this assessment was deferred to the project level, with zonal schedules being provided for each zone to be considered further in the assessment. Could we request that Seagreen present a potential scope of HRA, building on the Zonal Schedule of deferred assessment from the Round 3 HRA? This would be useful in determining what information is required to undertake HRA for Phase 1 Development, and how the objectives of HRA can be encompassed by EIA investigative work. Under the new consenting regime, with a focus on pre-application, it is important that the developer submits sufficient information to enable Marine Scotland to undertake a HRA post-application, prior to making a decision on consenting.

1.41 We request that Seagreen present a potential scope of HRA, building on the Zonal Schedule from the Round 3 HRA, in addition to the work being carried out within the FTOWDG. This would be useful in determining what information is required to undertake HRA for the Phase 1 Development, and how the objectives of HRA can be encompassed by EIA investigative work. Under the new consenting regime, with a focus on pre-application consultation, it is important that the developer submits sufficient information to enable the HRA to be undertaken, prior to a decision on consenting being made.

ANNEX B – ADVICE ON EIA FOR ZONE 2 PHASE 1 DEVELOPMENT – RECEPTOR-SPECIFIC

This Appendix provides our advice on the environmental interests which need to be considered for the Seagreen Alpha and Bravo Windfarms in Zone 2 of Round 3, located in the outer Firths of Forth and Tay. This will cover the topics below, with reference to the scoping report and zonal appraisal and planning document:

1. Ornithology

2. Marine Mammals

3. Hydrodynamics and Coastal Geomorphology

4. Marine Ecology

5. Fish

6. Seascape, Landscape and Visual Impact Assessment

1 ORNITHOLOGY

General Points

1.1 The scoping report presents a comprehensive outline of the potential impacts to be considered. With regard to data collection, the ZAP document is perhaps more relevant, as Table A3.6 details the data gaps and proposals for data gathering. We clarify that there is significant uncertainty surrounding these issues and we therefore welcome the approach of identifying gaps and proposing potential information gathering, in discussion with ourselves. It would be appropriate to refer to the ZAP document in the Scoping Report, to clarify what will be available to inform the EIA process for Phase 1.

Data collection

1.2 With respect to ornithological data collection, in principal the standard boat-based collection methodology may enable determination of baseline population densities for the purpose of the EIA process. However it is important to note that JNCC and SNH are in discussion with Seagreen with regard to the methodology, and have raised queries which should be considered if it is necessary to amend the methodology to improve the ability to undertake impact assessment. Regarding the intention to initiate primary surveys and then target specific parameters, we need to be mindful of the time constraints of certain surveys, i.e. those which require multiple seasons of investigation in order to robustly define parameters over and above natural variation.

1.3 In particular, we have recommended in discussion with Seagreen that it will be necessary to undertake a power analysis of the survey data (when sufficient data has been collected; e.g. after the first year of collection) to determine the ability of the survey data to enable the detection of change in the densities of key bird species. This will enable informed discussion over the helpfulness of the boat-based surveys, and whether these need to be supported by other data collection methods (such as aerial survey). It is important also to consider this in the context of Habitats Regulation Appraisal, which requires a further level of assessment of impact (see Annex E).

1.4 Where tracking studies have been suggested (e.g. Gannet), it is important to consider the overall objectives of the assessment to ascertain whether it is informative or not. For example, if without the study, the assumption that a certain bird species is from a nearby SPA, would a tracking study to establish this connectivity be helpful in this case?

Environmental data and Habitat Association Modelling

1.5 It has been raised in communication with Seagreen that to improve the ability to assess impacts to birds, it is recommended that wider regard should be given to assessing the areas of importance within the zone and what the influences are on the presence of certain bird species. We note that there are references to assessment of this kind, such as „if feasible, simultaneous data collection of data on fish distribution and oceanographic factors will be undertaken," (ref) and p.54, and we welcome further discussion with the developer on the specific objectives and parameters of this study. We further note that the simultaneous collection of environmental data will enable these variables to be included as co-variates in subsequent estimations of abundance and density (using distance sampling techniques), to increase the accuracy and precision of these estimates.

Passage Species

1.6 We highlight the need to carefully consider passage birds (noted on p.54 of ZAP) in the EIA, including whether the baseline information is sufficient to evaluate the movement of passage species, to enable confident assessment of the potential impact of barrier effects. Following review of the FTOWDG literature review of migratory pathways, it would be appropriate to discuss whether specific study is needed to answer these questions, with consideration of available evidence with regard to the ecological significance of bioenergetics.

1.7 We do not agree that "migrating birds would generally pass over at heights well above the wind turbine rotors" (p.44 of the scoping report). It is acknowledged that weather may have an influence on migration altitude, and that altitude varies considerably both within and between species. For many migrant species there is no existing data on migration altitude, particularly over the sea and as such, we require further evidence to support this assumption.

1.8 While we agree that methods to measure passage species may be an issue for the wider wind industry and are being discussed by the Strategic Ornithological Support Services Group (p48), we note that the impacts of the proposed development on passage species will need to be addressed by each individual development project. We therefore strongly recommend that the Round 3 developer carefully considers this issue in respect of their proposal; impacts to passage species may potentially be addressed through the collaborative working being undertaken by FTOWDG.

Collision Risk Modelling

1.9 We recognise that it may be appropriate to amend previous collision risk modelling methodologies to better enable the prediction of effects and therefore recommend that there is a discussion between Seagreen, SNH, JNCC and RSPB focussing on the proposed collision risk assessment, to ensure there is agreement across all parties prior to commencing the work. In all cases, this should include a clear statement of where the uncertainties within the model lie, and how this will be accounted for when interpreting the outputs of the model.

1.10 With respect to avoidance rates which are a critical parameter in assessing the risk of mortality to birds through collision, it is imperative that further research is undertaken to produce evidence-based values. At present there is insufficient evidence available for the confident recommendation of avoidance rates, hence a precautionary approach will be advised until better evidence has been provided.

Population Modelling

1.11 We note that if effects are predicted to be significant at a population level, population modelling may be required. Following review of the Cumulative Study Report (Ornithology), submitted recently by FTOWDG, and agreement reached on the key species of high risk, it would be appropriate to consider the available modelling techniques for assessing population level impacts, to enable answering of HRA questions.

Significance of Impacts

1.12 We caution against relying heavily on a 1% population level for deciding on whether a receptor is significant or not (for EIA purposes), and recommend that there is consideration of other factors such as total population size and status (e.g. <1% of a small, endangered population may still be important), spatial distribution (if the population is clumped or evenly spread across the site), behaviour etc. We would be cautious about stating a generic threshold without presentation of the wider information to make an informed judgement on the significance of impacts on a species-by-species basis. We also refer you to the advice in Annex D on the legislative requirements for SPAs which has a bearing on this matter in respect of those species which are occur in densities which may be high enough to warrant future designation as an SPA.

Cumulative Impact Assessment

1.13 As Seagreen"s Zone 2 development is one of several proposed wind farms in the Tay and Forth area, the cumulative impacts of these wind farms is of crucial significance (particularly in the context of SPA populations). It is understood that the FTOWDG acknowledge this, and as such have set guidelines to ensure compatibility between survey data collected at the various wind farm sites (as presented in the collaborative Cumulative Study Report (Ornithology), which we are also reviewing and will provide comments directly to Seagreen. However it is important to clarify here that it is important that adequate consideration has been given to the compatability of data collection methods between Zone 2 and the other sites (this is not yet clear). We also clarify that data from all FTOWDG sites should be included in the power analysis detailed above.

1.14 In preparation for submission of their application, we would welcome further discussion with the developer over which other projects / industries may need to be considered in relation to cumulative and in-combination effects on bird interests with reference to Table 4.4, p.24. We advise that not all cumulative/ in-combination impacts are unique to wind farms, (i.e. disturbance/ displacement and indirect effects) and as such it is necessary to include other industries (e.g. aggregates, shipping traffic) in this assessment.

1.15 While we recognise the importance of reviewing the Garthe and Hüppop paper on species sensitivity to wind farm development, and updating this so that it is relevant to UK waters, it has not been indicated that this work would solely be undertaken by SNH (please see SNH response to Kintyre scoping consultation dated 21 May 2010, which may be referred to in the discussion on p.45). We emphasise that it requires a collaborative approach between the nature conservation agencies and other seabird experts (including the RSPB).

Specific Comments on the Scoping Report

1.16 We note that in the list of nature conservation sites (p.38) Montrose Basin and Firth of Forth are both Ramsar and SPA sites, not solely Ramsar as stated.

1.17 Future Designations – In terms of SPA extensions and future designations, the report states that „The relevance of this to development in Phase 1 is discussed in section 6.2 Ornithology" (p.41). It is not clear where this is discussed in section 6.2, and as an important aspect, this would need explicit reference within the ES.

1.18 We note the “data collection programme shall be initiated to provide data of sufficient quality and quantity to adequately inform appropriate assessment” and that “the requirement to do so will be agreed with Marine Scotland and the methodology and approach to data acquisition agreed with the relevant statutory consultee(s)” (p.42 of Scoping Report). This is welcomed, however we highlight that considering the level of detail required to answer the questions of the appropriate assessment with an acceptable level of certainty, it is imperative that necessary data collection is started as early as possible, and should be considered when defining the objectives of any site based assessment. It may therefore be important for those aspects which are already underway (e.g. ornithological and marine mammal surveys) to be reviewed against a potential HRA scope (such as that arising from the cumulative assessment studies), to clarify whether there is further work needed.

1.19 It is a COWRIE recommendation that “No observations in sea state 5 or more are to be used in data analysis for seabirds” and we therefore recommend that observations are only carried out when the sea state is 4 or less and that these are the data to be used in analysis (and not any data from observations made in sea state 5; with reference to the comment on p.47 of the Scoping Report).

1.20 P.47 refers to “an amended methodology” for boat-based surveys, however we highlight that the methodology has not been amended since comments were supplied.

1.21 We note that in the methodology referred to (4th June, 2010) the transect spacing is stated as being 3.5km, as opposed to 3km (as stated in the report p.47). We have yet to see a map of these transects, or an indication of the number of transects covering the site, which has significant implications to the ability of the survey to calculate robust population estimates.

1.22 Aerial surveys – we query if the aerial data collected to date (WWT data May 2009-April 2010) has been analysed to establish population estimates? We advise that this would be useful to inform the EIA / ZAP process.

1.23 We emphasise the importance of reporting associated confidence intervals with any density and abundance estimates calculated using distance sampling techniques (p48). It may be appropriate to utilise confidence intervals in the

assessment of sensitive species (i.e calculating the range of impacted population, as opposed to a mean %).

1.24 We note that “separate reports on relevant species could be compiled to inform the process of appropriate assessment,” and recommend that this may usefully done for each SPA, with a focus on the Conservation Objectives of that site and the assessment requirement of maintaining site integrity (which may include a number of species and other parameters, and should be informed by the cumulative impacts assessment process). Referring to Table 6.2.4, we note that there are discrepancies

in the author column of this table (COWRIE has commissioned all of the listed reports, but has not authored any).

1.25 We advise that impacts from the proposed cabling and associated infrastructure from cabling during construction, de-commissioning and cumulatively may potentially be significant to ornithological interests and should not be scoped out at this stage (see Table 8.2, p.126).

Comments on ZAP

1.26 In addition to the comments on ZAP provided in Annex A, we have specific comments on the ZAP relating to ornithology, included below.

1.27 There is a misconception (p.50) that JNCC and SNH have approved the methodology for bird survey work at the Zone 1 site prior to the works commencing. In principal, a standard methodology has been followed to a certain extent, but it is important to clarify that the letter provided by JNCC/SNH on the 12th March following a meeting with Seagreen, proposed a number of questions regarding the methodology which should be considered in the methodological design. At present the methodology is unamended and it has been proposed that this will be reviewed following the collection of data, to determine the sufficiency of the approach taken and whether revision is required.

1.28 The data gaps and proposed collection identified within Table A3.6 is comprehensive and should provide a useful basis for the discussion around the sufficiency of data for impact assessment. However as discussed above, it is not yet clear which elements of this will be undertaken to inform the EIA of Phase 1. It would be appropriate to discuss the proposals, in light of the sensitive receptors and

potential impacts identified through the CEA process, to determine what is necessary to facilitate EIA and HRA.

1.29 Referring to the data gaps table of the ZAP document (A3.6), it would be useful to be more specific about how the suggested data collection would be of use in answering the questions of EIA and AA. For example the record “Environmental Parameter: Survey design,” could be expanded to “survey design to ensure that characterisation data collected is of sufficient quality to predict change with an acceptable level of confidence;” and “Information regarding AoS for pSPAs,” could include —...to inform the need to consider further sites within the HRA.” A separate column titled “Relevance to Consenting,” could be a useful way of presenting this, and may be a useful parameter to add for all rows of data requirement, to maintain focus on how the data would be used.

1.30 We note that the spatial extents for cumulative impact extents to extend a significant distance beyond the zone boundary, potentially necessitating change in extent of survey (p.12 of ZAP), and welcome further discussion on how this will be undertaken.

1.31 With reference to Section A3.1, Designated Sites (p.41), please note that the citation for the EU Birds Directive has changed and is now 2009/147/EC. We also note that SPA designations have been extended into the marine environment for 31 SPAs in Scotland (and are therefore below the mean low water mark). Please see: http://www.snh.gov.uk/protecting-scotlands-nature/protected-areas/international-designations/spa/marine-spas/

1.32 We advise that the list of SPAs in Table A3.2 (p43-45) does not represent a complete list appropriate for this development. In Annex C we provide our advice on those

SPAs that we think need further consideration under Habitats Regulations Appraisal (HRA) for this proposal.

1.33 We also flag some concerns about the list of SPA qualifying interests presented in Table A3.2 of the zonal appraisal report (p.43-45). We refer you to the recent online advice regarding SPA qualifying interests (http://www.jncc.gov.uk/page-5485) and recommend that the developer contacts SNH directly for an up-to-date list of the qualifying interests of each SPA.

1.34 We note that two years of survey work is the likely minimum effort needed (with reference to the discussion of ongoing and future survey on p.53 and Table A3.7, Survey timelines on p62). We note that Table A3.7 suggests that boat and aerial surveys for phase 2 & 3 will only be conducted over 18 months; is this an error? We welcome discussion with the developer over survey methods and the results of survey work as this is progressed. However, we recommend that ongoing surveys do not have their methodologies changed after one year without careful consideration and consultation. We need to ensure that the data from year 1 of survey is compatible with that from year 2.

1.35 We think that Table A3.5, Risks to key species (p.55), is incomplete as barrier effects could be significant to passage and breeding seabirds as well as passage waterfowl. Indirect effects, may impact other seabird species (e.g. gull sp, tern sp, gannets, fulmar).

1.36 As per point pt 1.15 above; we advise that not all cumulative/ in-combination impacts are unique to wind farms, (i.e. disturbance/ displacement and indirect effects) and as such it is necessary to include other industries (e.g. aggregates, shipping traffic) in this assessment.

2 MARINE MAMMALS

General Points

2.1 There is considerable concern regarding the potential impacts of development of offshore wind projects on marine mammals, at a local and wider level, compounded by the lack of information of effects of large scale development. Again, it is relevant to refer to the ZAP document as it presents greater detail on the gaps in marine mammal knowledge and actions which are necessary to enable an accurate EIA.

Baseline Information

2.2 When determining the efficacy of the Scoping Report in clarifying the issues to be addressed in EIA, an appraisal of the baseline information needs to be made. It is pertinent to refer to the report published by SMRU on behalf of the Crown Estate1 which details the relevance of existing marine mammal data for impact assessment,

and consequent data needs. We are in general agreement with the primary conclusions of the report, that due to the wide ranging nature of certain marine mammal species, with consequent highly variable distributions, data gathered even at a zonal level will be of limited use in providing a robust baseline which will enable

1 Approaches to marine mammal monitoring at marine renewable energy developments, Sea Mammal Research Unit, July 2010 (available on request from the Crown Estate).

the detection of change. It is therefore recommended (at a strategic level) that the regulator, in co-ordination with key parties such as the Crown Estate, consider mechanisms for improving the baseline through UK-wide studies (e.g. SCANS, the Joint Cetacean Protocol; JCP), which are long term data sets and are more likely to be of use in assessing the change in distributions of marine mammals.

2.3 We note that in relation to this development, marine mammal observations are being gathered as incidental sightings as part of the ornithological surveys (p.73). At a relevant point, it is necessary to assess the robustness of this data in providing relative / absolute abundance estimates, for further assessment and to enable identifying of what further data is needed. It may also be relevant for the data gathered at a zonal level to be added to the Joint Cetacean Protocol database to build a wider scale data source, and we recommend that the developer approach JNCC to discuss this.

European Protected Species

2.4 It is important to clarify that impacts need to be assessed in line with EPS legislation, and the baseline data collection should also be considered with regard to the specific questions of Favourable Conservation Status (FCS) for EPS licensing which need to be answered with a certain level of confidence, to a) enable the development to proceed without contravention of the EPS legislation and b) to enable the regulator to fulfil their duties (at the UK level) of reporting on the FCS of EPS. It is therefore critical to address the information need by assessing what is required and what is feasible.

2.5 Within the EIA, we recommend that the developer follows the risk assessment process outlined in the Deliberate Disturbance guidance2, with a titled section called European Protected Species Risk Assessment. Please refer to Annex E for a summary of the legal protection afforded to EPS.

2 The protection of marine European Protected Species from injury and disturbance: Guidance for the marine area in England and Wales and the UK offshore marine area (draft) (JNCC, CCW and Natural England, 2010).

2.6 We note that there is an intention to undertake a regional study for the assessment of potential effects on marine mammals (as proposed by the FTOWDG group), and this is commended as regional scale studies are more likely to yield useful results. In particular, the FTOWDG propose to undertake a noise modelling study incorporating all of the STW and R3 development. We recognise that knowledge is lacking in predicting what effects the anticipated noise will have at a population level (i.e. what is „significant") and we wish to work with the developers and Marine Scotland to ensure that the questions are answered as best as possible. It is important to clarify to what extent development within Zone 2 will be considered in this assessment within further cumulative effects assessment documents, as we note that this is not referred to in the Scoping Report.

Mitigation

2.7 We strongly agree with the proposal for a strategic approach to the mitigation and management of underwater noise impacts, through conditions agreed through the licensing process, (p.66) and discussion on this issue between ourselves, Marine Scotland and the developers is welcomed. We agree that this should be based on evidence, but also that if sufficient evidence is not forthcoming, then it is necessary to use appropriate precaution, to ensure that the predicted risk is manageable. We also

note that as evidence already indicates that there are effects (on fish and marine mammals) then decisions that developers can make at the early stages of project design to minimise the risk are likely to reduce the need for management strategies which could affect construction programmes.

Potential impacts to marine mammals

2.8 In respect of the distances over which marine mammals may make behavioural responses to noise disturbance, we note that there is only limited work available on this issue in respect of Round 2 wind farm development (p.69). We highlight the work undertaken by Bailey & Thompson on Bottlenose Dolphin in the Moray Firth which has shown behavioural responses to disturbance at up to 40km.

2.9 In respect of the discussion in Section 6.5.2, Potential impacts, we welcome the links being made between marine mammals and potential impacts on their prey resource (p.69). We comment that changes in the abundance of prey may not arise solely due to displacement of these prey species – it is possible that there could be direct injury to prey species and / or impacts to their preferred spawning habitats.

2.10 It would also be appropriate to consider the potential noise impacts on marine mammals and birds through effects on prey (p.72), in the same context as that identified on p.65; i.e. with the potential cumulative impacts of multiple projects affecting multiple spawning seasons with a risk to reproductive success.

2.11 In preparation for submission of their application, we would welcome discussion with the developer over which other projects / industries may need to be considered in relation to cumulative and in-combination effects on marine mammals. We also think that the developer needs to more fully evaluate barrier effects (particularly cumulatively) through the EIA, before dismissal as non-significant (p.70).

2.12 Operational disturbance to marine mammals should also consider vessel movement associated with maintenance, etc, rather than just from the turbines themselves (p.72).

SAC qualifying interests

2.13 We recommend that bottlenose dolphin (BND) from the Moray Firth SAC are addressed, even though the SAC itself is located further than 200km from the proposed zone of development (p.68). This is because it is established that BND from the SAC do travel regularly to St Andrews Bay. We recognise that movements of BND are likely to be close to the coast, therefore this may be more of a consideration when assessing vessel movement during installation of the cable route than the wind farm site itself. We refer you to our advice on Habitats Regulations Appraisal (HRA) – please see Annex C – where we consider the range of SAC qualifying interests that could potentially be affected by this proposal.

Comments on Scoping Report

2.14 Guidance could include “Effects of pile-driving noise on the behaviour of marine fish”, Mueller-Blenkle, et al, April 2010.

2.15 Seagreen refer to the JNCC"s guidance on marine mammal mitigation (and this could be included in section 6.5.4), however it is also relevant to more thoroughly consider the draft guidance on deliberate disturbance of European Protected Species (EPS),

as this provides advice to developers on how to assess their projects on the context of these requirements (see Annex E).

3 HYDRODYNAMIC PROCESSES AND COASTAL GEOMORPHOLOGY

3.1 Comments on this aspect focus on the proposed cable connection options for Phase 1 of the Round 3 zone – as illustrated in Figure 1.1 of the scoping report. We highlight that there are a number of pressures and constraints along the coast between Arbroath and Barry Links (detailed below) and we would therefore strongly urge early consideration as to the specific location of the cable landfall and associated infrastructure, including the substation and grid connection. This should take into account a wide range of interests, including how the cable(s) will influence the geomorphic and hydrological processes which underpin the landforms and habitats within this section of coast. The design and location of the cable landfall needs to be sustainable and future-proofed (against climate change in particular) which we discuss below.

Description of the Arbroath to Barry Links coastline and discussion of constraints

3.2 Erosion has been the dominant force along this coastline to date, although there are a few areas of accretion and land claim. The coastline is influenced by the varying presence of an inter- and subtidal rock platform and a relatively gentle rise into the interior.

3.3 We note the presence of the main east-coast railway line from Dundee to Aberdeen, which runs close to the coast between Carnoustie and Arbroath and may constrain the choice of landfall point – to locations with bridges / railway crossings or other access points. If so, this may direct the options selection towards designated sites in the area, including Barry Links Site of Special Scientific Interest (SSSI) and area of Geological Conservation Review (GCR) and the Firth of Tay and Eden

Estuary SAC and SPA at the southern limit of the cable corridor; or to East Haven SSSI or Elliot Links SSSI further north.

3.4 There is a net southerly movement of sediment along this shoreline (Ramsay & Brampton, 2000, Cell 2, Page 81). This means that a cable landfall could (potentially) interrupt sediment moving towards Barry Links SSSI & GCR, and potentially the Firth of Tay and Eden SAC and SPA. This would need to be mitigated / minimised by sensitive design options. Obviously, these considerations need to be borne in mind for the full life time of the development, whilst considering climate change factors. SNH has commissioned research into sediment movements at Barry Links, and can make this available.

3.5 The report's section on relative sea level rise (p.45) references Defra's 1997 work. This has been superceded by UKCP09, which provides a more detailed analysis, see

http://ukclimateprojections-ui.defra.gov.uk. Although broadly similar to the earlier work, these newer projections reflect how understanding has moved on and present more detail.
Future-proofing the cable landfall and associated land-based infrastructure

3.6 Although we appreciate that the developer intends to submit information on the land-based components of this proposal at a later date, we strongly urge that the cable

landfall point and associated land-based infrastructure is sustainably designed and located with regard to future climate change.

3.7 Much of this coast has experienced longstanding erosion problems and, given tidal observations and climate projections, it is likely that these management concerns will worsen during the lifetime of this wind farm development. Given the developed nature of this coastal zone, it would be prudent to safeguard the land-based elements of this proposal from the likely effects of climate change. A Shoreline Management Plan has been drawn up for this section of coast and, while dated, it may be helpful for reference. (Caledonian Geotech, 1987. Tayside Regional Council, Coastal Erosion Study. Phase 2. Final Report).

Cumulative and in-combination effects of cabling and onshore infrastructure

3.8 With reference to Section 6.3.2 of the scoping report, we think that it is too early in the process to dismiss the potential cumulative and in-combination effects of cable routes and associated land-based infrastructure – the necessary substations and grid connections. Nor does the Zonal Appraisal include consideration of these elements; see Section 2.7, ZAP Assessment Boundary, of the Zone Appraisal and Planning report.

3.9 If cable and grid connection requirements are not planned and considered more strategically, then there remains a potential for cumulative impacts on a range of natural heritage interests.

4 MARINE ECOLOGY

4.1 Please see Annex A regarding the title of this section.

4.2 The ZAP document and Scoping Report present a comprehensive review of existing data on the benthic habitats within and surrounding the development area.

Comments on Scoping Report

Sandy Substrates

4.3 While mobile sandy substrates may be less diverse and better adapted to recover from disturbance, they should not be considered unimportant habitats, as they potentially have substantial faunal abundance / biomass and important ecological functions. In some places the scoping report acknowledges these important functions, but in others they are ignored. The EIA should fully assess the potential impacts on this habitat type (biotope).

Marine Protected Areas (MPAs) & Marine Priority Features

4.4 In the discussion about MPAs in Section 6.1 under „Future Designations" (p.41), please note that Scottish Government have published guidance3 that includes a draft list of Priority Marine Features for which MPAs may be an appropriate mechanism (see Annex 3 of this guidance). SNH and JNCC are currently reviewing the lists of marine

3 Marine Protected Areas in the Seas around Scotland: Guidelines on the selection of MPAs and development of the MPA Network, draft March 2010. Available at: http://www.scotland.gov.uk/Topics/marine/marine-environment/mpanetwork/draftmpaguidelines

biodiversity and geodiversity features in order to help identify habitats and species for which MPAs could make a contribution to their conservation.

4.5 The MPA process is likely to be running on a parallel timescale to the applicant‟s project development and its formal consenting. We will seek to keep them updated on our input to the progress of MPAs, where relevant, and we also welcome their intention to engage in this process.

Benthic Survey Works

4.6 We welcome discussion with the developer over the intended scope of work for benthic surveys (p.58), and recognise the technical issues and cost constraints. It may be best for this discussion to take place once the developer has undertaken their initial geophysical assessment, so that any further survey work can be targeted to areas of potential interest.

4.7 We note that “consultation with Marine Scotland will advise survey design” and request that JNCC and SNH are also involved in these discussions, to ensure that they are also appropriate for assessing the presence and extent of Annex 1 features, if any.

Comments on ZAP

4.8 A2.0 P.38 refers to „coastal processes‟ we would prefer „hydrodynamic processes and coastal geomorphology‟ in this context as there could be effects offshore or near the coast.

4.9 Regarding the reference to the Dudgeon proposed offshore wind farm – “gravity-based structures would result in 1.2% loss of seabed;” it is important to note that the area of seabed affected by direct loss will always be small relevant to the full development area, due to the spacing of the turbines, and the significance of the value of extent „lost‟ or disturbed should be considered relevant to the particular habitat distribution within the development area (which will vary in vulnerability), and the effects on the processes which serve to maintain the habitat features and its

associated communities. Further, it is important to note that this should consider other infrastructure such as substations, cables, stabilisation materials and the impacts of operations such as anchoring of vessels.

4.10 We note the intention to microsite turbines away from any identified „reef" features, and JNCC can provide guidance on the identification of reef, to ensure that if identified, they are of sufficient extent and persistence to be considered a permanent feature.

4.11 We also request that this is extended to include other infrastructure (e.g. sub stations, cables and armouring) and highlight that it may also be necessary to microsite the location of grab sampling based on habitat assessment if reef features are present (p.65).

5 FISH

5.1 The following advice provided by JNCC and SNH relates solely to fish of conservation concern and / or those which are important prey species for birds and marine mammals. For advice pertaining to commercial fish species we refer to Marine Scotland (or Cefas). However, it would be useful to consider where there are

perhaps overlapping concerns, and to what extent our advice and recommendations (e.g. for survey work or mitigation) can be aligned throughout the EIA process.

5.2 Aside from commercial aspects, impacts on fish should be considered in the context of species of conservation concern, and those which are important for sustaining other important species (e.g. birds and marine mammals). This latter issue is complex as it requires establishing ecological links with a level of confidence which enables quantitative assessment of effects via key species, which is even more challenging at the level of assessment required under HRA. We emphasise however the need to consider information gathered for certain receptors (e.g. key prey species such as sandeels) in the context of other species, as this may further enable conclusions to be drawn on the significance of direct and indirect impacts.

5.3 Fish of conservation concern include qualifying interests of adjacent SACs (i.e. Atlantic salmon, sea lamprey and river lamprey) and species listed as a priority on UKBAP, ICES and IUCN Red lists (i.e. European eels).

Comments on Scoping Report

5.4 We note the consideration of potential targeted fish surveys to confirm the presence of spawning grounds (p.67)

SAC Species

5.5 We provide our advice on migratory fish species of freshwater SACs in Appendix D We note that a recent review by Marine Scotland (Malcolm et. al., in prep4) summarises available information on the migratory routes and behaviour of Atlantic salmon, sea trout and European eel which may help inform assessment of the movement of some key species on the east coast of Scotland. Although there is some understanding of the timing of river and sea lamprey migration, there is little known about their behaviour and movements once in the marine environment.

4 Malcolm, I., Godfrey, J. & Youngson, A. In prep. Review of migratory routes and behaviour of Atlantic salmon, sea trout and European eel in Scotland‟s coastal environment: implications for the development of marine renewables. Marine Scotland Science draft report.

Other species of conservation importance

5.6 Potential impacts on other fish species of conservation concern should also be considered, including European eel, shad, sea trout and sparling:

5.7 European eel - This species is a conservation priority due to a 95% drop in its population over the last 20 years; it is considered by ICES to merit emergency action and is listed as „critically endangered‟ on the IUCN Red list. Very little is known about their migration pathways – either as juveniles or adults. The draft report from Marine Scotland reviews the data available in relation to European eel migration routes and behaviour.

5.8 Shad - Allis and Twaite shad are listed on Annex II of the Habitats Directive and on the UKBAP Priority List. Allis shad are also protected under Schedule 5 of the Wildlife and Countryside Act. Shad are found in shallow coastal waters and estuaries, although they migrate up rivers to spawn. In Scotland, they are found all around the coast, although the only known (Scottish) spawning site is located in the River Cree, which flows into the Solway Firth.

5.9 Sea trout - This is a UKBAP Priority species which supports a number of fisheries in Scotland, many of these fisheries have undergone significant declines in the last 25 years. The draft report from Marine Scotland reviews the data available in relation to sea trout migration routes and behaviour.

5.10 Sparling - Sparling is also included in the UK BAP Priority Species list. They are found in coastal waters and estuaries and migrate into large clean rivers to spawn. Sparling was previously known to occur in a number of Scottish rivers, including the Rivers Forth and Tay. However, they have now disappeared from almost all of these rivers, with a small number of rivers, including the Forth and Tay, being notable exceptions.

Potential impacts

5.11 Construction/decommissioning impacts - Noise (including vibration) will be produced from various sources, including ships‟ engines, piling hammers and augering operations during the construction of turbine foundations. The levels of noise production that can be expected should be set-out and, using published literature, the impact, if any, this will have on fish movements and behaviour should be considered. A draft SNH report (Gill et al., in prep5) considers the current state of knowledge with regard to the potential impacts of noise, associated with marine renewable energy, on Atlantic salmon, sea trout and European eel.

5 Gill, A.B. & Bartless, M. In prep. Literature review on the potential effects of electromagnetic fields and subsea noise from marine renewable energy developments on Atlantic salmon, sea trout and European eel. Scottish Natural Heritage draft report.

5.12 Operational noise - Once the turbines are installed and operational, there is the potential for the development to generate noise over the longer term (for example, that generated by the gears of the turbines). The levels of noise that are expected to be generated should be set-out, and the impact this may have on fish should be considered.

5.13 Electromagnetic fields (EMF) - Some fish species, including Atlantic salmon and European eels, can use the earth's magnetic field for orientation and direction finding during migrations. The potential for these (and other) species to be affected by EMFs emitted by subsea cables should be considered. Section 6.4.2. (p.65) does mention that EMF associated with the electrical transmission system of offshore wind farms may have impacts on fish species, and states that consideration of the impacts of EMF need to be included in the EIA. Gill et al., (in prep) reviews the current state of understanding of the effects of EMF associated with marine renewable energy devices, on the behaviour of Atlantic salmon, sea trout and European eel.

Comments on ZAP

5.14 Table A3.13 is useful – how will this be verified by subsequent developer studies? Seagreen also need to consider operational noise.

6 SEASCAPE, LANDSCAPE AND VISUAL IMPACT ASSESSMENT

6.1 In respect of marine renewables, SNH is in the process of reviewing the available guidance in order to draw up a list of recommendations for carrying out seascape, landscape and visual assessment in Scotland.

6.2 In advance, SNH provide the following advice on the applicant‟s scoping report, section 7.3 – Seascape, Landscape and Visual Character.

6.3 We agree that cumulative seascape, landscape and visual impact assessment is a priority for this proposal (with reference to the discussion in Section 7.3.2, p91-92). We agree that it must concentrate initially on cumulative impacts with the nearby proposals in Scottish territorial waters and with onshore wind farms in the study area.

Recommendations

6.4 SNH recommend that (cumulative) Seascape Landscape & Visual Impact Assessment (SLVIA) is carried out with reference to current, established good practice guidance:

 The „Guidelines for Landscape and Visual Impact Assessment.' (LI-IEMA, 2002). Referred to below as the GLVIA.

 „Siting and Designing windfarms in the landscape'. SNH, Version 1, December 2009. http://www.snh.gov.uk/docs/A317537.pdf Referred to below as SDWL.

 Visual Representation of Windfarms: Good Practice Guidance. SNH 2007. http://www.snh.gov.uk/docs/A305436.pdf Referred to below as the VRW.

 Cumulative Effect of Windfarms. SNH 2005. http://www.snh.gov.uk/docs/A305440.pdf

 An assessment of the sensitivity and capacity of the Scottish seascape in relation to windfarms (SNH Commissioned Report 103, 2005).

Referred to below as SNH"s seascapes report.
http://www.snh.org.uk/pdfs/publications/commissioned_reports/F03AA06.pdf

6.5 SNH make the following recommendations derived from this good practice guidance, which we have previously raised in respect of cumulative SLVIA for the Forth & Tay offshore wind farm proposals (email to Seagreen dated 27 May 2010):

 Wind farm design should be resolved through an iterative EIA process, ensuring that the schemes in this development cluster are complementary and respect design principles.

 That there is a liaison meeting between the Forth & Tay Offshore Wind Developers" Group (FTOWDG) and SNH to discuss SLVIA for each proposal, and cumulatively, prior to work being commissioned.

 That Chartered Landscape Architects, preferably a team of two, carry out (cumulative) SLVIA.

 That developers, preferably co-ordinated through FTOWDG, make contact with Natural England in respect of cross-border impacts.

 That a cumulative SLVIA is co-ordinated jointly via FTOWDG.

We address each of these recommendations more fully in the following sections.

Design of Multiple Wind Farms

6.6 Designing in landscapes with multiple wind farms (section 5 of the SDWL) outlines the basic principles for planning and accommodating multiple onshore wind farms. Some of these principles also relate to offshore wind farms. It is important to:

 balance developments of a similar design and image, to limit visual confusion,

 establish new patterns and scales of installations that respect their surroundings; for example, where developments are situated across the outer mouth of a firth consideration should be given to their grouping and mass – taking into account their visual scale within the surrounding seascape/landscape and their backdrop.

6.7 One of the main purposes of the EIA process, at an individual or regional scale, is its iterative nature in influencing and improving design. While the technical and design constraints for offshore wind farms are more challenging than for those onshore, nevertheless some design aspects may be easier because:

 the horizontal plane of the sea is visually simpler than landform,

 offshore wind turbines tend to be installed in lines, as an „array" or on a grid.

6.8 Wind farm design should be resolved through an iterative EIA process, ensuring that the proposals in the outer Firths of Forth & Tay are complementary and respect landscape design principles. Each individual wind farm within the Round 3 zone will need to be considered and designed in the context of the further planned development in this zone, as well as in the context of the other FTOWDG proposals. The overall configuration of the wind farms needs to relate to one another, with a clear, balanced relationship between each design / layout.

Cumulative SLVIA

6.9 As noted above we strongly recommend that a cumulative SLVIA is co-ordinated jointly for the Forth & Tay offshore wind farms via FTOWDG. FTOWDG and SNH need to agree a common methodology and approach to this issue and we would seek to ensure that visualisations and other material are produced on a consistent basis by developers (in both content and quality) – including:

 the relevant baseline information,

 the method to be used to assess cumulative effects,

 the range of cumulative assessment material to be prepared,

 a common format in presenting findings (including visualisations to the current standards outlined in the VRW).

6.10 In respect of this Round 3 zone, cumulative landscape and visual impacts will arise for each individual wind farm proposal in the zone in combination with:

a. Other offshore wind farm proposals in the same zone. (Zone 2)
b. Other offshore wind farm proposals in the same region.
(The outer Firths of Forth & Tay)
c. Other onshore wind farms approved/in the planning system.

6.11 Cumulative SLVIA should be carried out with reference to the recommended guidance above, including the GLVIA and SNH"s guidance on cumulative effects.

6.12 In respect of this, we note that the SNH seascapes report is a strategic assessment, a „nationwide" look at the coast, with general descriptions of seascape character types. These were tested against a specific, set theoretical wind farm scenario to explore issues of sensitivity and visibility. The study was limited to a strategic desk-based approach where fieldwork was not a major part of the assessment process (see the seascapes report section 2.8.2.). Thus, these seascape units are of only limited use in appraising real development proposals. Indeed, fieldwork is a fundamental part of SLVIA.

6.13 However, of note in the seacapes report are the various „specific" conditions relating to Scotland"s coast and environment that need to be considered in tailoring methodology for application here, principally in respect of visibility (see sections 4.7.4 to 4.7.5 of the report and its Annex B).

6.14 For the cumulative visual impact assessment, SNH recommend an initial zone of theoretical visiblity (ZTV) for cumulative study out to a radius of 50km, noting that onshore patterns of wind farm development will be relevant to the study. We encourage this wider strategic consideration of the FTOWDG proposals as they all lie in a prominent location off the east coast, across the outer firths of Forth and Tay. They lie at a major point on the sea „gateway" into the central belt, leading into the heart of Scotland and its capital. Similarly, flight paths to Edinburgh airport may act as a „gateway" approach to the capital.

Viewpoint Selection and Assessment

6.15 Viewpoints should be selected in negotiation with Marine Scotland, SNH and the relevant planning authorities. It is good practice for developers to also hold a public consultation.

6.16 Viewpoint selection should be based on the identification of potentially sensitive receptors (people, places and activities) and potentially significant views, locations or landscapes, taking into account the likely impacts of the development. For the FTOWDG proposals we strongly recommend that the choice of viewpoints should be informed by the cumulative ZTV as well as by each wind farm‟s individual ZTV. Although it is possible to add supplementary viewpoints as part of a cumulative visual impact assessment (VIA), it is preferable to use all or some of the same viewpoints for both the individual and cumulative VIA.

6.17 Viewpoints should be selected to cover a range of view types and viewers as follows:

View type

a) Areas of high landscape or scenic value; both designated and non-designated. For example, NSAs, AGLVs, GDLs, search areas for wild land, tourist routes and local amenity spaces.

b) A full representation of views from a range of distances, aspects, landscape character types and visual receptors; to include coastal views looking out to the coast and back, as well as across water to opposing shores.

c) All aspects of the proposed development, i.e. illustrate it “in the round” to help in the design development and assessment processes. This will need to address a range of light conditions, including consideration of wind farm lighting requirements at night.

d) Visual composition – for example, focussed or panoramic views, simple or complex.

e) The variety of images that offshore wind farms will present from coastal areas as well as important coastal hilltops , including, for example, where all the turbines are visible as well as places where partial views of turbines occur.

f) A range of distances.

g) A range of elevations.

h) Sequential along specific routes.

i) The full range of different types of views, e.g. popular hilltops, footpaths and other recreational routes, key transport routes (on and offshore), minor roads where wind farms will be the focus of the view, settlements, cultural and recreational foci, and so on.

j) Views of other wind farms (on and offshore) in order to assess cumulative impacts.

k) Aerial views of offshore wind farms, where they lie on a principal low-level flightpath approach to a major terminus, forming a „gateway" to a regional or national centre.

Viewer Type

l) The full range of receptor groups, e.g. residential, work, road users and other travellers, walkers and other recreational users.

m) Various modes of movement including those moving through the landscape, across ferry and popular recreational sailing routes.

6.18 We recommend that all viewpoint information is presented in a table and cross-referred to a ZTV map on which all of the numbered viewpoints are plotted. In addition to representative viewpoints, it is important to consider viewpoints that are already important vantage points within the landscape, for example local visitor attractions, key onshore locations for coastal and marine recreation, scenic routes, or places with cultural landscape associations. Elevated viewpoints, for example those on coastal walks and from hilltops along firths are particularly useful in exploring wind farm layout and design.

6.19 Initially lengthy, the viewpoint list should shorten as VIA progresses, focusing on the viewpoints which best illustrate the most significant impacts, or which best aid wind farm design. The developer should be aware, however, that further or alternative viewpoints may need to be considered throughout the VIA process.

6.20 Any (cumulative) SLVIA report should provide the following information to reference each visualisation: the precise location of the viewpoint (including 12 figure OS grid reference and a brief description), its orientation to and distance from the proposed development, the viewpoint height, nature of view (width of view in degrees and

bearing of key foci within view) and conditions of assessment – including date, time of day, weather conditions and visual range. It is helpful if this information is presented alongside each visualisation including a small insert map (based on a 1:50,000 OS base map) to show the viewpoint‟s detailed location and direction.

6.21 The characteristics visible from each viewpoint that are sensitive to wind farm development should be described and assessed, particularly in relation to the changes the development would cause. Factors such as season, weather, air clarity, movement, orientation to prevailing winds, elevation of the wind farm in relation to the viewer, and any screening elements may be relevant. The design and layout of the turbines and other components of the wind farm, as it would appear from each viewpoint, should also be described and assessed.

6.22 Details of the types of receptors, and an assessment of their sensitivity, should be included.

Further liaison and agreement of viewpoints

6.23 We would welcome further liaison with Seagreen and the other FTOWDG developers over SLVIA for their individual proposals, as well as in respect of a cumulative study. An important aspect that requires discussion is the viewpoint (VP) selection. We need to be clear on the reasoning behind the VPs that have so far been suggested and to make sure that these have been informed by the cumulative ZTV. As noted above, we strongly recommend that Marine Scotland and the relevant planning authorities are involved in this discussion, and in any meeting to select the VPs to be used for cumulative visual impact assessment as well as for individual proposals.

APPENDIX C
FIRTH OF FORTH – ROUND 3 ZONE (PHASE 1): HABITATS REGULATIONS APPRAISAL FOR SPECIAL PROTECTION AREAS

HABITATS REGULATIONS APPRAISAL FOR SPECIAL PROTECTION AREAS
In the following advice for HRA we set out the three steps that need to be considered in order to determine whether or not the proposed development in Phase 1 of the Round 3 offshore wind zone in the Firth of Forth is likely to have a significant effect on the qualifying interests of SPAs, and any possible adverse impact on site integrity. It is the competent authority (most likely Marine Scotland) who will carry out the HRA, based on our advice and using information and data collated by the developer.

Under HRA, the potential impacts of the proposal will need to be considered alone and in combination with other plans and projects. It will need to be considered in combination with the other offshore wind farm proposals in the Outer Firths of Forth & Tay – the Forth Array, Inch Cape and Neart na Gaoithe proposals in Scottish territorial waters – and we consider that taking a forward view of the further phases of development within the Round 3 zone, as identified by Seagreen, will be helpful. It will also need to be considered in combination with other types of industry and activity in the region.

In respect of cumulative impacts, we welcome the collaborative approach being adopted by the developers in the Forth and Tay Offshore Wind Developers Group (FTOWDG) as per their „East Coast Discussion Document: Cumulative Impacts". We reference this document below, along with the advice contained in our responses of 26 October 2009 and 11 December 2009.

The HRA will become more focused over time through an iterative process – we will continue to review our advice as the developer undertakes their survey work and completes its analysis.

Special Protection Areas for inclusion in HRA
The following SPAs are those we have agreed require HRA in respect of possible cumulative impacts – as listed in Table E2 in the FTOWDG bird report, and with the addition of the Upper Solway Flats and Marshes SPA and the Slamannan Plateau SPA as recommended in our response letters of 26 October 2009 and 11 December 2009.
Buchan Ness to Collieston Coast
Coquet Island
Fala Flow
Farne Islands
Firth of Forth
Firth of Tay and Eden Estuary
Forth Islands
Fowlsheugh
Gladhouse Reservoir
Imperial Dock Lock (Leith)
Lindisfarne
Loch Leven

Loch of Skene
Montrose Basin
Muir of Dinnet
Slamannan Plateau
South Tayside Goose Roosts
St Abbs to Fast Castle
Upper Solway Flats and Marshes
Ythan Estuary, Sands of Forvie and Meikle Loch

Further information on SPAs, is available from http://www.jncc.gov.uk/default.aspx?page= 162 and http://www.snh.org.uk/snhi/.

Advice for HRA in respect of SPA qualifying interests
We provide advice on the legislative requirement for HRA in Annex E. The steps of the process are as follows; our advice is tailored to the consideration of Phase 1 of development in the Round 3 offshore wind farm zone in the Firth of Forth:
Step 1: Is the proposal directly connected with or necessary for the conservation management of the SPAs?
The proposal is not directly connected with or necessary for the conservation management of any of the SPAs listed above.
Step 2: Is the proposal likely to have a significant effect on the qualifying interests of the SPAs either alone or in combination with other plans or projects?
This step acts as a screening stage: it removes from the HRA those proposals (plans or projects) which clearly have no connectivity to SPA qualifying interests or where it is very obvious that the proposal will not undermine the conservation objectives for these interests, despite a connection.

When this screening step is undertaken at an early stage in the development process, it usually means that it takes the form of a desk-based appraisal – such as that set out in the FTOWDG bird report, and in the scoping report for this proposal. We advise that such desk-based appraisal is kept broad so that potentially significant impacts are not missed out, or discounted too early, in any HRA (or EIA). Please see our letter of 11 December 2009 for further discussion.

The SPA bird interests being considered in respect of offshore wind farms are wide-ranging – many seabirds make long foraging trips, especially during the breeding season, and there are also migratory species to consider such as geese and swans.

This means that offshore wind farm proposals may be „connected to" SPAs at much greater distances than what has so far been experienced in respect of onshore development. Although connectivity is thus established the fact that the proposal is located further away from the designated sites means that direct impacts are less likely on qualifying species while they are within the SPA.

Expert agreement over species sensitivity should help to identify those SPA qualifying interests for which the conservation objectives are unlikely to be undermined by offshore wind farm development, despite any possible connection (e.g. SPA qualifiers which are recorded within a proposed wind farm site but where their flight behaviour and / or foraging ecology means that the wind farm will not have a likely significant effect).

Determination of „likely significant effect" is not just a record of presence or absence of bird species at an offshore wind farm site, but also involves a judgement as to whether any of the SPA conservation objectives might be undermined. Such judgement is based on a simple consideration of the importance of the area in question for the relevant species. Complex data analysis should not be required at this stage. For example; How many birds have been recorded? What are they using the area for? Is this the only area that they can use for this particular activity? Understanding the behavioural ecology of the species, and the
characteristics and context of the proposed wind farm site, will help in determining whether there are likely significant effects.

There are three possible conclusions for this step of HRA:

a) The likely impacts are such that there is clear potential for the conservation objectives to be undermined – conclude likely significant effect.

b) The likely impacts are so minimal (either because the affected area is not of sufficient value for the birds concerned or because the risk to them is so small) that the conservation objectives will not be undermined – conclude no likely significant effect.

c) There is doubt about the scale of the likely impacts in terms of the conservation objectives – conclude likely significant effect.

Step 3: Can it be ascertained that the proposal will not adversely affect the integrity of the SPA, either alone or in combination with other plans or projects?
This stage of HRA is termed appropriate assessment, and it is undertaken by the competent authority based on information supplied by the developer, and with advice provided by the relevant nature conservation organisation; by JNCC in respect of Round 3 zones and by SNH in respect of sites in Scottish territorial waters.

Appropriate assessment considers the implications of the proposed development for the conservation objectives of the qualifying interests for which a likely significant effect has been determined. These conservation objectives follow a standard format requiring protection of the qualifying bird interests and protection of the habitat in the SPA which supports them.
Conservation objectives for SPA bird species

It is important to recognise that the conservation objectives primarily offer site-based protection and that some of them will not directly apply to species when they are outwith the boundaries of the SPA. This is particularly true of objectives (i), (v) and (vi) which relate to the supporting habitats within the SPA.
Objective (iii) however – maintenance of the population of the bird species as a viable component of the SPA – will be relevant in most cases because:
It encompasses direct impacts to the species, such as significant disturbance to qualifying bird interests when they"re outwith the SPA.
It addresses indirect impacts such as the degradation or loss of supporting habitats which are outwith the SPA but which help to maintain the population of the bird species of the SPA in the long-term.
Finally, in rare circumstances, it is possible that factors outside site boundaries may have the capacity to affect the long term distribution of bird species within the SPA – see objective (iv).

Issues to consider under appropriate assessment

The key question in any appropriate assessment for Phase 1 of development in the Firth of Forth Round 3 wind farm zone is whether it can be ascertained that this proposal, alone or in combination, will not adversely affect the population of any qualifying bird species as a viable component of the SPAs under consideration.
In considering this matter, we refer to the helpful summary of the main risks of offshore wind farm development to birds provided in Langston 2010.6 In addition, there may be further issues to consider if the proposal is likely to affect the conservation objectives that relate to bird species while they"re in an SPA or to the habitats in the SPA that support them.
6

To ensure that site integrity is maintained by:
(i) Avoiding deterioration of the habitats of the qualifying species.
(ii) Avoiding significant disturbance to the qualifying species.
To ensure for the qualifying species that the following are maintained in the long term:
(iii) Population of the bird species as a viable component of the SPA.
(iv) Distribution of the bird species within the SPA.
(v) Distribution and extent of habitats supporting the species.
(vi) Structure, function and supporting processes of habitats supporting the species.
repeat of (ii) No significant disturbance of the species.

Langston (2010). Offshore wind farms and birds: Round 3 zones, extensions to Round 1 & Round 2 sites & Scottish Territorial Waters. RSPB Research Report No. 39.

 Will the offshore wind proposal(s) cause a deterioration in the habitats of any of the SPAs?

NB. This question relates specifically to the habitats in the SPAs that support the bird interests.

 Will the offshore wind proposal(s) cause any significant disturbance to bird interests while they"re in any of the SPAs? N.B. See the previous discussion in respect of disturbance outside an SPA.

 Will the offshore wind proposal(s) alter the distribution of the birds within any of the SPAs?

 Will the offshore wind proposal(s) affect the distribution and extent of the habitats (that support the bird species) in any of the SPAs?

 Will the offshore wind proposal(s) in any way affect the structure, function and supporting processes of habitats in any of the SPAs? NB. Those habitats which support the bird species.

We highlight that these questions – and the underpinning conservation objectives – will be applicable to marine habitats encompassed by the recent offshore extensions to the Forth Islands SPA and to the Firth of Forth SPA.

Future SPA Designation

It is also important to note there is on-going work to establish further marine SPAs and a number of potential ways of addressing this are currently being considered, i.e:

1. Extensions to existing seabird colony SPAs boundaries into the marine environment;
2. Inshore areas used by waterbirds (e.g. seaduck, divers and grebes) outwith the breeding season;
3. Offshore areas used by seabirds, for feeding and other activities; and
4. Other types of SPA not captured by the above approaches.

Through analysis of existing ESAS data, the outer Firth of Forth including the Wee Bankie and Marr Bank (which overlaps with Zone 2) was identified as particularly important, as they had a large number of repeatedly occurring densities which could be considered for the designation of an SPA, under point 3; above. It is not a given that this will become an SPA, but it is crucial for the developer and Marine Scotland to recognise at this stage the significance of this process, and if progressed to the designation process, the appropriate assessment questions outlined above, will also need to be addressed in relation to the new sites. JNCC is happy to discuss the implications of SPA designation with Marine Scotland, when appropriate.

Please see JNCC"s website for potential areas of search, which include the Firth of Forth.7

7 Information on potential new marine SPAs is available at: http://www.jncc.gov.uk/page-4184

And on areas of search at: http://www.jncc.gov.uk/pdf/SPA_AOS_Maps%2020100304.pdf

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Ongoing Liaison

As noted above, JNCC (and SNH) will continue to liaise with Round 3 developer, and with FTOWDG as a group, in respect of this HRA process. Agreeing the scope of, and information required for, HRA will be an iterative process.

APPENDIX D - FIRTH OF FORTH ZONE 2 (PHASE 1): HABITATS REGULATIONS APPRAISAL

SPECIAL AREAS OF CONSERVATION

Introduction

In the following advice for HRA we set out the three steps that need to be considered in order to determine whether or not the proposed development in Phase 1 of the Round 3 offshore wind zone in the Firth of Forth is likely to have a significant effect on the qualifying interests of SPAs, and any possible adverse impact on site integrity. It is the competent authority (most likely Marine Scotland) who will carry out the HRA, based on our advice and using information and data collated by the developer.

Under HRA, the potential impacts of the proposal will need to be considered alone and in combination with other plans and projects. It will need to be considered in combination with the other offshore wind farm proposals in the Outer Firths of Forth & Tay – the Forth Array, Inch Cape and Neart na Gaoithe proposals in Scottish territorial waters – and we consider that taking a forward view of the further phases of development within the Round 3 zone may be helpful. It will also need to be considered in combination with other types of industry and activity in the region.

In respect of cumulative impacts, we welcome the collaborative approach being adopted by the developers in the Forth and Tay Offshore Wind Developers Group (FTOWDG) as per their „East Coast Discussion Document: Cumulative Impacts". We reference this document below, along with the advice contained in our response of 26 October 2009.

The HRA should become more focused over time through an iterative process – we will continue to review our advice as the developer undertakes their survey work and completes its analysis. For those SAC qualifying interests that are also European protected species (i.e. bottlenose dolphin and otter) please see Annex E for our advice in respect of their EPS status and for EPS licensing arrangements. The advice that we give below solely relates to their consideration as an SAC qualifying interest and how the HRA process therefore applies.

Special Areas of Conservation for Inclusion in HRA

The following marine and freshwater SACs need to be considered:

 Berwickshire & North Northumberland Coast SAC – designated for its population of grey seals (Halichoerus grypus) and marine habitats including shallow inlets and bays; intertidal mudflats and sandflats; reefs and sea caves.

 Firth of Tay & Eden Estuary SAC – designated for its population of common, or harbour, seals (Phoca vitulina) and marine habitats including estuaries; intertidal mudflats and sandflats; and subtidal sandbanks.

 Isle of May SAC – designated for its population of grey seals and its marine reef habitat.

 Moray Firth SAC – designated for its population of bottlenose dolphins (Tursiops truncatus) and subtidal sandbank habitat.

 River South Esk – designated for it populations of Atlantic salmon (Salmo salar) and freshwater pearl mussel (Margaritifera margaritifera)

 River Tay SAC – designated for its populations of the following fish species – Atlantic salmon, brook lamprey (Lampetra planeri), river lamprey (Lampetra fluviatilis) and sea lamprey (Petromyzon marinus); and for otter (Lutra lutra) and clear water lochs.

 River Teith SAC – designated for its populations of the following fish species – Atlantic salmon, brook lamprey, river lamprey and sea lamprey.

 River Tweed SAC – designated for its populations of the following fish species – Atlantic salmon, brook lamprey, river lamprey and sea lamprey; for otter and for its floating vegetation.

Further information on SACs is available from http://www.jncc.gov.uk/default.aspx?page=23 and http://www.snh.org.uk/snhi/.

We have considered other SACs and included only those that we consider relevant i.e. where there may be connectivity between the wind farm proposal and the SAC. This consideration should address all elements of the wind farm proposal – onshore works as well as offshore elements. However, at this early stage in the process we do not have full details on the development being proposed or finalised locations of all elements of infrastructure. Therefore, our advice focuses on turbine location / construction within Phase 1 of the Round 3 zone of development.

In respect of the freshwater SACs listed above we note that the recent review undertaken by Marine Scotland (Malcolm et. al., in prep)8 summarises available information on the migratory routes and behaviour of Atlantic salmon, sea trout and

European eel. The report indicates that on the east coast of Scotland, to the south of Aberdeenshire, the dominant direction of travel for Atlantic salmon is in a northerly direction. Therefore we identify that there could be connectivity between Phase 1 of the wind farm proposal and the River South Esk SAC and the River Tay SAC.

8 Malcolm, I., Godfrey, J. & Youngson, A. In prep. Review of migratory routes and behaviour of Atlantic salmon, sea trout and European eel in Scotland‟s coastal environment: implications for the development of marine renewables. Marine Scotland Science draft report.

We are less clear whether the River Tweed SAC and River Teith SAC could be affected by phase 1, although phase 3 and possibly phase 2 would be of relevance. Although the draft Marine Scotland report indicates that the dominant direction of travel of Atlantic salmon on the south east coast is a northerly one, there is also some southerly movement. Furthermore, although there is some understanding of the timing of river and sea lamprey migration, there is little known about their behaviour and movements once in the marine environment. Therefore we also include these two SACs in the discussion below.

We advise that the migratory fish species of these SACs should therefore be considered – Atlantic salmon, sea lamprey and river lamprey. As Atlantic salmon are a host species for freshwater pearl mussel, there is therefore the potential for effects on this interest of the River South Esk SAC. The other interests of these freshwater SACs – otter, brook lamprey and habitat interests – and the habitat interests of Isle of May, Firth of Tay & Eden Estuary, Moray Firth and Berwickshire & North Northumberland Coast SACs do not need further consideration in respect of the offshore elements of this wind farm proposal i.e. there is no connectivity between them.

The SAC interests which do require further consideration are discussed below. We can provide advice on HRA for the proposed cable route and associated onshore infrastructure when options have been progressed further.

Advice for HRA in respect of Special Areas of Conservation

We provide advice on the legislative requirement for HRA in Annex E. The steps of the process are as follows; our advice is tailored to the consideration of Phase 1 of development in the Round 3 offshore wind farm zone in the Firth of Forth:

Step 1: Is the proposal directly connected with or necessary for the conservation management of the SACs?

The proposal is not directly connected with or necessary for the conservation management of any of the SACs listed above.

Step 2: Is the proposal likely to have a significant effect on the qualifying interests of the SACs either alone or in combination with other plans or projects?

This step acts as a screening stage: it removes from the HRA those proposals which clearly have no connectivity to SAC qualifying interests or where it is very obvious that the proposal will not undermine the conservation objectives for these interests, despite a connection. When this screening step is undertaken at an early stage in

the development process, it usually means that it takes the form of a desk-based appraisal.

While a desk-based review is helpful for this screening step, this part of the HRA will only be fully completed when the wind farm proposal has been further progressed – when survey work and analyses have been completed, and when the location of / construction methods for wind farm infrastructure, including onshore elements, has been finalised.

There are three possible conclusions to this step of HRA:

a) The likely impacts are such that there is clear potential for the conservation objectives to be undermined – conclude likely significant effect.

b) The likely impacts are so minimal that the conservation objectives will not be undermined – conclude no likely significant effect.

c) There is doubt about the scale of the likely impacts in terms of the conservation objectives – conclude likely significant effect.

However, we are not yet in a position to present a definite conclusion for this step, so we provide a summary of our current advice in respect of the qualifying interests of each SAC:

 Common (Harbour) seals of the Firth of Tay and Eden Estuary SAC.

Phase 1 of the Firth of Forth Round 3 zone is within the foraging range of common (harbour) seals of the Firth of Tay and Eden Estuary SAC. The seals are not confined within the SAC itself, but will range more widely in the waters of the Firth of Forth and Tay. Construction (and other) noise arising from the wind farm proposal is likely to extend beyond the boundaries of the site and may overlap with seal use of the surrounding environment. Boat movements, cable-laying and other construction activity may give rise to disturbance. There may also be impacts to the prey species of seals – either from the placement of infrastructure or due to noise. We advise that there is potential for the proposal to have likely significant effects on common (harbour) seals and we discuss below (under step 3) the issues that we think need to be considered.
Summary of our current advice: likely significant effect, so impacts (including cumulative) will need to be considered in appropriate assessment (see step 3).

 Grey seals of the Isle of May and the Berwickshire and North Northumberland Coast SACs.

Grey seals have a wide foraging range (100+km) from their haul out sites and it is possible that individuals from the Isle of May and the Berwickshire and North Northumberland Coast SACs may at times be found within, or in proximity, to the proposed development in Phase 1 of the Firth of Forth Round 3 zone. As for common (harbour) seals, boat movements, cable-laying and other construction

activity may also give rise to the disturbance of grey seals. And there may be impacts to their prey species – either from the placement of infrastructure or due to noise. We advise that there is potential for the proposal to have likely significant effects on grey seals and we discuss below (under step 3) the issues that we think need to be considered.
Summary of our current advice: likely significant effect, so impacts (including cumulative) will need to be considered in appropriate assessment (see step 3).

 Bottlenose dolphin of the Moray Firth SAC.

Although the Round 3 zone is located over 200km from this SAC, it is well-established that bottlenose dolphins are wide-ranging and may be found in the waters of the Firths of Forth and Tay – therefore, construction activity, construction noise and noise from other activities in the wind farm site may overlap with dolphin use of the surrounding environment. As above for seal species, we consider that disturbance to dolphins may arise from boat movements, cable-laying and other construction activity. And there may be impacts to their prey species – either from the placement of infrastructure or due to noise.
There is, therefore, potential for the proposal to have likely significant effects on bottlenose dolphin and we discuss below (under step 3) the issues that we think need to be considered.
Summary of our current advice: likely significant effect, so impacts (including cumulative) will need to be considered in appropriate assessment (see step 3).

 Atlantic salmon and lamprey species of the Rivers Tay, Teith, Tweed and South Esk SACs.

As discussed above, we have listed SACs as some distance to the proposed wind farm site because of the current uncertainty about the migratory movements of Atlantic salmon. In respect of the latter, we understand that it will not be possible for the applicant to conclusively identify from/to which SAC watercourses any particular individuals (post smolts, or adults) are coming or going. We recommend that the applicant assumes all individuals are SAC salmon, and considers the effects on these fish of construction and operational noise / vibration, as well as any other types of disturbance. Mitigation could include timing restrictions on construction work / noisy activities in order to avoid any significant disturbance to migrating salmon, or disruption of their (unknown) migratory routes.
Summary of our current advice: likely significant effect, so impacts (including cumulative) will need to be considered in appropriate assessment (see step 3).

 Freshwater pearl mussels of the River South Esk SAC

Atlantic salmon (and other salmonids) are integral to the life cycle of freshwater pearl mussel (FWPM), therefore any impacts to Atlantic salmon that prevent them from returning to their natal rivers may have a resulting effect on FWPM populations. While we consider this matter needs discussion in any appropriate assessment we

do not identify any survey or research requirements. The impacts are indirect, dependent on the impacts the proposal may have on Atlantic salmon.
Summary of our current advice: likely significant effect, so indirect impacts will need to be considered in appropriate assessment as part of the assessment of any direct impacts on Atlantic salmon (see step 3).

Step 3: Can it be ascertained that the proposal will not adversely affect the integrity of the SAC, either alone or in combination with other plans or projects?
This stage of HRA is termed appropriate assessment, and it is undertaken by the competent authority based on information supplied by the developer, and with advice provided by the relevant nature conservation organisation; by JNCC in respect of Round 3 zones and by SNH in respect of sites in Scottish territorial waters.

Appropriate assessment considers the implications of the proposed development for the conservation objectives of the qualifying interests for which a likely significant effect has been determined. SNH"s Sitelink provides details on the conservation objectives for each SAC. Based on these objectives, we discuss key questions relevant to each interest, to determine overall whether it can be ascertained that the proposal will not adversely affect the integrity of any of these SACs.

Our advice on appropriate assessment, and as to how many of these questions may need to be answered, will become clearer when the development process is further advanced – when baseline data has been collected, and when construction methods, location of infrastructure, choice of port, and other aspects of the proposal

> The **conservation objectives** for common seals are: **(i)** to avoid deterioration of their habitat or **(ii)** significant disturbance to them, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and
> To ensure for the common seals that the following are maintained in the long term:
> **(iii)** Population of common seals as a viable component of the site.
> **(iv)** Distribution of common seals within site.
> **(v)** Distribution and extent of habitats supporting common seals.
> **(vi)** Structure, function and supporting processes of habitats supporting common seals.
> **repeat of (ii)** No significant disturbance of common seals.

have been finalised.

We highlight that noise impact assessment may be an important element of the HRA process in respect of grey seals, common seals, bottlenose dolphins and fish of conservation concern. HRA will address the impacts of noise in the context of the conservation objectives for each SAC qualifying species.

Firth of Tay and Eden Estuary SAC: advice on common (harbour) seals

Based on these conservation objectives the following questions need to be addressed in appropriate assessment of potential impacts of the proposal on the common (harbour) seal population of the Firth of Tay and Eden Estuary SAC:

 Will the proposal cause any deterioration in the SAC habitats which support common seals?

 Will it affect the extent or distribution of these habitats within the SAC?

 Will it affect the structure and function of these habitats or of any of their supporting processes?

 Will the proposal cause significant disturbance to common seals while they are in the SAC, and will it cause any change to their distribution within the site?

 Will the proposal cause significant disturbance to common seals while they are outwith the SAC such that the viability of this SAC population is affected?

 Will the proposal affect the viability of the SAC population of common seals in any way?

We advise that noise impact assessment is likely to be an important part of assessing any direct disturbance to common (harbour) seals, including their potential displacement from feeding grounds and other supporting habitats. While we consider that the construction phase may give rise greatest risk of disturbance, we do highlight that impacts during the operational phase also need to be considered, as well as any repowering and decommissioning work. It will also be important to consider impacts on prey species.
The last question encompasses any direct impacts to common (harbour) seals, for example significant disturbance. It also addresses indirect impacts such as the degradation or loss of supporting habitats which are outwith the SAC but which help to maintain the population of common seals in the SAC in the long term. The risk of impacts, and how many of these questions may need answered, will become clearer when the development process is further advanced and construction methods, location of cable routes, choice of port, and other aspects are finalised.

Isle of May and Berwickshire and North Northumberland Coast SACs: advice on grey seals
The conservation objectives for the grey seal populations of these SACs are the same as those we have listed above for common (harbour) seals. Those requiring consideration – objectives (iii) and (ii) – are as discussed in the previous section on the Firth of Tay & Eden Estuary SAC.

(vi) Structure, function and supporting processes of habitats supporting each species.
repeat of (ii) No significant disturbance of the species.
And for freshwater pearl mussel in particular, to ensure that the following are maintained in the long term:
(vii) Distribution and viability of freshwater pearl mussel host species
(viii) Structure, function and supporting processes of habitats supporting freshwater pearl mussel host species

Moray Firth SAC: advice on bottlenose dolphins

The conservation objectives for bottlenose dolphins at the Moray Firth SAC incorporate an important restorative element to ensure that the population of bottlenose dolphin as a viable component of the SAC is established then maintained in the long term. This objective again applies to direct and indirect impacts to bottlenose dolphin while they are outwith the Moray Firth, and it encompasses consideration of significant disturbance in the context of population viability.

Rivers Tay, Teith, Tweed and South Esk SACs: advice on Atlantic salmon, lamprey species and freshwater pearl mussel.

In respect of the offshore elements of infrastructure, appropriate assessment will focus on conservation objective (iii) – the population viability of Atlantic salmon – considered across the range of SACs previously listed as it may not be possible to determine the „home" river of any individual fish (post smolts and adults) recorded in the proposed Round 3 zone.

In respect of offshore infrastructure, the main potential impacts to Atlantic salmon

The SAC conservation objectives for Atlantic salmon and freshwater pearl mussel (where appropriate) are: **(i)** to avoid deterioration of the habitats of the qualifying species or **(ii)** significant disturbance to them, thus ensuring that the integrity of the SACs are maintained and that they make an appropriate contribution to achieving favourable conservation status for each species.
And to ensure for each species that the following are maintained in the long term:
(iii) Population of the species, including range of genetic types for salmon, as a viable component of the SACs.
(iv) Distribution of the species within sites.
(v) Distribution and extent of habitats supporting each species.

would arise when the fish are outwith the freshwater SACs. An adverse impact could arise if individuals are significantly disturbed / displaced from their migratory routes such that it affects the population viability of the species. The applicant may also need to consider whether the proposal could in any way act as a barrier to salmon movements. We clarify that these issues can be considered through desk-based appraisal and a review of available literature.

Noise impact assessment is likely to be a key part of any overall appropriate assessment, and all phases of the development should be considered – construction, operation, repowering and decommissioning. Cumulative impacts are a major concern and we consider that the collaborative working by FTOWDG on noise impact assessment is likely to be helpful, along with discussion / co-ordination of mitigation proposals and construction time-tabling.

As discussed above, the Round 3 developer will also need to consider the potential (indirect) impacts to freshwater pearl mussel (FWPM) arising from offshore infrastructure. This will be a further desk-based appraisal following on from the assessment of impacts to Atlantic salmon.

Ongoing Liaison

As noted above, we will continue to liaise with Round 3 developer, and with FTOWDG as a group, in respect of this HRA process. Agreeing the scope of, and information required for, HRA will be an iterative process.

ANNEX E – LEGISLATION: EUROPEAN PROTECTED SPECIES AND HABITATS REGULATION APPRAISAL

EUROPEAN PROTECTED SPECIES

Certain species are listed on Annex IV of the Habitats Directive as species of European Community interest and in need of strict protection. The protective measures required are outlined in Articles 12 to 16 of the Directive. The species listed on Annex IV whose natural range includes any area in the UK are called „European protected species".

JNCC is the statutory nature conservation body who provides advice on EPS in respect of the Habitats Regulations for UK waters, outside of 12nm (territorial waters). A summary of the legal requirements for EPS (also found here9) is as follows:

9 JNCC advice on EPS under the Offshore Marine Regulations 2007 (as amended) at:
http://www.jncc.gov.uk/page-4550

10 http://www.snh.gov.uk/protecting-scotlands-nature/species-licensing/mammal-licensing/marine/

JNCC (with Countryside Council for Wales and Natural England) have produced guidance (The protection of marine European Protected Species from injury and disturbance: Guidance for the marine area in England and Wales and the UK offshore marine area, JNCC, CCW and Natural England, 2010) which is currently in draft form awaiting approval, and outlines how developers, regulators and courts assess: a) the likelihood of an offence being committed; b) how this can be avoided; and c) if it can„t be avoided, the conditions under which the activity could go ahead under licence.

SNH is the statutory nature conservation body who provides advice on EPS in respect of the Habitats Regulations in Scotland, including Scottish Territorial Waters. Please see their website10 for further advice on the legal provisions which apply under these Regulations.

In England, Wales and UK offshore waters (outside 12nm), Regulations 41(1) and 39(1) of the Habitats Regulations and the Offshore Marine Regulations, respectively, provide that a person is guilty of an offence (and would therefore need to be considered for licence) if he:

(a) deliberately captures, injures, or kills any wild animal of a European protected species;
(b) deliberately disturbs wild animals of any such species

For the purposes of paragraph (1)(b), disturbance of animals includes in particular any disturbance which is likely –

(a) to impair their ability –
(i) to survive, to breed or reproduce, or to rear or nurture their young; or
(ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
(b) to affect significantly the local distribution or abundance of the species to which they belong.

EPS Licences

If there is a risk of injury or disturbance of EPS that cannot be removed or sufficiently reduced by using alternatives and/or mitigation measures, then the activity may still be able to go ahead under licence, but this should be a last resort. A licence should only be granted if the activity fits certain purposes, if there is no satisfactory alternative and where the activity will not be detrimental to the maintenance of the populations of the species concerned at a FCS in their natural range.
The likelihood of an activity resulting in injury or disturbance offence 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. Pursuing mitigation measures, alternative methods, locations and/or times for carrying out proposed activities might in some cases be

sufficient to reduce the risk of causing offence to negligible levels. This would then negate the requirement for a licence.

It is expected that many activities at sea will not require a licence to exempt them from regulations 41(1)(a) and (b) and 39(1)(a) and (b) of the HR and OMR, respectively, since their potential for injury and/or disturbance can be effectively mitigated or because the characteristics of the disturbance will fall below the threshold of an offence.

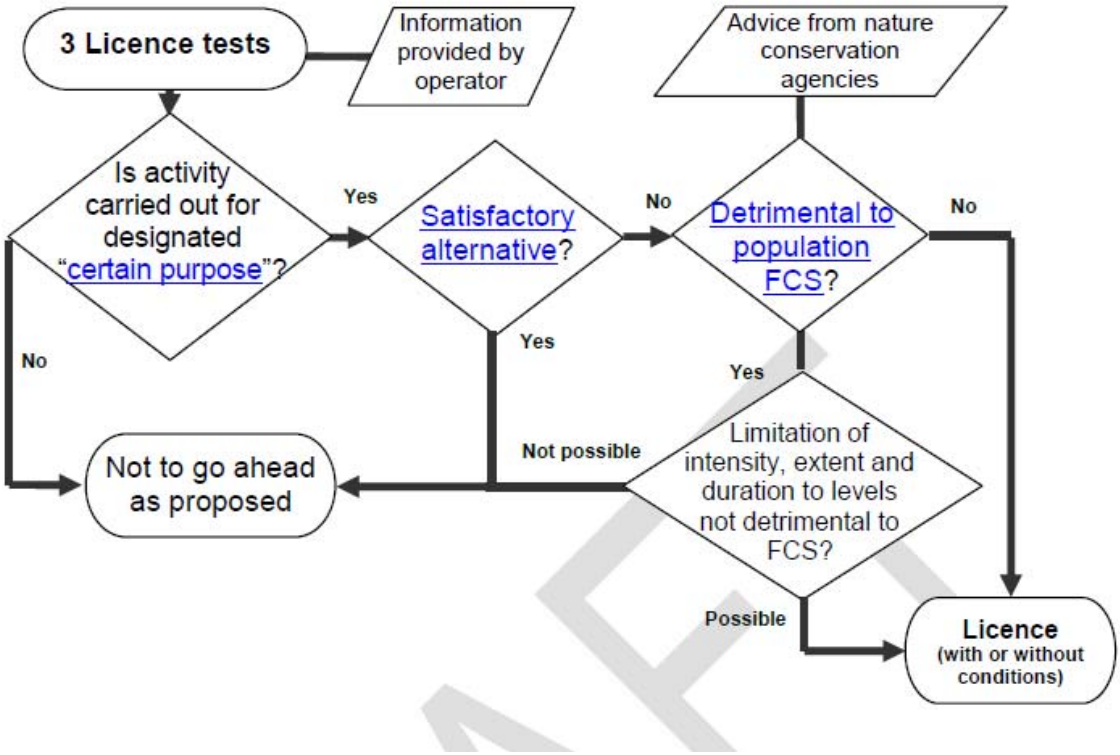
Any licence application (under regulation 53(1) of the HR and 49(6) of the OMR) will necessitate a detailed assessment of whether the licence should be granted. The licence assessment will be comprised of three tests to ascertain:

1) whether the activity fits one of the purposes specified in the Regulations;

2) whether there are no satisfactory alternatives to the activity proposed (that would not incur the risk of offence); and

3) that the licensing of the activity will not result in a negative impact on the species„/population„s Favourable Conservation Status. The licence assessment will be carried out by the appropriate authority with the information provided by the developer and advice from nature conservation agencies.

A flowchart is included below describing this process:



Consideration of European Protected Species should be included as part of the application process, not as an issue to be dealt with at a later stage. Any consent given without due consideration to these species is likely to breach European Directives with the possibility of consequential delays or the project being halted by the EC.

HABITATS & BIRDS DIRECTIVES, & HABITATS REGULATIONS

The two most influential pieces of European legislation relating to nature conservation are the Habitats and Birds Directives. The „Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora" was adopted in 1992 and is commonly known as the Habitats Directive. It complements and amends Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds (this is the codified version of Directive 79/409/EEC as amended), commonly known as the Birds Directive.

The Birds Directive protects all wild birds, their nests, eggs and habitats within the European Community. It gives EU member states the power and responsibility to classify Special Protection Areas (SPAs) to protect birds which are rare or vulnerable in Europe as well as all migratory birds which are regular visitors.

The Habitats Directive builds on the Birds Directive by protecting natural habitats and other species of wild plants and animals. Together with the Birds Directive, it underpins a European network of protected areas known as Natura 2000 comprising SPAs classified under the Birds Directive and Special Areas of Conservation (SACs) designated under the Habitats Directive.

The Habitats Directive has been transposed into the law of England, Wales and Scotland by the Conservation (Natural Habitats &c.) Regulations 1994 (as amended) usually called simply the Habitats Regulations). Several amendments have been made to the Habitats Regulations since they came into force.

For areas within UK jurisdiction other than Scottish territorial waters, the Habitats Directive has been transposed into UK law by the Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended in 2009 and 2010) (the Offshore Marine Regulations).

Habitats Regulations Appraisal

Where a plan or project could affect a Natura site, the Habitats Regulations require the competent authority – the authority with the power to undertake or grant consent, permission or other authorisation for the plan or project in question – to consider the provisions of regulation 48. This means that the competent authority has a duty to:

- determine whether the proposal is directly connected with or necessary to site management for conservation; and, if not,

- determine whether the proposal is likely to have a significant effect on the site either individually or in combination with other plans or projects; and, if so, then

- make an appropriate assessment of the implications (of the proposal) for the site in view of that site's conservation objectives.

This process is now commonly referred to as Habitats Regulations Appraisal (HRA). HRA applies to any plan or project which has the potential to affect the qualifying interests of a Natura site, even when those interests may be at some distance from that site.

The competent authority, with advice from nature conservation agencies, decides whether an appropriate assessment is necessary and carries it out if so. Appropriate assessment focuses exclusively on the qualifying interests of the Natura site affected and must consider any impacts on the conservation objectives of the site. The applicant is usually required to provide the information to inform the assessment. A plan or project can only be consented if it can be ascertained that it will not adversely affect the integrity of a Natura site (subject to regulation 49 considerations).

Further Information and Advice on HRA
In this scoping response we provide tailored advice for HRA in respect of birds that are qualifying interests of SPAs, and marine mammals, habitats and fish that are qualifying interests of SACs:

- Annex C – JNCC and SNH Advice on Habitats Regulations Appraisal for SPAs

- Annex D – JNCC and SNH Advice on Habitats Regulations Appraisal for SACs

In respect of this, further information on the qualifying interests and the conservation objectives for each relevant Natura site is available from SNH‟s Sitelink database11 and can be discussed with JNCC and SNH directly.
11 http://www.snh.org.uk/snhi/

SEPA

1. Scope of the ES for marine developments

1.1 From the information submitted we understand the development will include both onshore and offshore components. As such, the development will be subject to a range of different consenting regimes. We would encourage you to consider producing a single ES which covers all aspects of the proposed development. This will enable a full assessment of the potential effects of the development as a whole, rather than assessing certain details of the development individually.

2. Site layout and nature of construction for marine developments

2.1 The ES should contain plans giving detailed information on the site layout, including details of all onshore and offshore components such as access tracks, buildings, cabling and marine devices. These plans should be supported by a statement detailing the development, as well as reasons for the choice of site and design of the development. Depending on the types and scale of construction the information below may be required.

- Plans should be included in the ES showing the array of the devices, cabling routes and associated onshore infrastructure.

- Background information that will help inform the ES process is available from European Marine Energy Centre (EMEC). The EMEC has produced guidelines to assist developers in considering the range and scale of impacts that may result from the testing of devices. These guidelines are available at www.emec.org.uk/index.asp. Generally, if this standard industry guidance is followed for scoping, preparing and undertaking EIA for marine renewables, then we are likely to be satisfied with the standard of assessment.

- There may be a need to address the cumulative effects of devices/arrays on coastal processes depending upon array density and location with respect to existing renewable and coastal developments.

- Impoundments and tidal barrages are considered to have the potential to have the biggest impact upon coastal processes and hydromorphology and the habitats and species that these support. As such, there may be a need to carry out hydrodynamic modelling to predict the impacts of the structure/s on water quality during construction and coastal processes in the longer term.

3. River Basin Management Planning

3.1 Under the Water Environment and Water Services (Scotland) Act 2003, SEPA is responsible for producing and implementing River Basin Management Plans for the Scotland and the Solway Tweed River Basin Districts . River basins comprise all surface waters (including transitional (estuaries) and

coastal waters) extending to 3 nautical miles seaward from the Scottish territorial baseline. Any proposed development within these waters must have regard to the requirements of the Water Framework Directive to ensure that all surface water bodies achieve 'Good Ecological Status' and that there is no deterioration in status. The Water Framework Directive requires the consideration of chemical, ecological and hydromorpholgical status. Further information on River Basin Management planning can be found on the SEPA website at www.sepa.org.uk/water/river_basin_planning.aspx.

3.2 We welcome the reference in Section 7.6 to RBMP and classification maps shown on page 105. For information the latest classification results can be found on the River Basin Management Planning section of the SEPA website at http://www.sepa.org.uk/water/river_basin_planning.aspx. Information on the current status of Scotland's surface waters can be found on the water body data sheets on the the River Basin Management Planning (RBMP) Web Mapping Application available on SEPA's website at (http://213.120.228.231/rbmp/).

3.3 A methodology to assess cumulative impacts upon hydromorphology in transitional and coastal waters has been developed to guide the RBMP process. To allow for the RBMP classification to be updated and the assessment of cumulative impacts within the Deil's Head to Carnoustie, and Scurdie Ness to Deil's Head water bodies footprint information for the cable corridor and transition pit should be provided in the ES.

3.4 The justification for option one should be provided with regard to options that would have less of an impact on the marine environment. Opportunities to share cable routes from other STW offshore windfarm developments should also be explored.

4. Onshore engineering activities in the water environment

4.1 In order to meet the objectives of the Water Framework Directive, the on shore components of the development should be designed wherever possible to avoid engineering activities in the water environment. The water environment includes burns, rivers, lochs, wetlands, groundwater and reservoirs. We prefer the water environment to be left in its natural state, with engineering activities such as culverts, bridges, watercourse diversions, bank modifications or dams avoided wherever possible. Where watercourse crossings are required, bridging solutions or bottomless or arched culverts which do not affect the bed and banks of the watercourse should be used. If the proposed engineering works are likely to exacerbate flood risk, then a flood risk assessment should be submitted in support of the planning application and we should be consulted.

4.2 Scottish Planning Policy states "Culverts are a frequent cause of local flooding, particularly if the design or maintenance is inadequate. Watercourses should not be culverted as part of a new development unless there is no practical alternative and existing culverts should be opened whenever possible. If culverts are unavoidable, they should be designed to

maintain or improve existing flow conditions and aquatic life. A culvert may be acceptable as part of a scheme to manage flood risk or where it is used to carry a watercourse under a road or railway" (Paragraph 211). Planning applications should be determined in line with this planning policy.

4.3 A site survey of existing water features and a map of the location of all proposed engineering activities in the water environment should be included in the ES or planning submission. A systematic table detailing the justification for the activity and how any adverse impact will be mitigated should also be included. The table should be accompanied by a photograph of each affected waterbody along with its dimensions. Justification for the location of any proposed activity is a key issue for us to assess at the planning stage. The detailed design of engineered structures in the water environment will be considered under regulations administered by us. Where flood risk may be an issue, this will need to be addressed at the planning stage.

4.4 Further guidance on the design and implementation of crossings can be found in our Construction of River Crossings Good Practice Guide. Best practice guidance is also available within the water engineering section of our website.

5. Offshore water abstractions and discharges

5.1 Sensitive water uses, such as bathing waters and shellfish growing waters, and associated potential impacts should be assessed. The proximity to existing discharges and designated areas (ie estuarine abstractions and cooling water discharges), should also be assessed.

5.2 Where a proposal involves shipping or port developments, it may be necessary to submit a detailed description of the actions to be taken to prevent the introduction of non-native marine species from ballast water transfers or hull-fouling, as both can result in a deterioration of a water body under The Water Framework Directive. Ships should carry and implement a ballast water management plan. Further guidance that is based on IMO (www.imo.org/index.htm) and OSPAR guidance is available at http://www.mcga.gov.uk/c4mca/mgn_363.pdf.

5.3 It might be useful for the developer to refer to the joint SOAEFD, DoT/MSA and SNH collaborative project which sampled ballast water docking at Scottish Ports (Macdonald, E. and Davidson, R. 1997. Ballast water project - final report, spring 1997. Fisheries Research Services Report No. 3/97. Aberdeen: MLA). Further guidance can be found at www.thegreenblue.org.uk/youandyourboat/alienspecies.asp with regard to leisure craft and www.mcga.gov.uk/c4mca/bw_newsletter_september_2005_final.doc with regard to vessels arriving in Scottish ports in North West European waters.

6. Timing and duration of project

6.1 All submissions should include information on likely timing and duration of the project, possible long-term locational and/or operational impacts and short-

term construction impacts.

7. Air quality

7.1 Excavation works, particularly through drilling and blasting, may cause nuisance to adjacent land users due to the generation of dust and noise. Comments from the local authority environmental health officers should be sought on the potential nuisance to adjacent land users during the construction and decommissioning phases of the project.

8. Construction Environmental Management Document (CEMD) and pollution prevention

8.1 One of our key interests in relation to major developments is pollution prevention measures during the periods of construction, operation, maintenance, demolition and restoration. The construction phase includes construction of access roads and any other site infrastructure.

8.2 We recommend that you systematically identify all aspects of site work that might impact upon the environment, potential pollution risks associated with the proposals and identify the principles of preventative measures and mitigation. This will establish a robust Project Environmental Management Process (PEMP). A draft Schedule of Mitigation should be produced as part of this process. This should cover all the mitigation measures identified to avoid or minimise environmental effects. Details of the specific issues that we expect to be addressed are available on the Pollution Prevention and Environmental Management section of our website.

8.3 A key issue for us is the timing of works. Therefore, the Schedule of Mitigation should include a timetable of works that takes into account all environmental sensitivities, such as fish spawning, which have been raised by SEPA, SNH or other stakeholders. Timing should also be planned to avoid construction of roads, dewatering of pits and other potentially polluting activities during periods of high rainfall. We can provide useful information such as rainfall and hydrological data through our Access to Information Team.

8.4 A Construction Environmental Management Document (CEMD) is a key management tool to implement the Schedule of Mitigation. We recommend that the principles of the CEMD are set out in the ES drawing together and outlining all the environmental constraints and commitments, proposed pollution prevention measures and mitigation as identified in the ES.

8.5 The CEMD should form the basis of more detailed site specific Construction Environmental Management Plans (CEMPs) which along with detailed method statements may be required by planning condition or, in certain cases, through environmental regulation. This approach provides a useful link between the principles of development which need to be outlined at the early stages of the project and the method statements which are usually produced following award of contract (just before development commences).

8.6 We recommend that the detailed CEMD is submitted for approval to the determining authority at least two months prior to the proposed commencement (or relevant phase) of development to order to provide consultees with sufficient time to assess the information. This document should incorporate detailed pollution prevention and mitigation measures for all construction elements potentially capable of giving rise to pollution during all phases of construction, reinstatement after construction and final site decommissioning. This document should also include any site specific CEMPs and Construction Method Statements provided by the contractor as required by the planning authority and statutory consultees. The CEMD and CEMP do not negate the need for various licences and consents, eg CAR and PPS, if required. The requirements from the obtained licences and consents should be included within the final CEMPs.

9. Flood Risk

9.1 The onshore components of the development should be assessed for flood risk from all sources in line with Scottish Planning Policy (Paragraphs 196-211). Further information and advice can be sought from your Local Authority technical or engineering services department, Scottish Water and from our website. Our Indicative River & Coastal Flood Map (Scotland) is also available to view online. If a flood risk is identified then a flood risk assessment (FRA) should be carried out following the guidance set out in the Annex to the SEPA Planning Authority flood risk protocol. Our Technical flood risk guidance for stakeholders outlines the information we require to be submitted as part of a FRA, and methodologies that may be appropriate for hydrological and hydraulic modelling. Further guidance on assessing flood risk and planning advice can be found at our website.

10. Marine ecological interests

10.1 A baseline assessment of existing intertidal and subtidal habitats and species should be submitted. This should include any UK Biodiversity Action Plan habitats and species (eg maerl, sea pens, eel grass, horse mussels). Additional information on the UK Biodiversity Action Plan is available at: www.ukbap.org.uk/UKPlans.aspx?ID=35. Developers will then be able to ascertain if they are required to supplement or quantify the available data with in-field surveys.

10.2 Please note that living populations of Native Oysters (*Ostrea edulis*) have been found recently in the Firth of Forth (http://www.marlin.ac.uk/speciesfullreview.php?speciesID=3997). There is a need to ensure that this UKBAP species aren't present where works are proposed in the marine environment.

10.3 We also recommend information be submitted detailing how the development will contribute to sustainable development. Opportunities to enhance marine habitats in line with Water Framework Directive and The Nature Conservation (Scotland) Act 2004 objectives and Scottish Planning Policy guidance should be explored. Examples may include coastal realignment, the incorporation of

naturalistic features in the design of shoreline works, or planting with salt tolerant species. These could be used as examples of best practice and demonstration sites under SEPA's Habitat Enhancement Initiative (HEI).

10.4 During the construction phase, it is important that good working practice is adopted and that habitat damage is kept to a minimum and within defined acceptable parameters. These should be controlled through an environmental management plan.

10.5 Advice on designated sites and European Protected Species should be sought from SNH. For marine and transitional Special Areas of Conservation (SAC) and Special Protected Areas (SPA), these are WFD Protected Areas. Therefore, their objectives are also RBMP objectives. In this case, SNH may contact us for input on the consultation.

11. Coastal Processes

11.1 Coastal processes should be assessed as part of the ES. This should include a baseline assessment to identify the coastal and sedimentary processes operating in the area. The baseline assessment should identify the following features and processes in the environment:

- Sediments (e.g. composition, contaminants and particle size);
- Hydrodynamics (waves and tidal flows);
- Sedimentary environment (e.g. sediment re-suspension, sediment transport pathways, patterns and rates and sediment deposition);
- Sedimentary structures (e.g. protected banks);
- Typical suspended sediment concentrations.

11.2 Developers will then be able to ascertain if they are required to supplement or quantify the available data with in-field surveys and what mitigation measures are required.

12. Regulatory advice

12.1 Details of regulatory requirements and good practice advice for the applicant can be found on our website at www.sepa.org.uk/planning.aspx. If you are unable to find the advice you need for a specific regulatory matter, please contact a member of the Angus and Dundee regulatory team on 01241 874 370.

Council

While the framework for environmental assessment of the proposals laid out in the report appears satisfactory, I would like to suggest two further projects at Table 4.4 for consideration in assessing cumulative and in-combination effects.

These are:

the Dundee Biomass project. This project is led by Forth Energy Limited which is a joint venture company formed by Scottish and Southern Energy plc and Forth Ports plc. Please see their website for contact information;

And

the Dundee Coastal Study. The project is led by Dundee City Council. Mott MacDonald has been commissioned to undertake the study and produce options for coastal protection measures and undertake an environmental assessment. The contact officer for this initiative is Gopal Narayanan, City Development Department, Dundee City Council (telephone 01 382 433642).

RSPB

We have read the Report in conjunction with the Seagreen Round 3 Firth of Forth Zone Appraisal and Planning (ZAP) Document. The Scoping Report is clear and concise and we only wish to make a small number of comments, which are set out in Annex 1 of this letter. We are generally happy that, in the context of both the Round 3 Firth of Forth Zone and the Scottish Territorial Waters Forth/Tay Zone, the Report is comprehensive in its review of the existing environment, data sources and potential impacts, both in isolation and in combination. We also consider that, in terms of assessment of impacts, it is largely comprehensive in its reference and commitment to the relevant COWRIE best practice and to the range of collaborative work being undertaken by the Forth and Tay Offshore Wind Developers Group, all of which the RSPB is able to contribute to directly.

The Report does not identify a final route or landfall for the Export Cable Route (ECR) from Zone 3 developments and contains no information in regard to assessment of potential impacts on intertidal habitats. We trust that, as the ECR proposal develops, this information will become available for comment.

Annex 1 – RSPB Scotland comments on Phase 1 R3 Firth of Forth Scoping Report

Appropriate Assessment

Section 4.4 Requirement for Appropriate Assessment should acknowledge that whilst projects in or near to a Natura 2000 site will require the competent authority to determine the requirement to undertake an Appropriate Assessment (AA), some projects may affect designated sites that are a considerable distance away and will therefore also require a Habitats Regulations Appraisal. For example, there may be issues related to SPA-qualifying migratory waterfowl, either moving up and down the east coast of Britain, or across the North Sea.

13. Cumulative impacts

With regards to section 4.5 Cumulative and In-Combination Impacts, we consider that the Methil Offshore wind farm should also be included for consideration in the impact assessment. In addition, any onshore wind farms in the vicinity, either consented or proposed, should be included. We would also recommend that any major projects involving changes in land use should be considered as these could affect the feeding grounds of migratory birds, thus possibly resulting in significant impacts on survival, in addition to direct and indirect impacts attributable to wind energy development.

Designated sites
In section 6.1 Nature Conservation Designations, the Firth of Forth Ramsar should also be listed as an SPA. We would also suggest that some goose roost SPAs such as Slammanan Plateau (bean goose) and the Upper Solway Flats and Marshes (Svalbard barnacle goose) should also be included due to potential impacts on passage species.

Aerial surveys and radar
Section 6.2.3 Methodology and Approach to EIA states that further aerial surveys may be considered in future to provide additional bird distribution data across the region. We consider that further aerial surveys would be of value, particularly as the use of boat-based surveys to provide baseline data for a zone of this size may prove impractical and appear likely to run risk of incomplete surveys.

The use of radar should also be considered. Radar studies should be targeted and cover relevant time periods to allow assessment of impacts on passage seabirds and migratory waders, ducks and geese etc. Boat and aerial techniques do not sufficiently assess such movements on their own and radar is able to gather data in periods of darkness and poor weather. There is a potential role for Doppler radar which might possibly give an indication of size and wing beat frequency, thus perhaps enabling more specific identification to families/ even species.

Export cable route cumulative impacts
Section 6.2.2. Potential Impacts should consider the cumulative impact of the ECR with export cables that may be required in connection with other offshore developments.

14. Mitigation
Mitigation should be considered to reduce any significant impacts to an acceptable level: this could include design of the wind farm layout, turbine height and/or operational limitations such as shut-down periods, for example. The EIA should also consider whether turbine colouration may make the turbine structures more visible to passage bird species, especially during conditions of reduced visibility. Since many birds may transit the area during periods of reduced visibility or at night, the potential draw of any lighted structures to birds should be considered. Consideration should be given to the outputs of any research that may help to identify suitable mitigation, which may become available during preparation of the ES.

If the proposal is consented, monitoring during and post-construction must be given serious consideration and secured through conditions.

Climate and carbon emissions

RSPB Scotland would wish to see details of the full carbon balance budget for the proposed development detailed in the ES. This may include, for example, the amount of carbon required for equipment manufacturing and any CO_2 which may escape from the seabed.

CIVIL AVIATION AUTHORITY (CAA)

Like any wind turbine development, the Firth of Forth proposal has the potential to impact upon aviation-related operations in a number of ways; the Department for Trade and Industry (DTI – now the Department for Energy and Climate Change)-sponsored document 'Wind Energy and Aviation Interests' and Civil Air Publication 764 refer. The following aviation issues are relevant and should, where applicable, be addressed / discussed within any future associated Environmental Statement:

- Unlike many similar developments (particularly those in the southern and northern North Sea) the location of the Firth of Forth development is such that I do not believe there would be a significant impact upon helicopter operations associated with existing offshore platforms. There are no existing promulgated helicopter routes local to the area in question, as has been identified in section 7.5.1 of the Scoping Report.

- Similarly I do not believe that there are any associated civil aerodrome issues associated with this development.

- As with any such development of this scale, the relative perspectives of both the Ministry of Defence (MoD) and NATS should be established and any related concerns addressed.

- Section 7.5.3 of the Scoping Report indicates that Seagreen will seek to share data with other wind developers in Scottish Territorial Waters leading to a 'standardised approach to civil and military assessment'. The CAA would wish to support such an approach.

- Some or all of the wind turbines will need to be equipped with aviation warning lighting. The legal requirement for aviation obstruction lighting on offshore wind

turbines is formally documented within the UK Air Navigation Order 2009 (Article 220 refers), http://www.caa.co.uk/docs/33/CAP393.pdf (p158). A related CAA DAP Policy Statement on the aviation lighting requirement for offshore turbines is also available on the CAA website[2]. Whilst Article 220 and the Policy Statement refer to UK Territorial Waters, CAA recommendations regarding the lighting of turbines outside territorial waters will mirror those for inshore turbines. It should be noted that the Department for Energy and Climate Change is leading further development of the offshore wind turbine development. Should the developer wish to discuss this aviation lighting requirement further, the appropriate CAA point of contact is:

Mr Paul Askew
Renewable Energy Project Officer
Directorate of Airspace Policy
CAA House
45-59 Kingsway
London
EC2B 6TE
Telephone 0207 453 6529

- International aviation regulatory documentation requires that the rotor blades, nacelle and upper 2/3 of the supporting mast of wind turbines that are deemed to be an aviation obstruction should be painted white, unless otherwise indicated by an aeronautical study.

It follows that the CAA advice on the colour of wind turbines would align with these international criteria. In isolation, the CAA would make no special case for marking.

- There is a requirement for the Forth Array windfarm (and all other similar offshore developments) to be charted for aviation purposes. In addition to the requirements of Scottish Government Circular 2/2003, it is recommended that the Defence Geographic Centre be kept fully apprised of the windfarm's development. Appropriate contact details are:

Defence Geographic Centre
AIS Information Centre
Jervis Building
Elmwood Avenue
Feltham
Middlesex
TW13 7AH
Telephone: 0208 818 2708

- We also recommend that as and when construction time frames are established specific consultation with the CAA is conducted such that charts can be updated in a timely fashion and the turbines can be collectively promulgated to the aviation community as aviation obstacles. The appropriate CAA point of contact is Mr Mark Smailes, contact details as before.
- In reference to any landfall developments, we would not anticipate needing to make any observations other than to highlight any potential need for consultation in accordance with Scottish Government Circular 2/2003; this to identify any aerodrome specific safeguarding issues.

NERL SAFEGUARDING

Wind turbines have the potential to affect NERL's Communications, Navigation and Surveillance (CNS) infrastructure. The impact on Primary Surveillance Radar (PSR) is caused by the spinning blades of a wind turbine creating false plots on the radar system which can be displayed as "clutter" on the air traffic controller's radar display. This "clutter" can appear as though it is an aircraft which has the potential of creating a serious safety occurrence. Wind turbines can also impact on voice communication and navigation aid systems. It should also be noted that voice communications systems are NERL's highest safety category system – without voice communications NERL would be unable to perform its Air Traffic Service functions.

For the development in question, and based on the information available to us, there is predicted to be an impact on our CNS infrastructure and thus our operations. NERL offer a technical and operational assessment service which could be commissioned by the developer. In order to complete these assessments, NERL would require further details of the proposed development. I note from section 3.2.1 that Seagreen have not yet selected which turbines will be used for the development. In order for NERL to accurately calculate the potentially impact that the proposed turbines may have on our communications, navigation and surveillance (CNS) infrastructure, we would require the dimensions of the largest possible turbines which may be installed so we can calculate the worst case impact on our CNS infrastructure.

NERL wish to engage with the developer to ascertain the extent of the potential impact of the proposed wind farm. NERL are able to offer a service which can be tailored to meet the developer's needs. For example, if the developer would like NERL to assess the zone as a whole, this can be done. If the developer would like NERL to assess individual phases of development, this could also be tailored for.

NERL recently held a workshop with all Offshore Round 3 developers to explain the potential impact to our systems and operations. As a follow up to this workshop, NERL will engage with the developer to progress the assessment of potential impact that this development may have on our infrastructure and the steps which need to be taken to allow the development to coexist with our CNS infrastructure and operations.

Maritime & Coastguard Agency

The Environmental Statement should supply detail on the possible the impact on navigational issues for both Commercial and Recreational craft, viz.

Collision Risk
Navigational Safety
Visual intrusion and noise
Risk Management and Emergency response
Marking and lighting of site and information to mariners
Effect on small craft navigational and communication equipment
The risk to drifting recreational craft in adverse weather or tidal conditions
The likely squeeze of small craft into the routes of larger commercial vessels.

A Navigational Risk Assessment will need to be submitted in accordance with MGN 371 (and 372) and the OTI/OfT/MCA Methodology for Assessing Windfarms Particular attention should be paid to cabling routes and burial depth and, subject to the traffic volumes, an anchor penetration stUdy may be necessary Reference should be made to any Marine Environmental High Risk Areas (MEHRAS) established on adjacent coastlines.

The cumulative and in combination effects require serious consideration and we welcome the engagement of the Forth & Tay Development Group to collectively address these issues.

Developers need to be aware that the radar effects of OWF on ship's radars are an important issue and subject to further discussion within the radar sub group of NOREL The radar effects will need to be assessed on a site specific basis taking into consideration previous reports on the subject available on the MCA website at:

http://www.mcga.gov.uk/c4mca/mcga07-home/shipsandcargoes/mcgashipsregsandguidance/mcga-windfarms/offshorerenewable~energy,installations.htm
.

Northern Lighthouse Board

Under the Merchant Shipping Act 1995 (sections 193 and 198), the Northern Lighthouse Board (NLB) has the duty of superintendence over all Aids to Navigation (AtoN) within its area of jurisdiction. To this end we work in partnership with all authorities to provide a seamless interface between our own statutory and other Aids to Navigation, for the safety of the mariner.

With regard to the proposed Section 36 application consultation and the scope of assessment, we would only comment on that part relating to Shipping and Navigational Safety contained within several sections of the consultation document.

We would advise that as an initial response to the EIA Scoping Opinion request, any formal recommendations for lighting and marking will be given through the Coast Protection Act 1949 – Section 34 process. We would require that the CPA application would include a Navigational Risk Assessment in accordance with the requirement of MCA Marine Guidance Notice 371. We would encourage a workshop approach to the development of this NRA and suggest that as well as shipping density, it is important to take regard of type and cargo, draught and number of persons on board, to assess the likelihood and consequence of any shipping incident relating to the development or accumulation of developments.

We would further advise that with regard to shipping routes, it is important to understand the departure and arrival ports of transiting vessels as any deviation around this development or accumulation of developments may have an impact on both shipping and port operations. We would suggest routes 2, 7 and 9 should be preserved.

We welcome Seagreen's stated intention to work with the Forth and Tay Offshore Wind Developers Group to reduce the cumulative impacts of offshore windfarm development and would expect this cumulative impact to be described and quantified within the application.

We would anticipate that the development site would be marked with buoyage during the construction and decommissioning phases, and with Aids to Navigation based on IALA Recommendation O-139 installed on the turbines during the operational phase. The Statutory Sanction of the Commissioners of Northern Lighthouses must be sought to deploy, exhibit and subsequently remove any proposed navigational lighting or buoy stations required within any conditions of the consent to establish the demonstrator device or for any preparatory work.

The requirement to install cables to shore would need separate comment contained within the Navigational Risk Assessment.

We note that Notices to Mariners, Radio Navigation Warning and publication in appropriate bulletins will be required stating the nature and timescale of any works carried out in the marine environment relating to this project due to the international use of this area of UK sea. The warnings should be promulgated before any commencement of any installation, operation, maintenance and decommissioning periods.

Ministry of Defence.

I am writing to confirm that we have the following concerns with your proposal. This has been assessed on the grid references below (as submitted in your pro-forma) for which 680 turbines at 158 metres to blade tip height would fall within.

Turbine	100km Square letter	Easting	Northing
1	NO	96899	35167
2	NO	96801	35408
3	NO	96649	35765
4	NO	96490	36118
5	NO	96325	36468
6	NO	96154	36817
7	NO	95976	37163
8	NO	95794	37504
9	NO	95605	37842
10	NO	95410	38177
11	NO	95209	38509
12	NO	95002	38837
13	NO	94790	39161
14	NO	94573	39482
15	NO	94349	39800
16	NO	94120	40112
17	NO	93886	40421
18	NO	93647	40726
19	NO	93401	41027
20	NO	93151	41323
21	NO	92896	41615
22	NO	92635	41902
23	NO	92370	42184
24	NO	92164	42398
25	NO	92235	42686
26	NO	92321	43064
27	NO	92402	43443
28	NO	92474	43824
29	NO	92533	44156
30	NO	92700	44460
31	NO	92776	44603
32	NO	92951	44935
33	NO	93128	45281
34	NO	93296	45629
35	NO	93460	45982
36	NO	93616	46337
37	NO	93767	46693
38	NO	93800	46774
39	NO	93802	46778
40	NO	93916	47064

41	NO	94054	47426
42	NO	94186	47790
43	NO	94310	48157
44	NO	94430	48526
45	NO	94543	48897
46	NO	94648	49270
47	NO	94747	49645
48	NO	94826	49963
49	NO	94902	50025
50	NO	95198	50276
51	NO	95231	50304
52	NO	95522	50558
53	NO	95808	50818
54	NO	96090	51084
55	NO	96368	51354
56	NO	96385	51372
57	NO	96643	51631
58	NO	96911	51911
59	NO	97174	52196
60	NO	97432	52485
61	NO	97686	52779
62	NO	97934	53077
63	NO	97963	53113
64	NO	98038	53206
65	NO	98282	53508
66	NO	98424	53693
67	NO	98472	53755
68	NO	98518	53814
69	NO	98646	53983
70	NO	99839	53982
71	NP	00220	53982
72	NP	25549	53959
73	NP	31559	37861
74	NP	08414	36062
75	NP	44032	04458
76	NP	12431	02502
77	NU	14627	84166
78	NU	13666	84166
79	NU	12402	84166
80	NU	08007	84166
81	NU	07895	84285
82	NU	07815	84373
83	NU	07682	84518
84	NU	07424	84790
85	NU	07153	85068
86	NU	06878	85339
87	NU	06597	85608
88	NU	06311	85869

89	NU	06022	86127
90	NU	05728	86380
91	NU	05428	86627
92	NU	05126	86868
93	NU	04818	87105
94	NU	04508	87336
95	NU	04192	87562
96	NU	03873	87784
97	NU	03764	87856
98	NU	03547	88000
99	NU	03221	88209
100	NU	02890	88412
101	NU	02557	88609
102	NU	02220	88800
103	NU	01879	88986
104	NU	01536	89166
105	NU	01217	89326
106	NU	00819	90021
107	NU	00322	90889
108	NT	99823	91755
109	NT	99326	92621
110	NT	98829	93489
111	NT	98331	94356
112	NT	97833	95222
113	NT	97336	96090
114	NT	96837	96957
115	NT	96340	97824
116	NT	95843	98691
117	NT	95346	99558
118	NO	94847	00425
119	NO	94350	01291
120	NO	93852	02159
121	NO	93354	03026
122	NO	92857	03893
123	NO	92359	04760
124	NO	91862	05627
125	NO	91364	06494
126	NO	90866	07360
127	NO	90369	08228
128	NO	89871	09094
129	NO	89809	09205
130	NO	89882	09261
131	NO	90187	09500
132	NO	90487	09745
133	NO	90784	09995
134	NO	91076	10250
135	NO	91363	10510
136	NO	91646	10775

137	NO	91924	11046
138	NO	92197	11321
139	NO	92466	11601
140	NO	92729	11885
141	NO	92988	12175
142	NO	93241	12467
143	NO	93490	12765
144	NO	93733	13067
145	NO	93970	13373
146	NO	94203	13684
147	NO	94429	13999
148	NO	94651	14316
149	NO	94867	14639
150	NO	95077	14964
151	NO	95281	15293
152	NO	95481	15627
153	NO	95673	15963
154	NO	95859	16303
155	NO	96041	16646
156	NO	96215	16992
157	NO	96385	17341
158	NO	96547	17692
159	NO	96704	18047
160	NO	96854	18405
161	NO	96999	18764
162	NO	97136	19127
163	NO	97268	19492
164	NO	97393	19859
165	NO	97510	20228
166	NO	97624	20599
167	NO	97729	20973
168	NO	97829	21347
169	NO	97921	21724
170	NO	98007	22101
171	NO	98086	22481
172	NO	98159	22862
173	NO	98226	23244
174	NO	98285	23627
175	NO	98337	24011
176	NO	98384	24396
177	NO	98424	24782
178	NO	98456	25169
179	NO	98482	25555
180	NO	98501	25943
181	NO	98514	26330
182	NO	98519	26718
183	NO	98518	27106
184	NO	98509	27493

185	NO	98495	27881
186	NO	98473	28267
187	NO	98445	28655
188	NO	98410	29041
189	NO	98368	29426
190	NO	98320	29811
191	NO	98264	30194
192	NO	98202	30577
193	NO	98134	30959
194	NO	98059	31339
195	NO	97977	31718
196	NO	97889	32096
197	NO	97794	32471
198	NO	97691	32846
199	NO	97585	33218
200	NO	97470	33589
201	NO	97349	33957
202	NO	97222	34323
203	NO	97088	34687
204	NO	96947	35049
205	NU	46977	96571
206	NU	36776	84169
207	NU	36083	84166
208	NP	10329	36211
209	NP	08331	53975

We will look at suggested mitigations that you may wish to propose. However, the Ministry of Defence (MOD) will object if you apply for planning permission without addressing these concerns to our satisfaction.

Air Traffic Control (ATC) radar

The turbines will be 44km from; and in line of sight to the ATC radar at RAF Leuchars. We have carried out an indicative, generic assessment of the potential impact of the development based on its distance from the radar. As it will be between 37.0636km and 55.5954km (20mn and 30nm) from the radar it is possible that MOD will object to a planning application for the development in its current form.

If a planning application is submitted a further detailed assessment will be carried out by an RAF Air Traffic Control Expert. MOD reserves the right to object to your development on the basis of this more detailed assessment.

Wind Turbines have been shown to have a detrimental affect on the performance of the MOD's Air Traffic Control (ATC) Watchman radars. These affects include the desensitisation of radar in the vicinity of the turbines, and the creation of "false" aircraft returns which Air Traffic Controllers must treat as real. The desensitisation of radar could result in aircraft not being detected by the radar and therefore not presented to Air Traffic Controllers. Controllers use the radar to separate and sequence both military and civilian aircraft. In busy uncontrolled airspace radar is

the only sure way to do this safely. Maintaining situational awareness of all aircraft movements within the airspace is crucial in achieving a safe and efficient Air Traffic Service , and the integrity of radar data is central to this process. The creation of "false" aircraft displayed on the radar leads to increased workload for both controllers and aircrews, and may have a significant operational impact. Furthermore, real aircraft returns can be obscured by the turbine's radar returns making the tracking of conflicting unknown aircraft, the controllers own traffic, much more difficult

Air Defence (AD) radar

The turbines will be 86km from; in line of sight to; and will cause unacceptable interference to the AD radar at Buchan. Another site affected in the same way is Brizlee Wood which is 70km from the turbines. Following trials carried out in 2005, it has been concluded that wind turbines can affect the probability of detection of aircraft flying over or in the vicinity of wind turbines. Due to this, the RAF would be unable to provide a full air surveillance service in the area of the proposed wind farm.

Low Flying

The turbines will be within Leuchars' training airspace and will unacceptably affect military activities. These are areas made available for Military Operational Low Flying Training. Within Tactical Training Areas, military fast jets and Hercules aircraft may operate down to a height of 100ft separation distance from the ground and other obstacles. The proliferation of obstacles within this area, therefore, is not only a safety hazard but also severely impacts on the utilisation of the area for this essential Low Flying Training.

If the developer is able to overcome the issues stated above, the MOD will request the turbines be fitted with aviation lighting.

It should be noted that this response is based on current levels of wind farm development in the area. If additional wind farms are consented or built prior to this development being submitted for planning consent, our position may change.

Defence Estates Safeguarding wishes to be consulted and notified of the progression of planning applications and submissions relating to this proposal to verify that it will not adversely affect defence interests.

ASFB

ASFB represents the network of 41 Scottish District Salmon Fishery Boards (DSFBs) who have a statutory responsibility to protect and improve salmon and sea trout fisheries. RAFTS represents the 25 charitable fishery trusts who work in tandem with many of the Boards and focus on research, monitoring and educational aspects of freshwater fish and fisheries.

Both organisations and their members have a considerable interest in the development of renewable sources of energy given that many of these developments have potential for impact on freshwater and migratory salmonid fish populations and the fisheries they support.

Fisheries for salmon and sea trout are significant in economic terms in Scotland, generating at least £75M and supporting at least 2000 jobs. In the local context, these fisheries are particularly important, with particular reference to fisheries in the vicinity of the Seagreen site, these comprise the salmon populations in the Esks, Tay, Forth and Tweed. In addition to the economic importance of these fisheries, the populations of salmon and sea trout are of significant ecological importance and in recognition of this special status, all of these rivers benefit from protection conferred by Natura designations under the EU Habitats Directive and, as a consequence of this special status, any potential impacts on these fisheries require to be carefully assessed. Sea trout populations and the associated fisheries are also an important economic component and there is potential for greater interplay between sea trout and offshore developments due to the propensity of sea trout stocks to use more local offshore habitats for their marine phase.

I am aware that some of the fishery boards have already submitted some views to the individual proposals forming part of the Seagreen scheme (Inch Cape, Neart na Gaoithe and the Forth Array).

ASFB and RAFTS would make the following comments:

The proposed developments should be conducted in full consultation with the local District Salmon Fishery Boards and Fishery Trusts for the rivers noted above. The DSFBs hold various statutory powers and duties and they will have an interest in the potential effects of offshore installations on migratory salmonids in their marine phase, both during construction and during subsequent operation. The Trusts may have a particular interest in assessing potential impacts and monitoring the interactions between fish and developments such as these.

We would like to record our own concerns that such developments will have considerable implications and these very often can be conducted without proper regard or understanding of the potential impacts on the fish species and their habitat. Some of the issues and questions we would raise on behalf of our members are itemised below:

Effects arising from construction
What effect would the construction processes have on fish?

Physiological and behavioural effects of underwater noise and vibration resulting from construction operations Direct effects on fish of water quality changes through suspension of sediment in the water column disturbed during construction Indirect effects of water quality changes through effects on food sources available to salmon and sea trout Will the effects of noise and mechanical disruption be assessed prior to construction and would on-going monitoring be put in place if the project is approved and completed?

Operational Effects
Physiological and behavioural effects of underwater noise and vibration resulting from turbine operation Are there likely to be electrical or magnetic fields associated with the installation and operation and will these have a discernable effect on salmon? Indirect effects on fish of permanent changes in habitat Whilst salmon use the area primarily as a migration route and are unlikely to remain there for lengthy periods, the habits of sea trout are rather different and this species may use the area more extensively as a feeding area before migration into freshwater systems. Accordingly there may be a risk of more prolonged interaction with sea trout in relation to the site.

I hope that you find these general comments helpful. Both ASFB and RAFTS would be happy to input further to this project as necessary. We understand that some of the individual Boards and Trusts are already engaged with the project and trust that they will be fully involved by the consultants at this critical consultation stage. We are also aware that Scottish Government has commissioned a research project to consider potential impacts of marine energy developments on migratory salmonids, we understand that this study will examine potential issues for fish such as acoustic effects, scour, electro-magnetic fields and collision. We trust that this study will help inform a strategic assessment of offshore renewables on migratory fish which in turn will allow a better understanding as to likely effects on local proposals.

I have copied this to the following Boards and Trusts:

Marshall Halliday/Hugh Campbell Adamson – Esk DSFB and Esk Fisheries Trust
David Summers – Tay DSFB
Patrick Fothringham – Forth DSFB and Fisheries Trust
Nick Yonge/Ronald Campbell – River Tweed Commission/Tweed Foundation

I have also copied this to Tony Andrews and Fiona Cameron at the Atlantic Salmon Trust who have an interest in offshore energy developments

RYA Scotland

Regarding the list of parameters considered within the scoping document, our interest at the RYA is obviously recreational navigation and our concern is to secure the safety of such interests. As a result, the RYA would expect that recreational boating should be considered under section 7.2, titled 'Shipping and Navigation' as well as in section 7.8, titled Tourism and Recreation'.

With this in mind, the RYA would anticipate recreational craft to be included in the Navigational Risk Assessment referred to in section 7.2.3 of the report, titled 'Methodology and Approach to EIA'. The RYA welcomes the statement **'A Navigation Assessment and a Navigational Risk Assessment will be undertaken in accordance with MCA guidance to assess impacts on both navigational safety and emergency response'** but request that recreational navigation is also considered and that we are included in any future consultation regarding the findings of the assessments.

The RYA welcomes the comments made under the title 'Cumulative and in-combination impacts' within the section 7.2 which states that **'Where appropriate, Seagreen shall work with the FTOWDG to reduce the impacts of multiple wind farms within the Firth of Forth area'.** The cumulative impact of all marine developments is becoming increasingly important, especially when considering the issue of 'squeeze' for vessels of all shapes and sizes navigating around development sites.

The RYA welcomes the detailed description of recreational activity throughout the Phase 1 area as seen in section 7.8 of the document, titled 'Tourism and Recreation'. The RYA is encouraged that the UK Coastal Atlas of Recreational Boating and the GIS data is being utilised and considered at this early stage. We would expect this information to also be taken into account and represented within the Environmental Statement.

The RYA is concerned by the paragraph in section 7.8.2, titled 'Potential Impacts' which, whilst describing the operational phase, states **'Any impacts are expected to be related to access and navigation for sailing and yachting; once wind farms are operational there may be restrictions in navigation (e.g. Safety Zones around each structure). This may impact the RYA routes passing through Phase 1, though the minimum clearance of the wind turbine blades above highest sea level will be 22m possibly enabling transit of the sites by recreational vessels'.**

The RYA consider that the proposals for the wind farm itself are unlikely to impact on recreational sailing due to the rotor clearance of above 22 m and the wide spacing of the turbine towers making navigation through the site highly feasible. However, we are concerned by the suggestion of 'Safety Zones' and would welcome the opportunity to discuss the implications of this with you further. As is noted at the start of section 7.8, few recreational vessels pass through the site, with most taking an inshore passage. The main traffic will be vessels sailing directly between Peterhead and NE England although there will also be vessels coming from Scandinavia.

It is the RYA's opinion that that the creation of safety zones around the individual operational wind turbines that exclude small craft are unlikely to increase their navigational safety and would therefore be unnecessary, impracticable and disproportionate.
We recognise the increased level of risk to vessels and personnel working during the construction, major maintenance and decommissioning phases of wind farm development where jack up vessels and other engineering works and vessels are required. In these situations we do not object to a temporary safety zones being established around the turbine foundation structures while installation activities are on-going. We would expect this to be supported by regular Notices to Mariners informing all sea users of the location and type of works being undertaken.
However, mariners continually make judgements about navigating around unmanned static installations with height restrictions. The risk of navigating under bridges, around headlands, along rivers, into ports and harbours is assessed and dealt with on a day to day basis. The RYA does not believe that navigating around static wind farms would be any different to this existing decision making that occurs in day to day navigation. It is our belief that in the majority of cases, operational safety zones are unnecessary. However, we do examine the Navigational Risk Assessments for evidence of their need.

The RYA has put together a position statement regarding the development of offshore wind farms and I have attached a copy of this for your information. All our concerns regarding recreational boating and offshore wind farm developments are included in this statement and the RYA expects these to be addressed in the future development of this project.

In summary the RYA's concerns with offshore energy developments and recreational boating relate to:

1. Navigational safety
    - Collision risk
    - Risk management and emergency response
    - Marking and lighting
    - Effect on small craft navigational and communication equipment
    - Weather
2. Location
    - Loss of cruising routes
    - Squeeze into commercial routes
    - Effect on sailing and racing areas
    - Cumulative effects
    - Visual intrusion and noise
3. End of life
    - Dereliction
    - Decommissioning
4. Consultation

These are detailed in our position statement, referenced above and attached to this letter.

Essentially with correct siting taking into account all navigational interests, both commercial and recreational, as well as the suitable design of turbine towers, there is scope for all users of the sea to be mutually compatible.
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Ports and Harbours

The application must include a full Navigation Risk Assessment in line with MGN 371.

Historic Scotland

The scoping comments below relate to the potential impacts of the offshore aspects of the Phase 1 wind farms (Seagreen Alpha and Seagreen Bravo), the Export Cable Route (ECR) and the proposed landfall location of the transition pit. I note that a separate Scoping Report shall be produced for the 'onshore' elements (onshore substation and grid connection).

Marine Assets - Potential Impacts

In relation to the submitted search area of the proposed offshore wind farm, I can confirm that there are no designations within our statutory remit located within this identified area. I can also confirm that there are no such designations within the immediate vicinity of the proposed wind farm search area.

I note that the Scoping Report identifies that there are various undesignated wrecks within the Phase 1 area and within the ECR corridor. We recommend that the potential impact on these be assessed with appropriate involvement of archaeological expertise as these could be subject to potential direct impacts, depending on the specific location of works and the sub-sea cabling route. The relevant Council Archaeology Services may also wish to comment. In addition, indirect impacts to historic assets on the seabed or at the coast edge within the proposed development area and possibly beyond which may be caused by alteration to tidal currents and sedimentary regimes, and by changes to the chemical balance of the water and seabed sediments, should be assessed.

As part of the proposed assessment, I note that archaeological analysis of geophysical surveys will be undertaken as this is consistent with guidelines set down in '*Historic Environment Guidance for the Offshore Renewable Energy Sector*' (Cowrie 2007)[1], which is referred to within the Scoping Report. Beyond this, we note the scoping document's reference to the low potential for submerged prehistoric remains within the study area. We would encourage archaeological analysis of the geological borehole data which we understand is to be gathered for the study area. The scoping report refers to the positive contribution that EIA related surveys can

[1]See http://www.offshorewindfarms.co.uk/Assets/4Archaeological%20guidance%20final%20version.pdf

make to enhancing our knowledge and in this regard it would be very helpful if the results of all archaeological assessments could be archived through the Royal Commission on the Ancient and Historical Monuments of Scotland.

Terrestrial Assets - Potential Direct Impacts
I understand that the potential direct impacts on terrestrial assets as a result of the 'onshore' works shall be addressed separately. We shall provide further comments at this stage. There is the potential for direct impacts on terrestrial assets within our statutory remit as a result of the proposed transition pit which is required between the submarine and terrestrial cables. There are various assets within the search area for the transition pit which is within a 1 km buffer landward of the Mean High Water Spring tide level. These potential direct impacts should be addressed within the ES.

Terrestrial Assets - Impact on Setting
In relation to the search area of the proposed offshore wind farm, I can confirm that there are terrestrial assets with a seascape setting, which maybe subject to an indirect impact as a result of the proposed offshore turbines. These include both coastal assets and assets such as the Bell rock Lighthouse (HB no. 45197) which is referred to in the Scoping Report. We would recommend the production of certain sample visualisations taken from terrestrial assets, such as Ethie Mains,fort 750m SE of (Index no. 5611) and the Bell Rock Lighthouse (HB no. 45197) to assist the assessment of potential impacts on the setting of these assets as a result of the Phase 1 development.

Cumulative Impact
In terms of cumulative impact on terrestrial / coastal assets, I note that the Inch Cape offshore site, within Scottish Territorial Waters, is located to the south west of the Phase 1 Round 3 site and it is understood that Phases 2 and 3 are also planned. As such, taking these other potential wind farms developments into account, a cumulative assessment should be undertaken. As indicated within the Scoping Report, the proposed Phase 1 wind farm shall have the potential to impact cumulatively on the setting of the Bell Rock lighthouse.

We note the reference to the relevant industry guidance on this matter; Cowrie 2008, '*Guidance for assessment of Cumulative Impacts on the Historic Environment from Offshore Renewable Energy*'.

Our Views on the Principle of this Proposal
On the basis of the information supplied, we are content with the principle of the proposal. In our view, it is considered unlikely that there shall be significant adverse impacts on marine assets within our statutory remit. Although it is considered that there shall likely be impacts on the setting of terrestrial assets within our statutory remit, the level of impact on the setting of these assets is also unlikely to be significantly adverse due to the separation distances involved. I look forward to providing further comments upon receipt of the full Environmental Statement (ES).

In terms of assessing marine archaeology, subject to the comments provided above, in our view the proposed methodology for baseline surveys and assessment of impacts is considered acceptable. The proposed sources and archives are also appropriate.

In terms of assessing the impact of the offshore elements of the proposal on terrestrial assets, we acknowledge that the Scoping Report commits to assessing the impact on the setting of historic sites and assets.

The relevant Council archaeological and conservation service will be able to provide information and advice on unscheduled archaeology and category B and C(S) listed buildings.

Please refer to the advice contained in our technical guidance note on setting. This documents is available at:
http://www.historic-scotland.gov.uk/managing-change-consultation-setting.pdf

Transport Scotland

With reference to your recent correspondence on the above project we write to inform you of our involvement as Term Consultants to Transport Scotland – Trunk Road Network Management Directorate (TS-TRNMD) in relation to the provision of advice on issues affecting the trunk road network.

We understand from the Scoping Report produced that the proposed development consists of a Phase 1 Offshore Wind Farm in the "Firth of Forth Round 3 (R3) Zone". It is noted that although the development is offshore, materials for construction etc will be brought by road to an assembly point before being shipped out to the development. In these circumstances, we will require further information with regards to traffic flows to provide detailed comments but having reviewed the report and the attached plans, we would provide the following comments.

Phase 1 comprises of two potential wind farm sites, Seagreen Alpha and Seagreen Bravo. It is understood that traffic travelling to the transition pit or to the port to transport goods for the construction or operation of the wind farms may use the A90 and A92 trunk roads.

We accept that it is unlikely that the development will have a significant environmental impact on the trunk road network but there are a number of issues which should be taken into consideration when assessing the merits of the site. In general it is expected that information will be provided on the wider impact of development related traffic where this may be appropriate together with the requirements for consequent mitigation. The Environmental Statement should provide information relating to the preferred route options for the movement of heavy loads and any anticipated construction staff movements via the trunk road network during the construction period. In addition, information must be supplied identifying potential environmental impacts on the trunk road once the development is operational, together with appropriate mitigation measures.

Potential trunk road related environmental impacts such as noise, air quality, safety etc should be assessed. In the case of the Environmental Statement, the methods adopted to assess the likely traffic and transportation impacts on traffics flows and transportation infrastructure, should comprise:

- Determination of the baseline traffic and transportation conditions, and the sensitivity of the site and existence of any receptors likely to be affected in proximity of the trunk road network;
- Review of the development proposals to determine the predicted construction and operational requirements; and
- Assessment of the significance of predicted impacts from these transport requirements, taking into account impact magnitude (before and after mitigation) and baseline environmental sensitivity.

Noise and vibration

Impacts to sensitive receptors associated with noise and vibration arising from the proposed development during the construction and operational phases should be considered. Operational traffic noise and construction traffic noise should be assessed by considering the increase in traffic flows and following the principles of CRTN. Design Manual for Roads and Bridges (DMRB) Vol.11 states:

> *"In the period following a change in traffic flow, people may find benefits or disbenefits when the noise changes are as small as 1dB(A) – equivalent to an increase in traffic flow of 25% or a decrease in traffic flow of 20%. These effects last for a number of years."*

PAN56 advises that a change of 3dB(A) is the minimum perceptible under normal conditions, and a change of 10dB(A) corresponds roughly to halving or doubling the loudness of a sound.

Therefore, the Environmental Statement should consider potential impacts to identified trunk road receptors, in terms of:

- Predicted noise levels from construction traffic; and
- Any increases to road traffic attributed to the Proposed Development.

Air Quality

Where a significant change in road traffic characteristics has been identified as a result of the proposed development, changes in air quality at a worst case scenario sensitive receptor adjacent to the trunk road will require further assessment. The criteria considered to identify significant traffic changes with the potential to affect air quality are reproduced below.

The first criteria for identifying roads with a significant traffic change is defined in the Environmental Protection UK "Development Control: Planning for Air Quality" publication:

A change in annual daily traffic (AADT) flows of more than 5% or 10% (depending on local circumstances) on a road with more than 10,000 Annual Average Daily Traffic (AADT).

The second set of criteria is taken from the Design Manual for Roads and Bridges Air Quality Screening Criteria:

- Road Alignment will change by 5m or more; or
- Daily traffic flows will change by 1,000 AADT or more; or
- Heavy Duty Vehicle (HDV) flows will change by 200 AADT or more;

- Daily average speed will change by 10 kilometres per hour (km/hr) or more; or
- Peak hour speed will change by 20km/hr or more.

In the assessment, a conservative approach should be utilised and traffic changes screened against both sets of criteria; if a road link triggers any of the criteria it should be assessed further. Where significant changes in traffic are not noted for any link, no further assessment needs to be undertaken.

Where environmental impacts have been fully investigated but found to be of little or no significance, it is sufficient to validate that part of the assessment by stating in the report:

- The work that has been undertaken e.g. Transportation/ Noise / Air Quality Assessments etc;
- What this has shown i.e. what impact if any has been identified; and
- Why it is not significant.

It is not necessary to include all the information gathered during the assessment of these impacts, although this information should be available, if requested.

Canoe Scotland

With this proposal being so far out to sea it is beyond the area where sea kayakers would normally be. Some paddlers do go out as far as the Bell Rock, but nobody would realistically go out beyond that. Also, the landscape & seascape impact of this proposal would be reasonably small because of the distance out to sea. For these reasons we would have no real concerns with this particular proposal.

We would, however, have potential concerns with the disruption to navigation of small craft during construction & to any possible landfall infrastructure if there was potential for that to interfere with navigation, tidal flows or access to beaches. For those reasons we would welcome being kept informed of progress with this proposed wind farm & on the list of stakeholders wishing to participate in future consultations.

Marine Scotland

Recently, offshore wind has focussed on large scale windfarm sites leased by the Crown Estate for Round 3 and Scottish territorial waters. These will involve the installation of a large number of turbines over several years to ensure the UK and Scottish Governments meet their commitments to generating electricity from renewable sources. Issues associated with cumulative and in combination effects of these developments are currently being reviewed by Marine Scotland and we will be the subject of future correspondence. Please note the following comments on the scoping document. The Environmental Impact Assessment (EIA) must informatively and clearly identify the key impacts associated with the Seagreen development. Within the EIA all useful sources of existing surveys and studies need to be specified.As highlighted in the scoping report Seagreen commenced the Zonal Appraisal & Planning (ZAP) processes to define development sites within the zone by broadly characterising each site within the zone. It sets out the environmental factors into physical, human and biological categories that are likely to influence the development.

In respect of the phase1 development we recommend that the Seagreen‟s ZAP report is referenced as it identifies the baseline data and sets out the zonal characterisation. As the ZAP and EIA process will continue to run in parallel the scoping document should be updated to incorporate relevant links and/or chapters from the ZAP. This will provide readers with a clearer understanding of all of the additional research that will be commissioned to help improve your knowledge and our understanding.

The scoping document appears to be comprehensive and has identified the key impacts with regard to the development. Royal Haskoning divided the report into information gathered for the development zone for phase 1 and the export cable route; this is useful.

Benthic surveys

Marine and Intertidal - *The Zone*

The key issues picked up in the scoping document regarding “The Zone” are that the evelopers need to confirm the sediment type and benthic fauna present in the area by a dedicated survey. The developer should ensure that the benthic surveys conducted establish the location of any listed species in respect to the proposed development. Further assessment will need to be made to rule out any detrimental effects, either permanent or temporary, of the installation of the piles and any changes in the tidal current regime on the habitats and species present. This area is likely to contain sandeels, which are a primary food of the seabirds in the area, therefore,an assessment of the impact of this development on the availability and accessibility of sandeels, to the seabirds, should be conducted. We anticipated that this will become a bigger issue during the development of the other phases.
Details of how the surveys are to be conducted were not specified; therefore having sight of the methodology would be useful. The surveys should include ROV, towed video or drop-down camera. The developers note that there is a possibility of scour affecting the turbine structures; however the level of scour and the mitigation measures were not specified.

Cable Route
Species of note in the area are cetaceans, otters and birds listed in Annex 1, Schedule 1 and UKBAP, which should be included in surveys to establish absence/presence in the area and the possible degree of disturbance and potential impacts, either permanent or temporary. The intertidal survey should include an assessment of the likely disturbance to breeding and feeding birds and otters. It should also identify areas that are of particular importance to these species, and therefore should be avoided, if possible, by the development works. The sub-tidal survey should also include a visual element as specified above, to identify possible habitats or species of conservation importance.

The Environmental Statement should provide enough information for the developer to be able to recommend sites for the cable landfall and a preferred route (s) for the cable that avoid areas within SSSIs and SACs; and/or that would cause unacceptable levels of negative interactions with otters, birds and important habitats. We appreciated the inclusion of the impact matrix within Sections 8.1 and 8.2 of the scoping report it clearly identifies the potential impacts of each phase of the development for the Environmental Statement (ES). In the ES it would be helpful for the applicant to include the following information in respect of each phase of windfarm development:

Construction

Details of any noise pollution due to construction and its possible effects on cetaceans/pinnipeds/fish will also be required. Noise assessments should take into consideration background noise, including vibration produced from ships" engines, piling, hammers and auguring operations during the construction of turbine foundations. The proposed development will need to consider potential impacts on migratory fish including salmon, sea trout, lamprey and sandeels during all phases of the project. The potential for offshore renewable projects to impact on migratory fish will vary depending on the design and location of the development in relation to migratory routes for adults and juveniles. Potential impacts may include physical or avoidance reactions at both the individual and population level and there may also be avoidance due to electromagnetic sensitivity at both adult and juvenile stages. We appreciate that these aspects are challenging and therefore Marine Scotland is happy to discuss these points further. In cases where there is uncertainty over potential impacts it may be necessary for the developer to implement a monitoring strategy to assess the impacts on salmonid fish populations. The expected levels of noise production must be identified within the ES and by using published literature, decide what impact, if any, this will have on fish movements through the area. Will it result in avoidance of the area. And, if so, what does this mean for migrating fish. Please refer to Appendix A.

Fish and shellfish resources – Section 6.4

From a marine fisheries perspective the following comments are provided on the range of issues and impacts identified, the assessment methodologies proposed and sources of data identified, indicating any perceived information gaps or inaccuracies and the conclusions presented in Section 8.0. The scoping document identifies a range of fish and shellfish species, including some UKBAP species, associated with the area of the proposed wind farm and cable corridor. Although none of the species identified are unique to the area, the development could have a significant impact either during construction or from the physical presence i.e. noise and vibration, loss of habitat or EMFs during operation. We would agree with this assessment and that the potential impacts from these and sedimentation during construction should be within scope and considered as part of the EIA. Those conducting the assessment should be aware that the fisheries sensitivity maps, which they have referred to and reproduced in the scoping report were compiled from a variety of sources, in some cases historical data and although they are a useful source of information, they are only indicative.

It is likely that for several species, particularly cod and sandeels, there is more recent and/or site specific information available. Species ecology and migratory behaviour of different species should also be considered. For example, herring spawn on gravel beds and eggs will be very sensitive to sediment cover at this time. Sprat will migrate into the Firth of Forth in winter but are more widely dispersed within the North Sea at other times. The desk studies proposed should inform a more detailed appraisal of species in the area and any survey work undertaken should be designed to cover the range of sensitivities for species present in the area, considering whether they are present for either part or all of the year.

We note that the scoping report identifies considerable uncertainty associated with export cable routes and the significance of EMF impacts (page 67). Given the potential for cumulative and in combination effects in the area, we suggest that these should remain in scope until such times as more definitive studies have been carried out.

Commercial fisheries

We agree, with the conclusion presented in Section 8 that the development could have potentially significant effects on commercial fisheries and that these should be addressed in the EIA. Effects could arise from both direct impact on the species targeted by fishermen and restricted access to fishing grounds during construction and from restricted access to, or complete loss of fishing ground, during operation. Effects could be manifest in both the development area and the export cable route.

The sources of fisheries information identified in the scoping report; combined with a consultative approach as suggested seems appropriate to the EIA. We note that the ABPmer report, the value layers were constructed using VMS data 2004-2007. A more up to date analysis could be derived using VMS and landings data for vessels greater than 15m. However it is unclear whether these data would be available for EIA purposes. Also as noted in the report, this would not capture the detailed distribution of fishing activity by the smaller (under 15 m) vessels which fish in the area, particularly in ICES rectangle 42E7. Shellfish fisheries are currently the most valuable fisheries in the area and a large proportion of the landings are taken by smaller boats.

Given the number and extent of the developments proposed to date and plans for others, cumulative and in combination effects on commercial fishing appear highly probable. We note that these are to be addressed by the Forth and Tay Offshore Wind Developers Group (FATOWDG). We suggest that this assessment should address the extent of temporary or permanent loss of access to fishing grounds and possible effects of displaced fishing effort.

Displaced effort may have direct economic effects, associated with increased steaming time, vessel costs and reduced catches if vessels have to compete with others in limited space (although in this case it would seem alternative fishing opportunities for small, locally based boats to displace elsewhere are likely to be limited). In addition, increased fishing pressure on fish and shellfish stocks in areas which remain fishable may degrade stocks. The possible adverse effects on local and more distant stocks subject to increased fishing pressure are not generally identified in guidance documents but should, we think, form part of the EIA, particularly the assessment of cumulative and in combination effects.

We would also like to highlight two additional sources of information - ABPMer have prepared a report on the value of fisheries „COWRIE FISHVALUE-07-08" and Daniel Dunstone published the „Development of spatial information layers for commercial fishing and shellfishing in UK waters" to support strategic siting of offshore wind farms on the 5th March 2009 on the Cowrie website.

In addition the developer might consult or cross reference with:
BWEA Best Practice Guidelines for Consultation and Recommendations for Fisheries Liaison
OSPAR (2008) Guidance on Environmental Considerations for Offshore Wind Farm Development reference number: 2008-3
Offshore Wind Farms (2004), Guidance note for Environmental Impact Assessment in respect of FEPA and CPA requirements, version 2 – June 2004.

Cumulative Effects

Marine Scotland welcomes the collaborative approach that is being undertaken by FATOWDG on cumulative effects, as per the report „East Coast Discussion Document – Cumulative Impacts". Please refer to MS comments on the discussion document. The cumulative and in combination impacts, particularly when the Seagreen Zone is progressed, could be considerable and not just affect fisheries - considering the ecology of the area, its size and what will be involved in construction significant impacts may affect seabirds, sandeels and seals for example.

Cumulative and in combination effects should make the link between natural fish ecology and commercial fisheries. As indicated above, cumulative impacts could be considerable and the possible effects on coastal (fishing) communities might warrant a mention in the socio-economic section. Is there a mechanism to evaluate these for particular combinations of developments or to develop an adaptive approach - monitoring effects and proceeding in a step wise fashion. However, it is difficult to visualise, but we would wish to explore further, how the cumulative and in combination approach proposed by FATOWDG - could look at particular combinations of the proposed developments - given the business environment.

The possibility that the developments of wind farm sites in the Firth of Forth particularly when extended to zone 3 will displace fishing effort (e.g. scallop fleet) and that this will have detrimental effects on stocks or fisheries elsewhere should be considered. The assessment of the impact of the loss of fishing grounds and possible adverse effects on local or more distant stocks subject to increased fishing pressure are not generally identified in guidance documents.

A cumulative and in combination impact assessment is also a requirement of the Habitats Regulations with respect to the designated SACs and SPAs which may be affected. As a result, the cumulative and in combination assessment of impacts on the marine mammals and seabirds of the European designated sites will be an important consideration within the EIA process.

As mentioned, Marine Scotland are currently considering a possible strategy for assessing cumulative and in combination effects and will return to this matter as soon as possible

Marine Mammals

We indicate the value in co-ordinating various pieces of proposed survey work between developers, as well as co-ordinating any necessary licence applications, to more effectively address marine mammal impact assessment. It is relevant to refer back to the „ZAP" which presents greater detail on the gaps in marine mammal knowledge and actions which are necessary to enable an accurate EIA.

Cable route and layout

Marine Scotland would like to emphasise that all developers are required to include maps, baseline data and any details associated with the cable route within their ES as it is incorporated into the overall footprint of the works.

Conclusion

The Scoping document highlights all of the impacts that should be assessed within the development"s EIA. As the area is significantly larger than any of the Scottish Territorial Wind (STW) sites and there is an increased risk of cumulative impacts associated with all of the developments within the Firth of Forth MS-LOT is currently reviewing its approach to the consenting strategy. Lessons are still currently being learnt from Rounds 1 & 2 developments and where possible good practice should be adopted from these. As mentioned, MS is currently considering the whole approach to cumulative and in combination effects assessments and will be in contact with Seagreen to discuss the details.

Appendix A

Scoping comments in relation to information requirements on diadromous fish of freshwater fisheries interest

Offshore renewable developments have the potential to directly and indirectly impact diadromous fish of freshwater fisheries interest including Atlantic salmon, anadromous brown trout (sea trout) and European eel. These species use the coastal areas around Scotland for feeding and migration and are of high economic and / or conservation value. As such they should be considered during the EIA process. Developers should also note that offshore renewable projects have the potential to impact on fish populations at substantial distances from the development site.

In the case of Atlantic salmon information will be required to assess whether there is likely to be any significant effect of developments on rivers which are classified as Special Areas of Conservation (SAC's) for Atlantic salmon under the Habitats Directive. Where there is the potential for significant impact then sufficient information will be required to allow Marine Scotland to carry out an Appropriate Assessment.

In order that Marine Scotland is able to assess the potential impacts of marine renewable devices on diadromous fish and meet legislative requirements the developer should consider the site location (including proximity to sensitive areas), type of device, and the design of any array plus installation methodology. Specifically we request that developers provide information in the following areas:

1. Identify use of the proposed development area by diadromous fish (salmon, sea trout and eels)

a. Which species use the area? Is this for feeding or migration?
b. At what times of year are the areas used?
c. In the case of salmon and sea trout what is the origin / destination of fish using the area?

2. Identify the behaviour of fish in the area

a. What swimming depths do the fish utilise
b. Is there a tendency to swim on or offshore

3. Assess the potential impacts of deployed devices on diadromous fish during deployment, operation and decommissioning phases. Potential impacts could include:

a. Strike
b. Avoidance (including exclusion from particular rivers and subsequent impacts on local populations)
c. Disorientation that could potentially affect behaviour, susceptibility to predation or by-catch, or ability to locate normal feeding grounds or river of origin
d. Delayed migration

4. Consider the potential for cumulative impacts if there are multiple deployments in an area.

5. Assess 1-4 above to determine likely risk.

a. If there are insufficient data to determine use of the development area, these should be obtained
b. If there are insufficient data on the origin / destination of fish using the area then these should be obtained
c. Where it is not possible to obtain site specific data, the developer should make a convincing argument why this is the case and apply appropriate expert judgement based on published information.

6. If there is any remaining doubt as to the potential impacts of a particular development, then the developer should recommend a scientifically robust monitoring strategy to assess any impacts either on stocks as a whole, or on particular rivers as necessary.

Marine Scotland Science has just completed a review of migratory routes for Atlantic salmon, sea trout and eels relevant to Scotland, which should be available in June 2010. This will assist the developers in identifying what pre-existing information is available and what supplementary site specific data will be required.

Annex 2.

DEVELOPER APPLICATION AND ENVIRONMENTAL STATEMENT CHECKLIST

	Enclosed
1. Developer cover letter and fee cheque	□
2. Copies of ES and associated OS maps	□
3. Copies of Non Technical Summary	□
4. Confidential Bird Annexes	□
5. Draft Adverts	□
6. E Data – CDs, PDFs and SHAPE files	□

Environmental Statement	Enclosed	ES Reference (Section & Page No.)
7. Development Description	□	
8. Planning Policies, Guidance and Agreements	□	
9. Economic Benefits	□	
10. Site Selection and Alternatives	□	
11. Baseline Assessment data – air emissions	□	
12. Design, Landscape and Visual Amenity	□	
13. Construction and Operations (outline methods)	□	
14. Archaeology	□	
15. Designated Sites	□	
16. Habitat Management	□	
17. Species, Plants and Animals	□	
18. Water Environment	□	
19. Sub-tidal benthic ecology	□	
20. Hydrology	□	
21. Waste	□	
22. Noise	□	
23. Traffic Management	□	
24. Navigation	□	
25. Cumulative Impacts	□	
26. Other Issues	□	

N.B. Developers are encouraged to use this checklist when progressing towards application stage and formulating their Environmental Statements. The checklist will also be used by officials when considering acceptance of formal applications. Developers should not publicise applications in the local or national press, until their application has been checked and accepted by officials.