Scottish Environment LINK

RESPONDENT INFORMATION FORM

Please complete the details below and return it with your response. This will help ensure we handle your response appropriately. Thank you for your help.

Name: Scottish Environment LINK

Postal Address: Scottish Environment LINK, 2 Grosvenor House, Shore Road, Perth PH2 8BD

1. Are you responding (please tick one box):

(a) As an individual ☐ (go to Q2a/b and then Q4)

(b) **on behalf of** a group/organisation ☒X (go to Q3 and then Q4)

ON BEHALF OF GROUPS OR ORGANISATIONS:

3. The name and address of your organisation ***will be*** made available to the public (in the Scottish Government library and/or on the SG website). Are you also content for your **response** to be made available?

Yes

SHARING RESPONSES/FUTURE ENGAGEMENT

4. We will share your response internally with other Scottish Government policy teams who may be addressing the issues you discuss. They may wish to contact you again in the future, but we require your permission to do so. Are you content for the Scottish Government to contact you again in the future in relation to this consultation response?

Yes

Scottish Environment LINK

Offshore Wind SEA and draft Plan Consultation

Scottish Environment LINK welcomes the opportunity to comment on the SEA and draft Plan for Offshore Wind Energy in Scottish Territorial Waters.

The threat of climate change, the abundance of marine renewable energy sources, and a combination of political and economic factors make a strong case for the urgent development of marine renewable energy in Scotland. At the same time, there is an equally strong case for a precautionary approach. This is due to the extraordinary landscape and biodiversity value of the marine environment, the unknown impacts of these technologies on marine life, the poverty of knowledge about marine ecosystems, our poor history of rapid developments in coastal waters and the frailty of marine conservation measures.

Scottish Environment LINK's (hereafter referred to as LINK) vision is of a thriving industry that will help reduce the causes of climate change and bring secure, long-term jobs to coastal communities, while safeguarding a diverse, productive sea. Members of LINK want to support the industry in realising this vision, and to this end, have published recommendations for effective planning of the marine renewable industry in Scotland[1].

Whilst we welcome the opportunity to comment at this stage, consultation on the scoping report was conducted during a meeting of the Marine Energy Spatial Planning Group, constituted by industry and Government representatives. The environmental sector is not represented on this group. As a result, we were unable to comment on scoping reports during the consultation. Earlier consultation opportunities on the proposed options and mapping of environmental data would have been welcome.

Overarching Comments

Marine (Scotland) Act 2010 and Marine & Coastal Access Act 2009

LINK believes there has not been adequate consideration of the provisions of the Marine (Scotland) Act 2010 or the Marine and Coastal Access Act 2009 in either the SEA or draft Plan.

The Marine (Scotland) Act contains various measures designed to ensure proper consideration of conflicting issues in the marine environment, including the design and location of marine renewable devices. Importantly, such measures include the framework for a new system of marine spatial planning, objectives which will underpin the system, including a set of Marine Ecosystem Objectives, and powers to create Nature Conservation Marine Protected Areas (NC MPAs). The Marine and Coastal Access Act 2009 provides for a Marine Policy Statement (MPS) to be created for all UK waters. National and Regional Marine Plans for the Scottish marine area must be consistent with the UK MPS.

Consultation on the UK MPS is currently open, and will run until October, while Scotland's draft National Marine Plan is expected in March 2011. Guidelines on the selection of NC MPAs and development of the MPA network have been consulted on, and the draft list of Priority Marine Features is currently open for consultation. A coherent network of MPAs must be in place by 2012.

[1] 'Avoiding Conflicts in the Marine Environment: Effective Planning for Marine Renewable Energy in Scotland' available here :http://www.scotlink.org/files/publication/LINKReports/LINK_ACME_Report0610web.pdf

Virtually no consideration is given to the new system of marine spatial planning or NC MPAs, while neither the draft Plan or SEA mention the UK MPS or marine ecosystem objectives. SE LINK MTF believes this is a serious oversight and must be corrected in the next iteration of the Plan.

The UK MPS and Scotland's National Plan will guide all future development in Scottish waters out to 200nm. Therefore, the final Plan for Offshore Wind must sit underneath the National Marine Plan. It is unfortunate that this industry Plan has been drafted in advance of the National Plan, although we do understand the desire for swift deployment of renewable energy devices. In order to address this problem, the Plan must be reviewed and adapted to be consistent with the National Marine Plan once it is produced. The relationship between the National Marine Plan and the Plan for offshore wind in must be made very clear to provide certainty for the industry.

Consideration of alternatives

We do not believe there has been adequate consideration of alternatives in the SEA. A key feature of the SEA Directive is the attention to the consideration of alternatives. Under the Directive, plans or programmes will always have to consider any 'reasonable alternatives' such as alternative types of development or alternative locations for it. There is also a requirement to consider the 'do nothing' alternative. The authority must provide a statement of how the assessment was conducted and the reasons for not adopting the alternatives considered.

The draft Plan refers to reasonable alternatives as 'to do nothing or to do maximum at each of the sites within the short term and medium term options'. Alternatives are only assessed for options within the overall Plan, rather then reasonable alternatives to the Plan as a whole. Further, 'Do maximum' or 'do nothing' seems to describe the situation both between and within sites, ie level of development throughout STW, and level of development within a particular option. Clarity and consistency in the terminology would be useful.

Data Gaps

There are many data limitations and uncertainties regarding impacts at a strategic level.

Adequate resources to fund the necessary research and monitoring needed to match the pace of development must be guaranteed.

Research on wildlife baseline data and impacts should be strongly promoted, and international research findings monitored and disseminated widely, with close attention to cumulative impacts at a larger scale, and adoption of best practice assessment, management and mitigation techniques. Suggested areas for further work are listed on page 5 of this response. Well organised systems for gathering, managing and sharing data are key to effective planning, and knowledge exchange and accessibility are major issues. For example the dataset used most frequently for birds – European Seabirds at Sea (ESAS) – has been largely opportunistic, depending on where oil and gas exploration was targeted. It has obtained limited information on migratory species and seabird foraging sites. COWRIE is a welcome example of co-ordination between developers, decision-makers and stakeholders.

SNH should lead the urgent preparation of a **GIS of all known sensitive marine sites/features,** drawing on the scientific knowledge of NGOs and others as appropriate, to be made publicly available, updated as appropriate, and used to inform decisions on the location of renewable energy installations and their associated infrastructure.

Draft Plan

Short Term Options

We are very concerned at the level of consideration afforded to the 10 short-term options. Whilst we acknowledge the draft Plan is to be 'viewed as a starting point' (3.1.4), we believe far too much detail on impacts and mitigation is left to project level EIAs and AAs. Please also see our comments on page 4 relating to concerns about the quality of EIAs.

- Section 3.2.3 states 'positive' cumulative effects could arise from the creation of new reef habitats, new substrate and fish aggregation devices. We welcome the opportunity to enhance biodiversity/productivity through design and siting of installations where this is both possible and appropriate. However, it should be noted that the evidence base for both positive and negative impacts of marine renewable devices remains poor and there is an urgent need for additional biodiversity-orientated research, especially given the already seriously degraded nature of our coastal seas. This kind of research would greatly improve the industry's capacity to enhance biodiversity in degraded marine habitats.

- Section 3.2.3 also fails to note potential impacts on fish species other than BAP species, particularly ecologically important prey species like sandeel and sprat.

- Section 3.2.8 highlights issues with disturbance or displacement of fishing activity. The Plan needs to consider the environmental effects of displacement of effort for the short, medium and long-term options. Large-scale exclusion from grounds will result in the concentration of fishing effort elsewhere, with associated environmental impacts. Again, indirect impacts on top predators (eg cetaceans, seals, seabirds and larger fish) as a result of impact to and/or displacement of their prey species eg sandeels, can be expected and must be considered.

- Section 4.2.2 – Whilst we acknowledge it is difficult to address mitigation where impacts are uncertain, the draft Plan and SEA are both extremely vague on required measures. We have serious concerns about the effectiveness of some of the suggested mitigation measures to be implemented at project level, and believe more detail on proposed mitigation is required. Project level mitigation measures will not address cumulative impacts, therefore a strategic system of mitigation measures is imperative. Please see our further comments relating to section 8.7 of the Environmental Report below.

- Section 4.2.3 - We are disappointed that the strategic level Habitats Regulation Assessment for the 10 proposed sites within STW was not progressed in parallel with the SEA as this would have provided the opportunity to assess with more certainty the potential impact of the proposed developments on Natura sites. We understand the recommended areas of focus for the strategic level Appropriate Assessment were generated internally by the Crown Estate. It would be useful to understand the decision making process that led to these five areas being recommended, in order to comment on their suitability. We also advocate the strategic level Appropriate Assessment considers effects on important seabed habitats ie those identified as Priority Marine Features. It is important the suggested areas of focus are not considered a finite list.

- Section 4.2.4 – We have a general concern about the quality of the individual project EIAs. In 2000 the Wildlife Trusts and WWF UK carried out a review of EIAs submitted as part of the licensing process. This determined that there were many inadequacies in existing EIAs, and that out of 10 sample EIAs three could be considered unsatisfactory. Upon publication the then DTI reviewed the regulations. That review found that only 51% of EIAs were satisfactory. Despite this, all of the projects received consent. It is imperative that EIAs are subject to proper scrutiny, especially in the early stages of the development of the marine renewable industry. This is especially important when so much of the detail on impacts and mitigation measures is being left to individual project EIA and AA. It should also be noted that five of the ten short term sites

have already proceeded to scoping stage, therefore the recommendations in section 4.2.4 (key issues to be resolved by EIA at the project level) are too late for these projects.

- Section 4.2.5 – in addition to the above comments on prey species in relation to fisheries impacts, impacts on the shipping industry and navigation may also have negative environmental impacts such as acoustic and chemical pollution, marine litter and invasive species. This consideration is particularly important with regard to Marine Environmental High Risk Areas (MEHRAs) for shipping, for which the outer Forth, for example, has the largest concentration in Scotland. Development must not displace shipping into MEHRAs.

- Section 4.2.6 – We agree that 'there remain further uncertainties and data gaps that need to be addressed at the national level, if a sustainable approach is to be delivered'. Urgent investment is required in baseline data and clarifying evidence of impacts. The short-term sites should be appropriately assessed at project level and data collection must begin **urgently** to inform the medium terms sites. The SEA and Plan should then be reviewed as soon as new data is available.

- Section 4.2.7- we welcome the development of protocols for data collection, and commitment to the studies referred to in paragraph 4.2.8. Knowledge exchange and accessibility are a major issue. Knowledge exchange is poor across government and between developers and researchers. Research, baseline data collection and monitoring is not yet accompanied by effective and accurate communication of its results. Please also see our overarching comments in relation to data gaps.

- Section 4.2.8 – We welcome the commitment to undertake the strategic level studies listed. The study on responses to noise must cover both physical and behavioural responses. In addition we believe that it is critical the following work is led by the Scottish Government, again this should not be considered a finite list:

    1. **Baseline survey of those areas where data are lacking;**
    2. **Cumulative impact studies relating to marine mammals**
    3. **Detailed assessment of pile driving impacts of species using the Scottish coasts that are not the focus of studies in other parts of Europe (including baleen species, such as minke whales and odontocetes, such as bottlenose dolphins and white-beaked dolphins)**
    4. **Development of engineering techniques that mean that pile driving will not be required**
    5. **Effectiveness of mitigation measures, including the use of bubble curtains that are being used in other European nations**
    6. **Establishment of a database into which all baseline and impact data from this industry and others can be compiled to aid future decision making**
    7. **Assessment of scale and extent of pile-driving over the time period of the Plan, to assess the potential impacts of this in more detail.**
    8. **Effects of electromagnetic fields, particularly on elasmobranch (shark, skate and ray) species, and possible mitigation measures**
    9. **A comprehensive survey programme and monitoring protocol developed and implemented as soon as possible to plug data gaps in relation to resident, breeding, migratory and passage birds. Further detail can be found in RSPB Scotland's response.**

Medium Term Options

- Section 3.3.2 – We highlight the conclusion 'all of the medium term options raise potentially significant issues in relation to Natura 2000 sites. Effects on EPS are largely uncertain…wildlife more generally could be significantly affected by nearly all the medium term options, with more major issues arising from these options when taken together, compared with the short term options.' This indicates increased research and monitoring, including on cumulative and in-combination effects, must start now.

- Table 4.2. Benthic communities/habitats is a serious omission from this table. Consideration must be given to the species diversity, composition and nature of the seabed habitat, as well as to those species at a higher trophic level which it supports. For example, it is important of course to consider the value of an area of seabed e.g. for sandeels, which in turn is of consequence for larger fish, seabirds and mammals, and the table allows for this connection through listing fish, which is welcome. However, benthic communities may have conservation importance in and of themselves, whether or not they support commercial fish or fish that support nationally important species at a higher trophic level and listing 'benthic communities/habitats' in this table, and in future work, would recognise this.

- Section 4.3.4 – Serious data gaps make it difficult to assess which, if any, options should be deferred to the longer term. In order to overcome this, urgent investment is required for research on environmental baseline data and impacts. A comprehensive survey programme and monitoring protocol must be developed and implemented as soon as possible in order to inform the decision making process for the medium term options.

- Section 4.3.6 – We agree further work across all the medium term options is required to confirm their suitability for offshore wind and energy. We would welcome a regional or national study to determine the overall capacity of larger fish (particularly elasmobranchs such as basking sharks), cetaceans, seals and birds to tolerate development throughout STW and the capacity of the landscape/seascape to absorb the potential scale of the development. All the options also have the potential to affect those fish species, other than BAP species, that are important prey species, and the effects on these must be considered. Again, we would stress that research on wildlife baseline data and impacts should be strongly promoted, and international research findings monitored and disseminated widely, with close attention to cumulative impacts at a larger scale and adoption of best practice assessment, management and mitigation techniques.

Environmental Report

Page V – We agree that where certainty is lacking in relation to potential effects, the precautionary principle should be applied. However, it is unclear how and when it has been applied throughout the environmental report and draft plan. LINK supports the concept of adaptive management, by which progress can be made in the face of uncertainty by frequently adjusting plans and developments in the light of experience gained. The following presumptions will help to sustain the precautionary principle:

- Adequate baseline survey and subsequent monitoring to identify sensitivities, assess impacts and develop management and mitigation procedures are undertaken.
- Ensuring that sites/species/features with particular sensitivities are protected (which may mean they need to be avoided at this exploratory stage in the development process).
- Explicit commitment that in these cases consent to continue is strictly subject to evidence that there is no significant adverse impact.
- Acknowledgement that this is a risk-based approach which may allow early development, but may equally lead to withdrawal of this and further consents.
- All baseline data collected as part of the licensing requirements are made publicly available, and updated at least annually, so that they can be reviewed and fed into an adaptive management

process (similar to the process that JNCC oversees for the implementation of the UK seismic survey guidelines).
- Close attention to advice of statutory consultees, particularly SNH and JNCC.

1.3 Key Elements of the Draft Plan

Table 1-1 states that the draft plan was prompted by The Crown Estate leasing out ten sites for development. LINK believes the asymmetric nature of this process – provisional leases and consents running ahead of environmental research, assessment and the new spatial planning system – is unsatisfactory. The new marine spatial planning system, discussed in the overarching comments, must ensure this does not happen again.

Table 1-1 also states that 'the Plan will be reviewed every two years at which point it will be decided if an update of the SEA is appropriate'. However, on page vi it states 'the Environmental Report will be reviewed approximately every two years…the need to update the Plan will be considered at each review', while section 2.9 *Implementation and Monitoring* states 'the SEA will be periodically reviewed by Marine Scotland (currently proposed to take place after two years) and SEA Maintenance will be carried out as and when necessary.'

Which process is intended? The SEA Directive requires that when the Plan is reviewed, the SEA **must** also be reviewed. Also if further info / data comes to light and is incorporated into the SEA then that might require an update of the Plan (for example if data shows that a particular option is unsuitable).

Section 1.3 also briefly mentions the Marine (Scotland) Act. As stated in our overarching comments, LINK believes there is not enough consideration of the provisions of the Marine (Scotland) Act in either the draft Plan or the SEA.

2.11 – Approach to Consultation

2.11.2 ***Stakeholders***

As stated earlier LINK is extremely disappointed we were not consulted during the development of the draft Plan. Whilst some member bodies were given limited opportunities to comment, as a whole we believe the environmental sector was not adequately consulted. The Marine Strategic Studies Forum, the forum through which some member bodies would have been consulted, has now not met for over a year.

3.4 ***Other Developments in or Adjacent to STW***

Table 3-1 shows a number of developments and plans that were taken into account in the development of the plan and the SEA. However, there are pertinent developments and plans missing from this table including Hunterston Power Station, the National Renewables Infrastructure Plan and oil and gas developments in Scottish waters.

Northern Ireland has also recently undertaken an SEA of offshore wind and marine renewable energy which should be relevant to this SEA - http://www.offshorenergyni.co.uk/

3.6 ***Legislation***

We reiterate we are disappointed with the consideration given to the provisions of the Marine and Coastal Access Act 2009, and the Marine (Scotland) Act 2010. This section would benefit from clarifying the provisions of the Marine and Coastal Access Act, specifically the development of the UK Marine Policy Statement, with which all National and Regional marine plans for Scottish waters must conform.

The Marine Strategy Framework Directive requires Member States to take the necessary measures to achieve good environmental status by 2020 at the latest. Annex 1 sets out 11 qualitative descriptors for determining good environmental status. Important descriptors in relation to the SEA and Plan include:

- Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions.
- Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems.
- Sea-floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded, and that benthic ecosystems in particular are not adversely affected.
- Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems.
- **Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment.**

Article 6 of the Habitats Directive (Directive 92/43/EEC) makes clear that any plan or project not directly connected to but likely to have a significant effect thereon, must be subject to an appropriate assessment. As stated earlier, we are disappointed the strategic level Habitats Regulation Assessment was not carried out in parallel with the SEA. Following an AA, the plan or project must only be agreed to once it has been shown it will not adversely effect the integrity of the site concerned. Where there are overriding reasons of public interest, the plan or project may proceed in spite of a negative assessment, but there must be **no alternative solution,** and the Member State must undertake compensatory measures. Further, Annex IV species require strict protection. Under Article 12 this means Member States must establish a system for the animals in their natural range, to protect them from deliberate disturbance, especially during periods of breeding, rearing, hibernation and migration, and to prevent deterioration of breeding sites and resting places.

4.3 - Summary of Potential Effects

4.3.2 Climatic Factors

There is a need to properly manage particular habitats that act as critical natural carbon sinks and therefore have a strong role to play in the mitigation of climate change. A recent IUCN report[2] highlighted the globally significant role that coastal marine ecosystems (including, but not limited to, tidal salt marshes, seagrass meadows and kelp forests) play in carbon fixation. The report also notes that such ecosystems are under significant threat and recommends that long-term carbon sequestration capacity must also be accounted for in the benefits associated with coastal marine habitat restoration and protection.

4.3.5 Biodiversity, Flora and Fauna

Adverse effects may include displacement and disturbance of birds, but also direct collision risks which are particularly relevant in terms of the large numbers of migratory and passage birds which pass through STW. Collision will be a particular problem for migratory, passage and resident bird during times of low visibility (e.g. storm conditions), which are common at sea.

The SEA does not acknowledge the potential adverse effects on marine food chains from changes in fishing effort. For example adult sandeels are essentially sedentary, resulting in localised aggregations, and impacts on these localised populations may impact on dependent predators, including seabirds and minke whales. Fisheries for sandeel have the potential to over-exploit such local aggregations, and for the purpose of protecting the sandeel stock for seabirds, a closure was put in place on the east coast of

[2] Laffoley, D…, & Grimsditch, G. (eds) 2009, *The Management of Natural Coastal Carbon Sinks*. IUCN, Gland, Switzerland. 53pp.

Scotland in 2000, which is in place to this day. This provides a strong basis for ensuring that sandeels and their habitats are not adversely affected by windfarm development to the point of knock-on adverse impacts up the food web (to seabirds, piscivorous fish, cetaceans). This is particularly important in a localised context, where there are linkages between important seabird breeding colonies and key sandeel aggregations. A recent study[3] notes the linkage between the current closure and improved kittiwake breeding. It is equally important to acknowledge the potential cumulative effect of a number of windfarms in a particular area; the clearest example being the clustering of sites around the Firth of Forth, and their proximity to the Wee Bankie and a number of breeding seabird SPAs. There needs to be an explicit expression of the potential impacts of windfarms on prey species, not only for birds, but for other predatory marine species (fish, seals and cetaceans).

This section also states there is the potential for some benefits for biodiversity to arise from this type of development from the creation of artificial habitats, and the exclusion of fishing activity. It is highly likely that marine renewables energy installations have the potential to provide structural diversity favouring a range of biota otherwise absent from more homogenous substrates. However, it should be noted that this change in biota may not necessarily be beneficial, particularly if it represents a wholesale change in the species present in the area. The conservation of exclusion zones will depend on the location and habitat types protected. Despite this recognised potential, the evidence base for both positive and negative impacts of marine renewable energy on biodiversity, flora and fauna, remains poor and there is an urgent need for additional biodiversity-orientated research. This kind of research would greatly improve the industry's capacity to enhance biodiversity in degraded marine habitats.

Recent reports suggest impacts on the benthic community from offshore wind is one of the major concerns, as there is often little mitigation possible to minimise disturbance[4]. The alteration of the sediment structure and flow patterns around the foundations and towers can directly impact the adjacent habitats thereby potentially impacting the local benthic communities. This potential for change has the capacity to lead to impacts further up the food chain. The level of change will be related to the physical nature of the area.

This section should also mention the potential effects which arise from electromagnetic fields (EM). All the options are noted to have potential impacts from EM fields. The impact will vary according to design factors as will the mitigation measures required. Possible ecological effects on fish (including elasmobranches and teleosts) may include poor hunting performance or failure to migrate. A recent review concluded that EMF produced by sub-sea cables associated with offshore windfarms will be within the range of detection of electrically and magnetically sensitive marine organisms. Potential interactions could occur from cellular to behavioural levels such as a barrier effect to feeding grounds.[5] However, more research in this area would be beneficial.

5.4 Sediments, Geology and Coastal Processes

5.4.2 ***Designated Geological/Geomorphological Sites***

This section fails to mention the potential for Nature Conservation MPAs in the Marine (Scotland) Act to conserve 'features of geological or geomorphological interest' (s.68(1)(b)(ii) in the Scottish Marine Area. This is an oversight that needs to be addressed.

[3] Daunt, F., Wanless, S., Greenstreet, S.P.R., Jensen, H., Hamer, K.C. & Harris, M.P. (2008) The impact of sandeel fishery closure in the northwestern North Sea on seabird food consumption, distribution and productivity. *Canadian Journal of Fisheries and Aquatic Sciences,* Vol 65: pp362-38.

[4] See Wilson, J., Elliot, M…(2010) Coastal and Offshore Wind Energy Generation: Is It Environmentally Benign? *Energies,* Vol 3: pp1383-1422

[5] Gill, A.B., Gloyne-Phillips, I., Neal, K.J. & Kimber, J.A. (2005). The potential effects of electromagnetic fields generated by sub-sea power cables associated with offshore windfarm developments on electrically and magnetically sensitive marine organisms – a review. COWRIE 1.5 Electromagnetic fields review. 12 BMT Cordah. 2003. Offshore Wind Strategic Environmental Assessment Final Report.

5.4.4 ***Overview of Geology and Geomorphology***
The following sentence is misleading: "Potential Annex 1 habitat reefs described as rocky marine habitats or biological concretions that arise from the seabed, occur to the west of Shetland and the Outer Hebrides."

Rocky and biogenic reefs listed under Annex 1 of the Habitats Directive also occur in inshore waters to both the west (e.g. Mingulay Reef complex and existing Natura sites such as, *inter alia*, the Firth of Lorn and Lochs Duich, Long and Alsh) and east (Berwickshire and North Numberland SAC) of Scotland. Rocky and biogenic reefs considered as important for NC MPAs under the Marine (Scotland) Act will also be found in inshore waters surrounding Scotland and this should be recognised in the text.

5.5 Biodiversity, Flora and Fauna
LINK welcomes the commitment to a strategic level Habitats Regulation Assessment, however, we are disappointed it is being carried out after the SEA and draft plan process.

5.5.2 ***Designated Conservation Sites***
Section (b) on sites of Statutory National Importance makes no mention of Marine Protected Areas designated under s67 of the Marine (Scotland) Act. Whilst no sites exist at present, an ecologically coherent network of sites must be established by 2012. In terms of Nature Conservation MPAs designated under s68 of the Marine (Scotland) Act, the Scottish Government has produced guidelines on the selection of NC MPAs and development of the MPA network. The draft list of Priority Marine Features, a subset of which will be used to identify NC MPA sites, is open for consultation.

To completely ignore the potential impacts of NC MPAs is a serious oversight. This is especially so when one of the key strategic issues relating to biodiversity, flora and fauna, is the 'need to protect, and, where possible, improve the status of … nationally designated conservation sites within the STW and those that could be affected by wind energy development beyond the STW'.

5.5.3 ***BAP species and habitats***
National priority features should be considered at a national scale and not just a local scale. Table 5-4 is incomplete and misleading. As per our comments under 5.5.2, the full National (Scottish) BAP list should be considered here *as well as* those features considered of national importance under the Marine (Scotland) Act that are not BAP-listed e.g. among many others, the Iceland cyprine (*Arctica islandica*).

Construction of platforms, dredging for cables and mast drilling will all have direct impacts on seabed habitats, as well as secondary smothering impacts from the suspension and dispersion of spoil, and possible mobilization of contaminants. Some habitats, including reef forming ross worms (*Sabellaria spp.)*, horse mussel beds (*Modiolus modiolus),* maerl beds and flame shell (*Limaria hians*) beds should be avoided as they could be lost to the area through dredging, drilling, smothering and scouring[12]
Platforms may also provide stepping stones for migration of non-native species, asmay breakwaters, and this should be monitored and mitigated against.

5.5.4 ***Fish***
Electromagnetic fields (EMF) develop around the subsea cables that feed electricity from offshore turbines into the national grid. Fish use the earth's magnetic field for navigation but elasmobranchs (sharks, skates and rays) are likely to be particularly sensitive to such fields due to their use of natural electrical charge to detect other individuals and prey. A recent review concluded that EMF produced by sub-sea cables associated with offshore windfarms will be within the range of detection of electrically

and magnetically sensitive marine organisms. Potential interactions could occur from cellular to behavioural levels such as a barrier effect to feeding grounds.[6]

5.5.5 ***Plankton***
The importance of zooplankton for nationally important species such as basking sharks must also be recognised here.

5.5.6 ***Reptiles***
This section is incorrect. The leatherback turtle is cold-water adapted and is a regular visitor to Scottish waters. Loggerhead turtles are warmer water species and when they occur in Scottish waters they are cold-stunned strays. Between 1999 and 2009, a total of 92 leatherback turtles and 35 loggerhead turtles were recorded stranded in Scotland (Table 5 in http://www.strandings.com/Graphics%20active/2009%20Turtle%20Annual%20Strandings%20Report.pdf). This should therefore read '…of which the **leatherback** is most often sighted'.

5.5.7 Marine Mammals
Table 5-7 is not a complete list of all marine mammal species reported around the coastal waters of Scotland. We suggest this table aligns with the list of mammals identified as occurring in Scottish territorial waters by the National Museums of Scotland, contained in Appendix 2 of SNH Commissioned Report No.388, Identification of Priority Marine Features in Scottish Territorial Waters. Whilst rare, this table also includes Sei, Blue and Fin whales.

5.5.9 Birds
There is some confusion in section 5.5.9 between modest seaward extensions to 31 SPAs, classified by Scottish Ministers in 2009 that cover 'maintenance activities', such as sleeping and preening, and undefined but significantly larger areas of sea required for foraging by the same seabird SPA qualifying features. As a result, it is possible that the environmental sensitivity of areas of the territorial sea surrounding seabird colony SPAs may have been underestimated in the overall assessment

The Important Bird Area (IBA) network in Scotland (as in other UK countries) is primarily terrestrial and does not include a representative set of sites important for marine birds. Therefore, the IBA network is not 'an effective way of identifying conservation priorities' (table 6-1) in Scottish territorial waters.

5.9 Material Assets
The SEA must take into account the environmental impacts which may be caused through the displacement of shipping activity. It is not clear that it has done so. The environmental impacts of shipping are well known and include acoustic and chemical pollution, marine litter and invasive species.

Table 5-16
Climate Change - LINK questions whether the potential for loss or gain of business/global leadership in industry is entirely relevant to the establishment of environmental baselines in relation to climate change.

Water Resources – This section assumes a reduction in oil spill risks as we become less reliant on oil. However, this does not take into account UK Government policy as stated in the recent MPS and DECC energy statement, which is to maximise oil and gas production. Very little policy exists to support the statement that there will be a shift away from domestic oil production. Rather, current policy points towards an increase in domestic capacity across all sectors in order to maximize energy security.

[6] Gill, A.B., Gloyne-Phillips, I., Neal, K.J. & Kimber, J.A. (2005). The potential effects of electromagnetic fields generated by sub-sea power cables associated with offshore windfarm developments on electrically and magnetically sensitive marine organisms – a review. COWRIE 1.5 Electromagnetic fields review.

For example see DECC Action 11 – In the forthcoming Energy Security and Green Economy Bill, we will seek to ensure that access to UK oil and gas infrastructure is available to all companies. This will help with the exploitation of smaller and more difficult oil and gas fields, allowing us to make the most of our natural resources.

And p46 of the UK MPS – 'Maximising the economic recovery of UK oil and gas resource sustainably is therefore a priority in the UK's energy supply and energy security strategies.'

Geology – There will still be disturbance of seabed sediments by fishing with wind farms. Whilst disturbance may be prevented in the vicinity of larger windfarms through enforced exclusion zones or though risks of collision and gear entanglement, effort may be intensified in other areas. Creation of 'fishing free areas' will have a consequential displacement of effort, the effects of which must be considered.

Biodiversity – see above comments in relation to oil spills which are also relevant to the claim there will be less reliance on bulk oil transportation and associated ballast water movements with wind energy development. The evidence base for habitat creation/conservation effects remains poor. Further, with wind energy development there is the potential for: loss/change of some seabed habitats (the structures have a physical footprint and arrays of turbines may alter sediment transport thus changing the sand-particle size regime of the seabed in the vicinity), electro-magnetic effects on marine life, particularly elasmobranchs, from increased cabling and possible movement of species due to the noise and vibration of operating wind turbines and possible movement of species due to electromagnetic effects from cabling. There is an urgent need for further research to help address these potential impacts.

Table 5-17
Disturbance and direct interference with coastal, sea and migratory birds – See above comments for section 4.3.5. There is no guarantee that wind farms will result in an overall reduction in fishing effort. There may be increased disturbance to specific species through shifts in effort, and this may have knock on effects through food chains which must be considered. As stated previously there are also concerns relating to direct collision.

Sensitivity of marine mammals to disturbance –LINK agree disturbance is likely to be a key problem for marine mammals in relation to offshore wind and point you to our earlier comments on paragraph 4.2.2 of the draft Plan. Lower noise installation technologies should be used from the outset where there is a risk of disturbance to marine mammals. The aim should also be technologies with lower noise and vibration during *operation* and not just during installation. This is in line with the precautionary approach.

Noise pollution can interfere and mask natural signals leading to community composition changes due to avoidance behaviors, migrations failure, mortality from increased exposure to predators, growth reduction and reproductive impairment[7].

The Scottish Government has committed to developing guidance on the disturbance of European marine protected species. We look forward to commenting on this in due course, but the SEA and draft Plan must take account of this guidance once produced.

[7] See Wilson, J., Elliot, M…(2010) Coastal and Offshore Wind Energy Generation: Is It Environmentally Benign? *Energies,* Vol 3: pp1383-1422

Effects of marine litter –LINK agree there is a risk of increased littering, but there is also a risk of increased littering in localised areas as a result of changes to navigation routes. This should be considered by the SEA.

It should also be noted that the Scottish Government has committed to producing a marine litter strategy, a development which LINK supports.

Conflicts between MPAs and Offshore wind development areas - The table states that there is a lack of data in the Scottish Marine Bill SEA in relation to siting of NC MPAs. However, we would suggest that this is revised in the light of publication of MPA selection guidelines and the draft PMF list, currently out for peer review, which will guide future conservation action. LINK's Marine Task Force has responded to consultations on both the MPA selection guidelines and the draft Priority Marine Features (PMF) list, but it should be noted we have serious concerns relating to the treatment of Natura 2000 features, and seabirds in particular.

We strongly welcome the idea that developers aid in the creation of an improved data and knowledge base for the Scottish marine environment. This data and knowledge base must be effectively communicated to Government and stakeholders. It is crucial that this is improved not only to the mutual benefit of government, developers and stakeholders, but also so that cumulative impacts can be properly assessed. COWRIE was a welcome example of co-ordination between developers, decision-makers and stakeholders, lessons from which could inform an improved model of co-ordination for offshore wind development in STW.

Fishing Industry – again we reiterate that the conservation value of restricting fishing activities will depend on the location and habitat types protected, and on a thorough understanding of the local and wider impacts of displacement. More research in this area is needed.

7. Alternative Options

As stated in our overarching comments, we do not believe there has been adequate consideration of alternatives in the SEA. It would be extremely useful for stakeholders to have sight of the scoring maps in order to better understand how the 30 medium term options were arrived at.

Environmental sensitivities were modelled using MaRS. LINK notes that MaRS has a commercial bias, and we understand it is only useful in terms of mapping protected sites. It will not adequately map areas of environmental sensitivity for species and habitats for which designated sites do not currently exist. Therefore, no account will have been taken of Nature Conservation MPAs which will be designated under the provisions of the Marine (Scotland) Act by 2012. This is particularly problematic for nationally important species such as the Harbour porpoise for whom no protected sites currently exist.

It appears that the additional (non-MaRS) data relates only to shipping and fishing activity.

Table 7-2

LINK questions how cetacean density was defined?

8. Assessment of Environmental Effects

It is unclear what criteria and measurements are used in determining 'significance values'. Far more detail is required in appendix 8.1 in order to define the descriptors of impact significance for major positive and minor positive effects.

Table 8-2 Potentially Significant Impacts of Alternative Options (prior to mitigation)
LINK question how the impact on wildlife is deemed minor negative and the impact on EPS is uncertain, when the impact on Natura 2000 and national sites is deemed moderate to major negative?

This seems even more inconsistent when compared with the equivalent table for the medium term options. Major negative impacts are predicted for Natura and national sites, and major negative impacts for wildlife, but EPS are uncertain.

Assessment of short and medium term options
Short-term options are described as having 'potential for significant impacts on international (and national) nature conservation sites'. This is not mentioned in relation to the medium term options, despite table 8-3 showing moderate to major negative impacts on Natura 200 and National sites, for all medium term options bar NE1, NE2 and NE3.

8.6 Cumulative Impacts
We believe it is extremely important to assess both the cumulative and in-combination effects. However, it is not clear from the SEA or Annexes how the assessment was conducted or how the results feed back into the draft Plan.

8.7 Mitigation Measures
Whilst we acknowledge it is difficult to address issues relating to mitigation when impacts are uncertain, the draft Plan and SEA remain very vague in terms of possible measures. The draft Plan should be amended to include more detail on proposed mitigation work. In relation to birds, for example, this could include turbine shutdown on migratory routes, mitigation at breeding colonies to protect or enhance productivity (e.g. rat eradication) and protection of food sources eg appropriate fisheries management in foraging areas.

As stated previously, for some of the measures that are suggested, we have serious concerns relating to their effectiveness. Measures such as not piling and, to a lesser extent, extending the duration of piling to reduce overall noise levels (presumably to prevent injury rather than general disturbance) are technical and can therefore be expected to reduce noise levels. However, other measures are either not tested or have shown limited effectiveness to date, including air bubble curtains, 'soft start' and the use of Acoustic Harassment Devices. Only mitigation measures of proven effectiveness should be relied upon to prevent injury at close range and disturbance at larger distances from pile-driving.

Surveys undertaken with Marine Mammal Observers are important and necessary, however, it is vital they are conducted properly ie during daylight by trained and experienced Marine Mammal Observers, detecting animals that are in the immediate vicinity, at the surface and during appropriate weather conditions (detections are unlikely in fog and in increased sea states, for example).

8.7.2 Strategic Mitigation Measures
A strategic system of mitigation measures is imperative to address cumulative impacts.

We welcome the statement that options may be removed from the Plan on the basis of the findings of a strategic level Habitats Regulations Appraisal.

We also welcome continued communications with SEA consultation authorities, regulators and key organisations. The Scottish Fishermen's Federation is mentioned as a key organisation. LINK would hope to be considered a 'key organisation' and would be happy to continue communications with the Scottish Government and authorities in order to avoid or minimise adverse effects from the Plan.

We would support requirements to provide habitat in order to offset non-designated/nationally designated habitat losses resulting from offshore wind farm development. The provisions of s83 of the Marine (Scotland) Act are important in this regard. Where a public authority has the function of determining an application for the authorisation of the doing of any act capable of affecting a protected feature of a NC MPA, they must notify Scottish Ministers and SNH if there is, or may be, a significant risk of the act hindering the stated conservation objectives of the NC MPA. The authority must not allow the act to go ahead unless they are satisfied there is no significant risk. Where there is a significant risk the act may still proceed as long as –

- There is no alternative way of proceeding
- They are satisfied the benefit to the public of proceeding outweighs the risk of damage to the environment, **and**
- **They are satisfied the person will undertake measures of equivalent environmental benefit to the damage which the act will, or is likely to have, in or on the marine protected area concerned.**

8.7.3 Specific, project-level mitigation
We welcome further assessment work for all options to reduce uncertainty. We also welcome the recognition that sensitive siting is important, however, we would suggest that the ability to mitigate through micro-siting within the options will be highly limited by technical constraints.

The effectiveness of potential mitigation measures such as 'soft start' have not yet been proven. More research work is urgently required in this area. Please see our earlier comments.

Mitigation measures in relation to electromagnetic fields should be considered. Such measures will relate to conductor core geometry, insulation type, nature of the seabed, and depth of cable burial.

9 Monitoring and Implementation
p 162 – 169 We welcome the recommended studies. Please see the suggested areas for further study under section 4.2.8 of the draft Plan.

Research on wildlife baseline data and impacts should be strongly promoted, and international research findings monitored and disseminated widely, with close attention to cumulative impacts at a larger scale, and adoption of best practice assessment, management and mitigation techniques.

9.3 Opportunities
LINK believes that opportunities should be taken to enhance biodiversity/productivity through design and siting of installations where this is both possible and ecologically appropriate. LINK also believes that consequential displacement of fishing effort will need to be considered. Therefore, we reiterate that the evidence base for both positive and negative impacts of marine renewables remains poor and there is an urgent need for additional biodiversity-orientated research. This kind of research would greatly improve the industry's capacity to enhance biodiversity in degraded marine habitats.

Conclusion
The residual impacts on biodiversity, flora and fauna are rated as 'uncertain'.
All short term options are described to have the potential for cumulative and in-combination effects on the environment, particularly with respect to biodiversity, visual receptors along the coastline, high sensitivity seascapes/landscapes, sediment movement/coastal processes and other marine users (e.g. fishing vessels and recreational users). The SEA goes on to state that these effects may be exacerbated by implementation of the medium term Plan and that there are important and fundamental gaps in our understanding of some of the impacts, especially cumulative and in-combination impacts.

With these remaining significant uncertainties, we question how the SEA can conclude that 'the residual significant impacts are unlikely to exclude offshore wind development from the ten sites identified in the draft Plan'?

9.5 Monitoring of the Plan

LINK agrees that monitoring of the Plan is essential to ensure that offshore wind development in STW is carried out in a sustainable manner. **All monitoring, and research must be effectively resourced.**

LINK questions why no strategic monitoring of water resources, geology, sediments and coastal processes, biodiversity, flora and fauna, and cultural heritage is required given that many of the effects are considered to be uncertain.

Scottish Environment LINK is the umbrella body for Scotland's voluntary environmental organisations, representing around 500,000 members. This response is supported by:

Hebridean Whale and Dolphin Trust	RSPB Scotland
Marine Conservation Society	WWF Scotland
National Trust for Scotland	Whale and Dolphin Conservation Society
Association for the Protection of Rural Scotland	John Muir Trust

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