

Ford A (Alexander)

From: Alison.Hogge@aberdeenshire.gov.uk on behalf of
Alison.Hogge@aberdeenshire.gsx.gov.uk
Sent: 19 September 2012 14:07
To: MS Marine Licensing
Subject: [ACE/448761] Comment on application APP/2012/2892

Dear Sirs,

Please see below a response from a member of the public regarding the above planning application for your consideration. We have written to the objector highlighting that Aberdeenshire Council is, in this instance, a 'consultee' and that their comments will be passed to the Scottish Government for their attention.

If you have any questions regarding the above, please do not hesitate to contact me.

Kind regards,
Alison Hogge
Planner
Wind Tubrine Team
Aberdeenshire Council
Infrastructure Services

01224 664304

-----Original Message-----

A comment has been submitted via the Aberdeenshire Council planning register:

Ref: APP/2012/2892

Ref Link:

http://www.aberdeenshire.gov.uk/planning/apps/detail.asp?ref_no=APP/2012/2892

Name: [REDACTED]

Address:
[REDACTED]

Telephone:

Email: NO EMAIL ADDRESS SUBMITTED - PLEASE RESPOND BY TELEPHONE OR LETTER

Comment Type: object

Comment:

this is completly unacceptable, there is research at present on using other means to harness the power of our tidal waters. There is no need for a wind farm, and no long term research done on the affects on marine life

Submitted: 17/09/2012 11:43:51

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Ford A (Alexander)

From: [REDACTED]
Sent: 09 October 2012 00:22
To: MS LOT MORLE
Subject: Moray Offshore Renewables Ltd. - Planning and licensing applications
Attachments: Moray Firth Planning application response 5.doc

The text of this email is also enclosed as a word document in the attached file.

Dear Sir,

**Objection to the planning permission and licence applications ref:
Moray Offshore Renewables Ltd.
for three wind farms in the Moray Firth Eastern Development Area**

I am writing to object to the planning permission and licensing applications and associated Section 36 application for three wind farms, each of 500 MW generating capacity within the Moray Firth Eastern Development area. These applications should be rejected in their present form because the applications do not satisfactorily address five key aspects of the proposed wind turbines to be installed.

If the wind farms are built as described in the applications they will not be taking full advantage of the electricity generating potential of the Round 3 licensed sites they will occupy and will give poor long term value for the estimated £6 billion public subsidy they will receive during their 20 years operating life.

It is not in the national interest to allow this development as currently described because it does not utilize the site in a safe, economical and sustainable way. Furthermore the proposals do not guarantee progress towards significant employment benefits for Scotland or the UK in terms of long-term new jobs and the establishment of a comprehensive wind turbine manufacturing industry within Scotland and the UK generally.

The five aspects of the applications requiring clarification and revision are:

- Safety – Access and working conditions on the proposed turbines will not be safe and need to be improved by design.
- Future cost of electricity – The proposed turbines may not enable future reductions in the cost of electricity and there is no guarantee given by the developer that the turbines will be effectively re-powered.
- Sustainability – There is no guarantee given by the developer that the wind turbines will be re-powered and that they will not be scrapped after 20 years.
-
- New jobs – Only a few very expensive new jobs will be created in Scotland or the UK.

- UK manufacturing – This proposal will not lead to the establishment of a wind turbine manufacturer in Scotland or in the UK

All of the above objections could be avoided for future wind farms by adopting a policy supporting the development of much larger wind turbines with 15 to 20 MW power rating and the application for planning permission and licences should be dealt with bearing this in mind. The development could be given permission subject to conditions that make the development a stepping-stone to better-designed safer and less costly offshore wind farms in the future.

There now follows a more detailed explanation of these five objections to the current applications and suggested questions to be asked of the developer:

.1 Access and working conditions on the proposed turbines are not inherently safe

The design of workers' access for the proposed wind turbines is improvised and has not been designed to be fundamentally safe. The access route has to accommodate the structural arrangement whereby an isolated upper tower is mounted onto a lower foundation jacket or gravity base and is not sufficiently safe for regular routine workers' access and egress for maintenance over a long period. The route from the deck of a service boat up to the nacelle is fraught with risks, it would never be allowed in a factory.

The installation and external maintenance of the rotor and hub is inherently dangerous and relies on workers suspended in cradles and harnesses at great height.

The idea of dropping men and equipment from a little helicopter onto the nacelle and then winching them up again is also too dangerous for regular use.

There will be many service visits per year to hundreds of turbines in all weathers and so there will be too many possibilities for accidents to happen with the currently proposed arrangements.

The restricted access from the tower into the nacelle and within the upper tower and getting across the exposed area on top of the jacket or gravity base and then down a 15m high vertical ladder into a bobbing boat will make the emergency rescue of accidental and health crisis incidents very difficult.

Question to the developer: How will a stretcher case accident or health crisis within the nacelle, e.g. a heart attack or a fall with possible neck or spine fracture, be evacuated, for example, late on a winter's afternoon with it getting dark and bad weather closing in?

.2 The future cost of electricity and protecting the residual value of the public subsidy are not guaranteed

There is no guaranteed commitment within the application to re-power the turbines in the future i.e. re-fit the nacelle with new improved generators and install a new rotor. Re-powering would enable a second use of the tower, foundation and initial installation all of which together represent over 50% of the original heavily subsidised cost. Without re-powering, the towers and foundations become scrap and one half or more of the installation effort is wasted.

The initial capital cost of the proposed 1500 MW wind farms will be of the order of £5 billion and the total public subsidy provided by the electricity consumer will be of the order of £6 billion over the first 20 years life of the wind farm. Without re-powering the public subsidy, which will be paid for by Scottish electricity consumers, will in 20 years time be seen to have paid £5 billion for thousands of tons of scrap steel standing abandoned offshore awaiting demolition.

With effective re-powering the wind farm will be able to go on to supply electricity cheaper than today and so give a benefit to the next generation of Scottish electricity consumers. The electricity will be cheaper because the tower and foundation will have no capital cost second time around and so the total capital cost of the re-powered turbine will be one half of the original cost and also the turbine will be more powerful giving economies of scale. This all makes good economic sense and could justify the public subsidy. Re-powering also ensures the maximum re-use of materials in support of the need for sustainability now and in the future.

Question to the developer: Is re-powering guaranteed to take place?

.3 Sustainability

As there is no guarantee in the application that the turbines will be re-powered they could be scrapped after 20 years, which would not meet the sustainability agenda.

The proposed turbines are relatively underpowered for the size of rotor and tower height because the rotors are designed with a low specific power rating, which is common practice at present. Consequently, in 20 years time new generating equipment could be installed with the same original size of rotor but designed with a high specific power rating. This will give more power using the existing tower, which will have sufficient height for the original lower power rotor and the new higher power rotor would be the same diameter so the tower would still be high enough.

The new higher power rotor would impose greater loads on the tower so the tower and foundation have to be designed to be stronger. However, for the tower and foundation to have a long enough life to be available for re-powering they have to have a longer fatigue life, which is achieved by adopting lower design stresses. But lower stresses for the first 20 years will be an automatic consequence of designing the tower to be stronger for the second 20 years and so the fatigue life is automatically extended as required.

So it can be seen that to achieve sustainability and reduce the cost of electricity, re-powering with a high specific power rotor has to be guaranteed at the outset and taken into account in the design of the tower and foundation.

Question to the developer: When the wind turbines are re-powered will the power of the new generators be made greater than the power of the original by using rotors with a higher specific power rating?

.4 There will be only a few new jobs created in Scotland

The benefit of new jobs promised for the region and Scotland in general is not as great as it seems because they are very expensive jobs to create and will only last for 20 years and this is not mentioned in the applications. The massive £6 billion public subsidy could create far more jobs if applied elsewhere in less capital-intensive industries.

The wind farm building programme will not facilitate the establishment of a Scottish supply chain in the few years available before delivery is required and so the lower estimates of new jobs are most likely to be what is achieved. Bear in mind that the peak construction new jobs promised are only going to be available for two years. Therefore averaged over the 20 year life of the turbines the construction provides work equivalent to less than 200 jobs, plus a further 200 ongoing maintenance jobs, making 400 new jobs for a 20 year period only.

The total public subsidy being provided will be about £6 billion and so the cost per new job created will be £6 billion / 400 which is £15 million per job, and without re-powering all the jobs will disappear after 20 years.

The creation of jobs is not therefore a strong factor to justify building the wind farms, the public's £6 billion could easily provide 100 times as many new permanent jobs in less capital intensive industries within Scotland.

Question to the developer: Does the developer agree that the likely number of new jobs to be created in Scotland over the initial 20 year life of the wind farm will be equivalent to about 400 jobs for twenty years?

.5 This project will not promote wind turbine manufacturing neither in Scotland nor in the UK generally

The proposed time scale shows the majority of construction to start by 2015 and finish by 2018 so there is little chance that total UK content let alone Scottish content will exceed 20% of project value because there will not be time to develop any significant new supply chain manufacturing. Therefore this project is going to have an adverse effect on the balance of payments of the order of at least £4 billion. More significantly, there is no commitment in the applications to encourage major manufacturing in neither Scotland nor the UK so the public subsidy is not going to bring any benefit to Scotland or the UK in terms of new long term manufacturing jobs.

For a UK based wind turbine industry to be established, within which Scotland would be a major component, a UK design has to be developed that out classes the European competition. The only way to achieve this will be to develop a much bigger UK design in the 20 MW class. This would make all the existing European manufacturing and installation capacity obsolescent and the UK would be competing on equal terms.

At present Scotland and the UK have a serious commercial disadvantage relative to the very well established European manufacturers. Bigger versions of the existing traditional 'Danish' model wind turbine could be produced but there seems to be no European interest in developing them because the subsidised status quo is very profitable for the existing players and stifles competition.

However there is an opportunity with the present application in that it applies for permission based on current underpowered wind turbines. These turbines will not economically realise the full potential of the site in terms of the amount of electricity being generated compared with how much electricity could be generated if more effective wind turbines were installed.

For this reason this development would not be in the national interest because a massively subsidised wind farm is being proposed that wastes the subsidy provided because the turbines selected do not extract the full potential of the site, it is like building a low-rise building in the middle of a city.

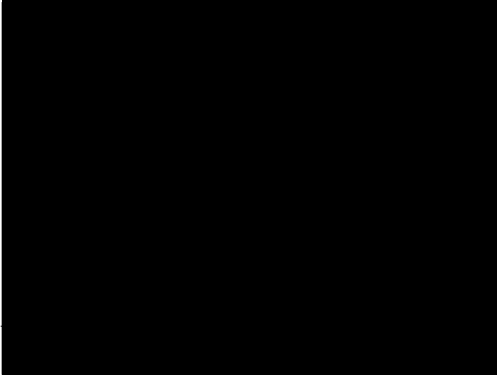
However, to enable this wind farm development to start, permission for one of the three proposed 500 MW wind farms could be granted using turbines available today on the condition that the developer commits funds to develop a much bigger more effective turbine than the proposed 7 to 8 MW turbines for the two follow on wind farms. 15 to 20 MW power rating is possible if the inherent weaknesses in the current 'Danish' model turbines are eliminated by design development. This would be analogous to planning gain and would compensate the public for the

benefit the applicant receives by being allowed to build a subsidised wind farm that does not fully utilize the wind resource available.

Question to the developer: What consideration has been given to improving the proposed 'Danish' model wind turbines proposed for the wind farms to increase the power rating of the turbines beyond 7 to 8 MW and so drive costs down to the DECC target of £100 per MWhr.

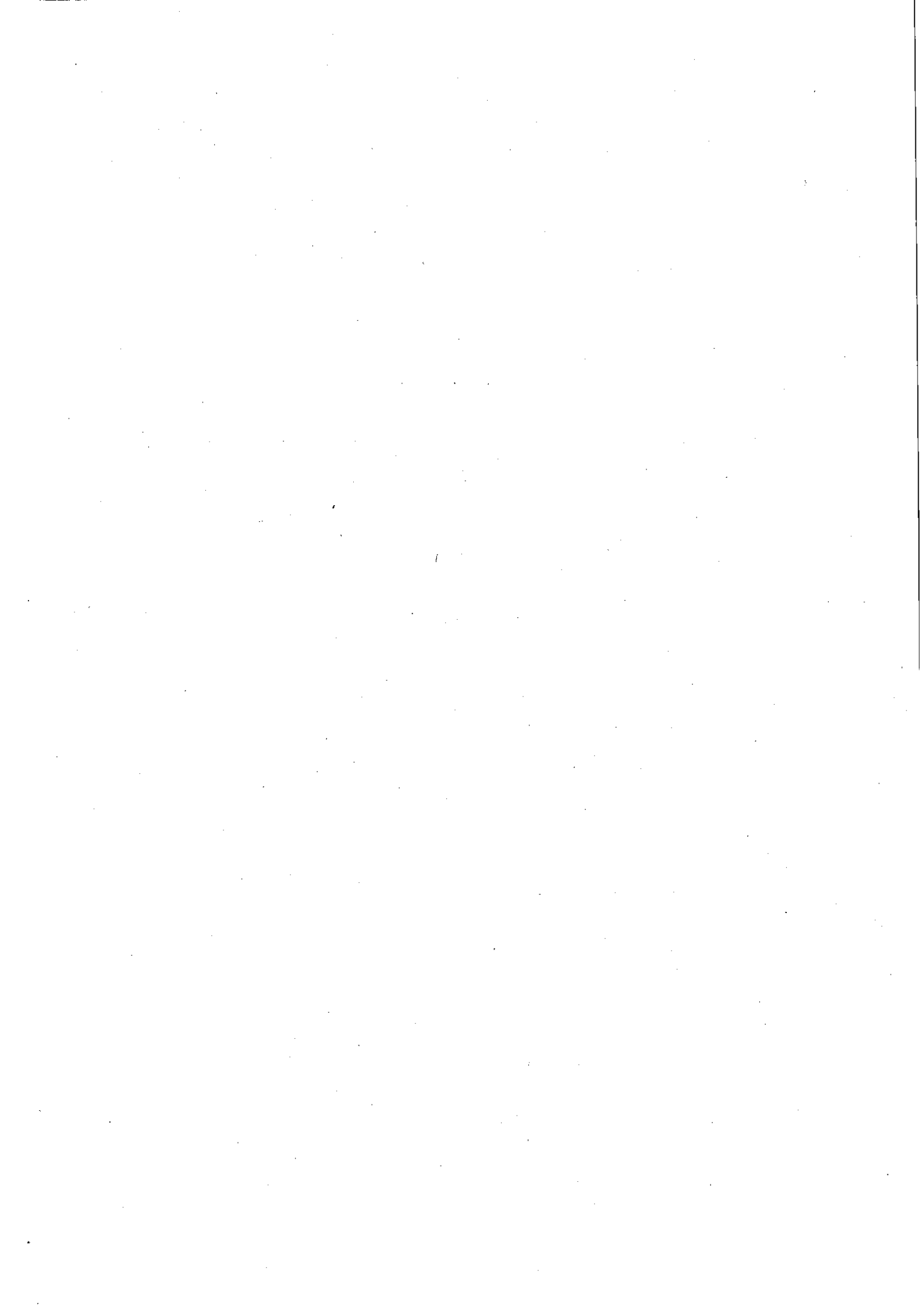
I look forward to receiving the developer's response to these objections

Yours faithfully



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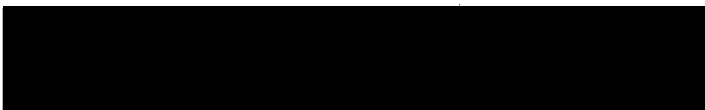
Ford A (Alexander)

From: [REDACTED]
Sent: 16 October 2012 12:24
To: MS LOT MORLE
Subject: Moray Firth Offshore - Objection

I wish to object in the strongest possible terms to the above proposal.

My objections are towards the visual/aural pollution resultant upon such a development, as well as the hazards to fishing, MOD nautical and aeronautical activities in the area, and lastly and most importantly, the hazards to marine life.

The proposal that not only one, but two independent wind turbine developments are scheduled for our neighbouring marine environment, is intollerable.



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Ford A (Alexander)

From: [REDACTED]
Sent: 16 October 2012 12:28
To: MS LOT MORLE
Subject: Moray Firth Offshore - Objection

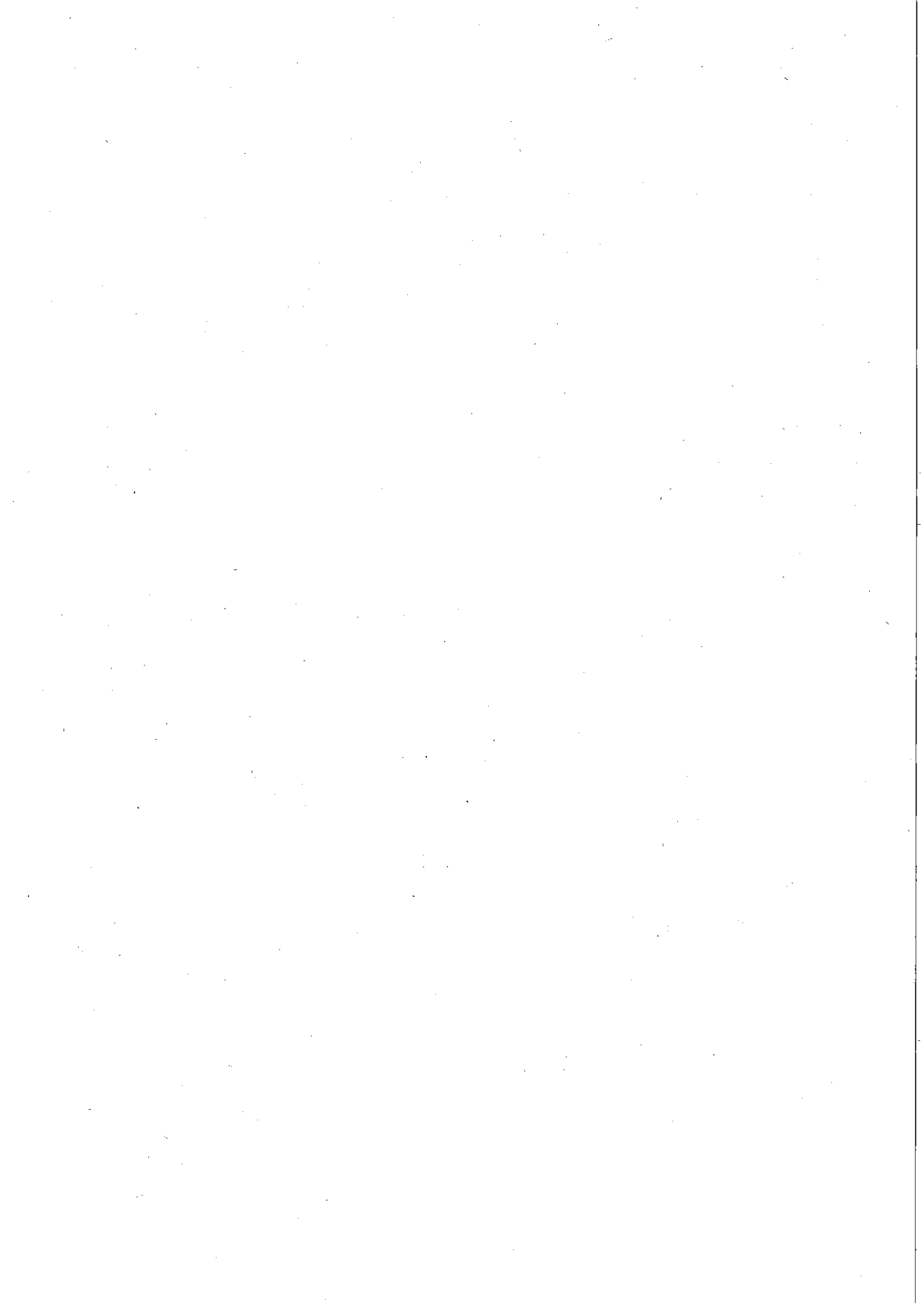
I wish to object to the above proposal on the grounds of visual and aural pollution, hazards to nautical/aeronautical activities and marine life.

I can not condone filling the Moray Firth with the scrap iron of two concurrent developments.



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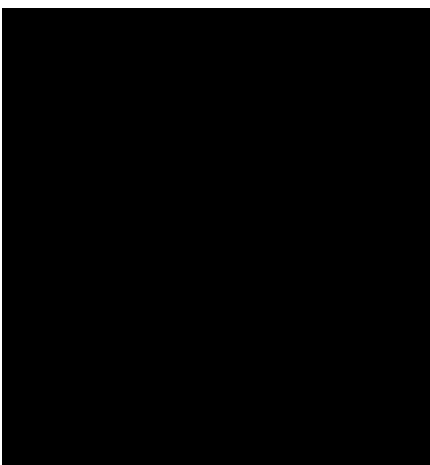


Ford A (Alexander)

From: [REDACTED]
Sent: 09 November 2012 15:46
To: MS LOT MORLE
Cc: [REDACTED]
Subject: Morl Response
Attachments: Morl Response.docx

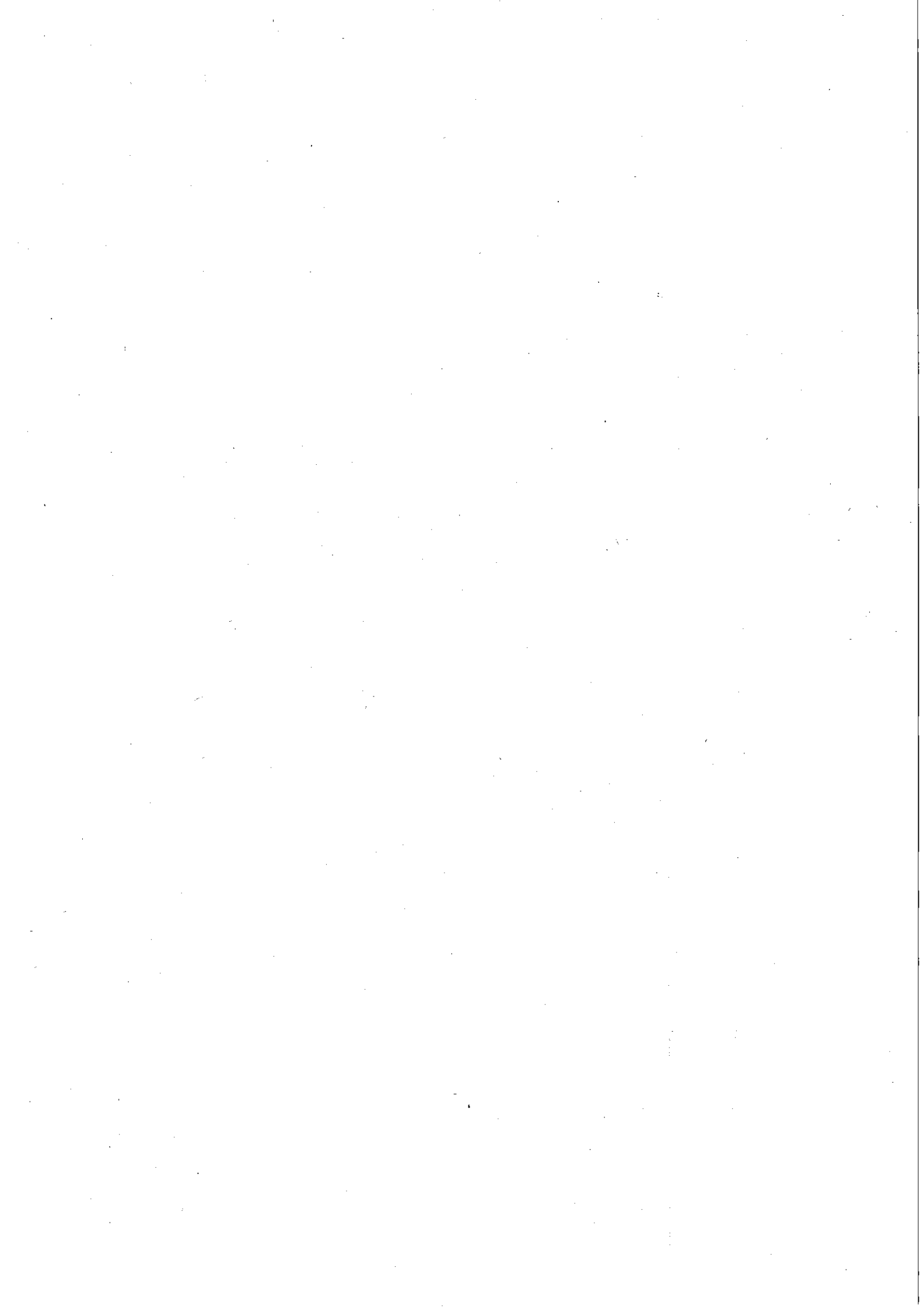
Please find attached a response to the application for the proposed Moray Offshore Renewable development on behalf of the Moray and Pentland Firths Salmon Protection Group. The attached is endorsed by the Ness & Beaully Fisheries Trust.

Regards



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Response to the marine licence application for the Moray Offshore Wind Ltd project

6th November 2012

Dear Sir/Madam

Introduction

The Moray & Pentland Firths Salmon Protection Group (MPFSPG) welcomes the opportunity to comment on the proposed development of the Moray Offshore Wind Ltd (MORL) project. For your information, MPFSPG is an informal group made up of those concerned with the welfare of salmon and sea trout in the Moray and Pentland Firth areas and was initiated as a result of growing concerns surrounding the potential impact of offshore renewable energy developments. The initial meeting of the Moray & Pentland Firths Salmon Protection Group included representatives from The Spey District Salmon Fishery Board, Findhorn, Nairn & Lossie Fisheries Trust, Ness District Salmon Fishery Board, Beaully District Fishery Board, Ness & Beaully Fisheries Trust, Cromarty Firth Fisheries Trust, Cromarty Firth District Salmon Fishery Board, Kyle of Sutherland District Salmon Fishery Board, Kyle of Sutherland Fisheries Trust, Helmsdale District Salmon Fishery Board, Caithness District Salmon Fishery Board, Naver Fishery and with additional input from the Deveron, Bogie and Isla Fisheries Trust. MPFSPG wishes it to be known that it recognises the importance of the development of renewable energy sources provided this is not achieved at the expense of ecologically, economically and culturally important wild fish stocks. It is likely that, along with the commercial sea fishing sector, the wild salmon and sea trout interest group is the largest in terms of economic benefit and employment that is potentially at risk due to the proposed development. MPFSPG also wish to state that it fully endorses the representations made by the Association of Salmon Fishery Boards and Moray Firth Sea Trout Project in relation to this licence application.

General Comments

The application contains limited information regarding the number of structures likely at each wind farm site i.e. a range is given (63-139) therefore making it difficult to assess the extent of possible impacts. Similarly, potentially two types of foundation and substructures to be deployed if consent is granted are included in the project description with, presumably, different construction techniques required during installation. Again, this renders a proper assessment of the risks likely to be posed by the scheme to diadromous fish extremely difficult.

It is clear from the Environmental Statement (ES) provided in support of the application that the recommendations regarding information requirements outlined in the initial scoping response received from Marine Scotland Science (MSS) in relation to diadromous fish have not been met. In particular, the need to produce detailed information in respect of the usage of the proposed development area by diadromous species is absent. MSS suggest that if such information is not available then alternatively an appropriate monitoring strategy should be adopted. The ES appears to adopt a dual approach by assuming that diadromous fish will be present within the site and also proposing monitoring. The assumption that diadromous fish are present would be an appropriate methodology if the risks posed to migratory fish species such as salmon and sea trout as well as other important diadromous fish such as eels and lamprey, were well understood and readily quantifiable. It is clear from research commissioned by SNH¹ and other recently peer-reviewed published literature e.g. Gill *et al.*², particularly in respect of underwater noise resulting from the construction and operation phase of the operation and the creation of electromagnetic fields resulting from the cabling array, that this is far from being the case. This is of particular concern given that a number of rivers within the area covered by the MPFSPG are Special Areas of Conservation for Atlantic salmon, pearl mussels and sea lamprey. The proposal to develop a monitoring strategy is, superficially, to be welcomed. However, no substantive details of such a strategy are given and MPFSPG can only be alarmed that the MORL approach to the MSS scoping response contains the statement:

Due to the difficulties in monitoring salmonids, surrogate monitoring techniques are being proposed. Include monitoring of noise during construction and monitoring of sandeel populations (a key prey species).

This is clearly an inadequate monitoring strategy. While the monitoring of sandeels pre and post construction has considerable merit in assessing impacts on the sandeel populations themselves within the development area, its use as a surrogate species for salmonids is inherently flawed given the large differences in the life cycle of salmonid and sandeel species, particularly physiological and behavioural differences. For example, the effects of noise on a fish with a swim bladder (salmon) may well differ considerably from fish that lack a developed swim bladder (sandeels). Should the approach of monitoring what is considered to be a 'surrogate species' in sandeels reveal a decline in that species within the area will it be automatically assumed that there will be a proportionate impact on the status of salmon SAC rivers? If so, what measures will be taken to mitigate for these impacts? Additionally, what measures will be taken to ensure that the sandeel information is backed up by monitoring of adult salmon and sea trout populations in their native rivers? The monitoring of noise would also only be sufficient if a better understanding of fish hearing becomes available.

¹ Gill, A.B. & Bartlett, M. (2010). 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 Commissioned Report No.401*

² Gill, A.B., Bartlett, M Thomsen, F. (2012) Potential interactions between diadromous fishes of U.K.conservaion importance and the electromagnetic fields and subsea noise from marine renewable energy developments. *Journal of Fish Biology* 81, 664–695



Given the paucity of information in the ES with regards to the usage of the proposed development site by salmon and sea trout, MPFSPG have no option but to assume that the area involved in the project is the key migration route for both adult salmon returning to our rivers and salmon smolts migrating to the main feeding grounds. Additionally, it can only be considered to be the key feeding ground for our sea trout populations. Indeed, a precautionary approach dictates that the application should be considered with the assumption that all salmon and sea trout entering or leaving the rivers within the MPFSPG utilise the proposed development area.

Given the inherent uncertainties regarding the potential impacts of the proposed development and the paucity of information regarding the utilisation of the proposed development area by diadromous fish species it is particularly concerning that potential mitigation measures such as, for example, the avoidance of any piling operations within key migration periods for salmon have apparently been ignored.

Specific Concerns

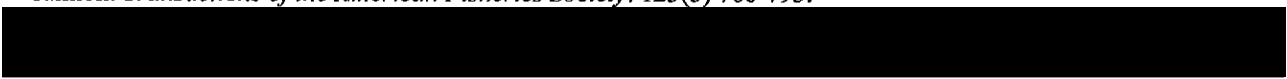
Increased Suspended Sediment Concentrations

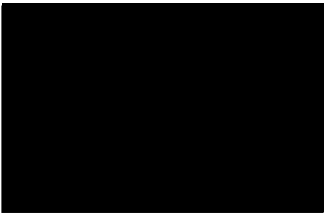
MPFSPG questions the use of the parameters to ascertain the effects of increased suspended sediment concentrations as outlined in Table 7.2-4. The parameters are identified as those reported by Birtwell (1999) but examination of the report in question suggests that the research itself was conducted in fresh water and not the marine environment. As such we question the validity of directly transposing research findings based in the freshwater environment to the marine environment. Paragraph 7.2.5.19 includes the sentence:

In the case of migratory species, assuming fish are migrating through the site, increased SSC may result in localised disturbance to migration.

The ES appears to assume that delays in migration, forced movement from preferred migration pathways, disorientation, potential increases in stress etc as a result of this localised disturbance do not influence ultimate survival and fitness rates particularly as an individual fish may experience such disturbance at several locations within the development area thus leading to cumulative effects. The primary literature contains numerous examples of increased predation risk of salmonids due to various stressors in both the freshwater (e.g. Mesa³) and marine

³ Mesa, M.G. 1994. Effects of multiple acute stressors on the predator avoidance ability of juvenile Chinook salmon. *Transactions of the American Fisheries Society*. 123(5) 786-793.





environments (e.g. Handeland *et al.*⁴) Given the relatively close proximity of the proposed development to the coastline and therefore the mouths of rivers and burns coupled with the speed at which smolts are known to travel in the marine environment (e.g. Lacroix *et al.*⁵) there is also the potential for smolts already suffering markedly reduced anti-predator responses due to osmotic stress to experience further increased stress levels, disorientation with concomitant implications in respect of mortality.

Given the risks associated with the increased sediment concentrations it is suggested that sensitive operations should be avoided during the annual smolt migration period. This would have the additional benefit of avoiding the migration period of returning early-running adult salmon which themselves have high economic and ecological value.

Electromagnetic Fields

The conclusions of the SNH commissioned review regarding information available in respect of electromagnetic fields and noise resulting from offshore renewable energy developments and a recent peer-reviewed paper have previously been referenced in this response. We understand that research to better understand the responses of salmonid fish and eels to electromagnetic fields by Marine Scotland Science is ongoing (paragraph 7.2.5.79). Given the paucity of information currently available it not possible to form an informed view as to whether the proposed mitigation is adequate, particularly in respect of the depth of burial that will be ultimately required to fully mitigate for any potential adverse effects. It is suggested that the results of peer-reviewed science should dictate the depths to which cables are buried rather than a depth be chosen by the developer on an apparently arbitrary basis. Should any diadromous fish species be experimentally shown to exhibit any response to electromagnetic fields then no cable should be left unburied or unshielded irrespective of the technical issues involved for the developer.

We also note that the statement in paragraph 7.2.5.91:

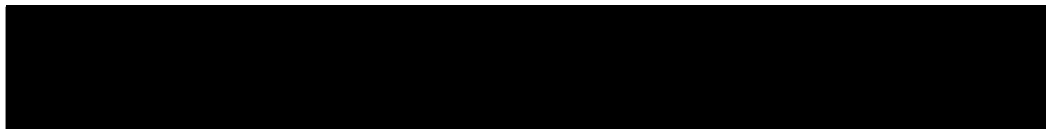
Salmon and sea trout transiting the area of the three proposed wind farm sites will for the most part, not be exposed to the strongest EMFs as they normally swim in the upper metres of the water column during migration (Technical Appendix 4.3 B: Salmon and Sea Trout Ecology and Fisheries Technical Report). Water depths in the area of the proposed wind farm sites range from 38 to 57 m).

However, Technical Appendix 4.3 B in fact states:

Malcolm et al (2010) concluded based on research undertaken to date (Jakupsstovu 1986, Holm et al 2005, Starlaugsson 1995) that in general terms salmon spend most of the time close to the

⁴ Handeland, S.O., Jarvi, T, Ferno, A & Stefansson, S.O. 1996. Osmotic stress, antipredatory behaviour and mortality of Atlantic salmon (*Salmo salar*) smolts. *Canadian Journal of Fisheries and Aquatic Science*. 53 (12) 2673-2680.

⁵ Lacroix, G.L., Knox, D., & Stokesbury, M.J. 2005. Survival and behaviour of post-smolt Atlantic salmon in coastal habitat with extreme tides. *Journal of Fish Biology*. 66 485-498.





Ness & Beaully Fisheries Trust

surface although dives to greater depths of up to 280m have often been observed. Dives do not appear restricted to offshore areas, persisting late into the migration on the return to home waters. Early studies (Jakupsstovu 1986) suggest an association between diving and feeding. This is in line with research by Fraser (1987) which found grilse feeding in western Scottish coastal waters until early July.

As such it would appear that feeding salmon may in fact be in proximity to the sea bed in areas with cables present. We also believe the ES underplays the potential of the development area as a sea trout feeding ground, particularly if the area supports a sandeel and juvenile herring population. Sea trout are also apparently more likely to be benthic feeders than salmon as witnessed in Technical Appendix 4.3 B:

In addition, Pemberton (1976b) suggested a diel feeding pattern, with bottom feeding being greatest during the day and mid-water and surface feeding increasing between sunset and sunrise.

It is also likely that diadromous fish migrating near to the shore would have little option but to be in close proximity to the cabled area in the vicinity of the transmission line landfall.

Underwater Noise (Construction and Operation)

The ES highlights that a considerable area of potential migratory routes and feeding grounds for salmon and sea trout within the Moray Firth will potentially be impacted, principally by the piling or drilling operations depending on the final choice of substructure type. Again we draw attention to the lack of detailed information of the effects of underwater sound on salmonid behaviour as previously referenced in the SNH commissioned review and recently published peer-reviewed paper in respect of electromagnetic fields and noise. We contend that the ES assumes that the displacement and the adoption of avoidance behaviour by individual or aggregations of salmon and sea trout from their original locations as a result of underwater noise has no implications in respect of fitness or survival. Given that the marine ecology of salmon and sea trout are so poorly understood we suggest that a precautionary approach would dictate that it should be assumed that potential alterations in behaviour **will** negatively impinge on survival and fitness of the fish in question and as such piling or drilling operations should not be undertaken in periods when juvenile salmon and sea trout are migrating and when populations of adult salmon believed to be numerically depressed are likely to be transiting the area. The adoption of soft start piling cannot be considered to be adequate mitigation in itself. Additionally, operational noise has the potential to impact diadromous fish species and it is clear that the present understanding of the effects of noise on fish is severely deficient.

Loss of Habitat and Potential Damage to Prey Species

MPFSPG believe that there is considerable potential for reduced abundance in key prey species such as sandeels and juvenile herring which are likely to form an important component of the diet of juvenile salmon and sea trout if the proposals are granted a licence. Whilst the survey



undertaken in respect of sea trout is welcome, it is clear that a paucity of information remains in relation to the utilisation of the area by key prey species.

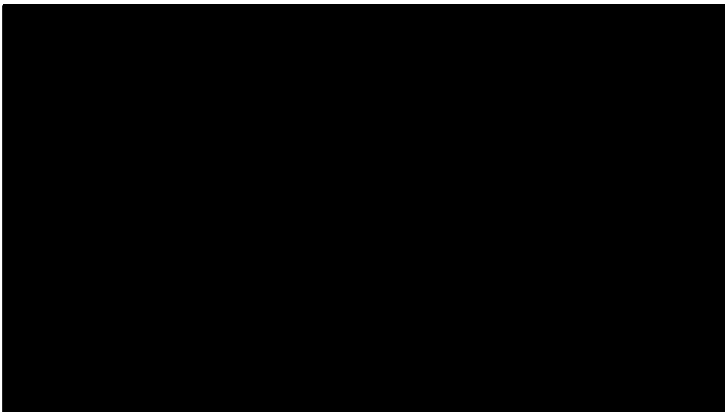
Creation of New Habitat

We contend that the introduction of hard substrate as a result of the development accompanied by the presence of the turbine towers has the potential to locally increase the abundance of certain species and therefore act as predator aggregation locations for migrating juvenile salmon and feeding sea trout as well as other diadromous fish. Of particular concern would be aggregations of gadoids such as cod which are known to be predators of Atlantic salmon (e.g. Hvidsten and Mokkelgjerd⁶)

Concluding Remarks

Given the lack of information in respect of the degree of utilisation of the proposed development area by salmon and sea trout, the inherently uncertain nature of the assessment of the risks posed by factors such as the creation of electromagnetic fields and noise and the lack of appropriate mitigation outlined by the developer the MPFSPG wishes to formally register its objection to the proposals.

Yours Faithfully,



Spokesman, Moray & Pentland Firths Salmon Protection Group.

⁶ Hvidsten, N.A. & Mokkelgjerd, D.I. 1987. Predation on salmon smolts, *Salmo salar* L., in the estuary of the River Surna, Norway. *Journal of Fish Biology*. 30 273-280.



Ford A (Alexander)

From: [REDACTED]
Sent: 09 November 2012 10:12
To: MS LOT MORLE
Cc: MS Marine Licensing
Subject: [REDACTED]

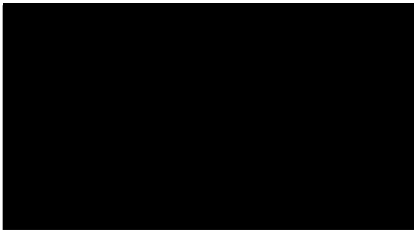
----- Original Message -----

From: [REDACTED]
To: ms.marinelicensing@scotland.gsi.gov.uk
Sent: Friday, November 09, 2012 10:08 AM
Subject: [REDACTED]

Sir,

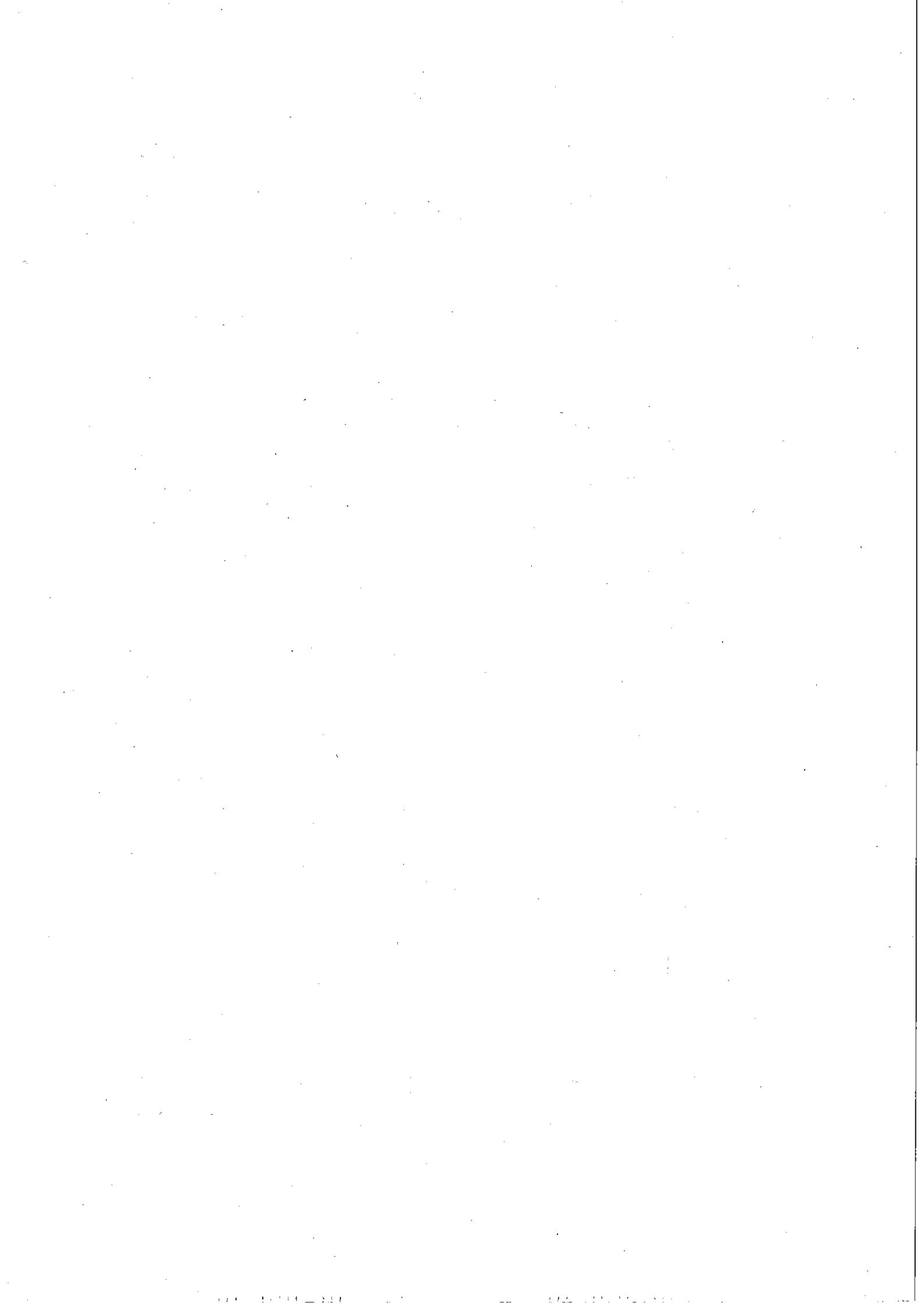
This is to say that the Helmsdale River Board confirms and supports the consultation response to the BOWL and MORL offshore wind developments submitted by [REDACTED] River Ness Board biologist, and spokesperson for the group of Outer Moray Firth rivers, MPFSPG.

The Helmsdale Board also supports and endorses the response to the same development submitted by [REDACTED] on the matter of effects on sea-trout.



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Ford A (Alexander)

From: [REDACTED]
Sent: 12 November 2012 10:59
To: MS LOT MORLE
Cc: [REDACTED]
Subject: MORL: Caithness District Salmon Fisheries Board response
Attachments: 005 (WF) MORL 12-11-12.pdf

FAO David O'Sullivan

Further to my phone call please find attached a letter from the Board in connection with the recent licence application for the Moray Firth.

Regards

[REDACTED]

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CAITHNESS DISTRICT SALMON FISHERY BOARD



Marine Licensing Scotland
FAO Mr David O'Sullivan

CDSFB/005-12


12 November 2012

Dear Mr O'Sullivan

Moray Offshore Renewables: Marine Licence Application

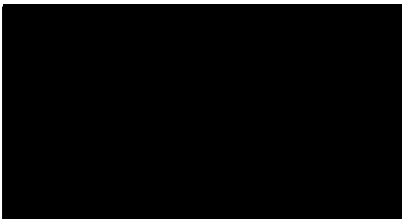
**Ref: Moray and Pentland Firths Salmon Protection Group letter of 6 November
(Response to the marine licence application for the Moray Offshore Wind Ltd project)**

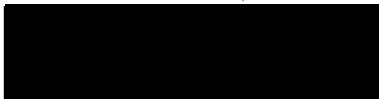
The Caithness District Salmon Fishery Board was surprised not to be included in this consultation from the outset, given its statutory role in relation to salmon and sea trout fisheries and the potential adverse effects of the proposed development on fisheries in Caithness.

However, the Board now notes the submission by  of the Moray & Pentland Firths Salmon Protection Group, prepared on behalf of all fishery interests in the area (see ref), and endorses the document's conclusions.

More generally, given the number, scale and diversity of the all renewables developments that are being proposed for the Pentland and Moray Firths, the Board wishes to express its concern that licensing is being considered in the almost complete absence of information regarding the likely effects of development on salmonids and the fisheries they support.

Yours sincerely





Ford A (Alexander)

From: [REDACTED]
Sent: 12 November 2012 12:20
To: MS LOT MORLE
Subject: FW: Offshore Wind
Attachments: Morl Response.docx

Dear Sirs

NORTHERN DISTRICT SALMON FISHERY BOARD

I am writing in my capacity as [REDACTED] to the Northern District Salmon Fishery Board, who due to the involvement of the River Naver Fishery in the Moray and Pentland Firths Salmon Protection Group, have taken a keen and supporting interest of their work.

I am writing on behalf of the Board to fully endorse the comment contained in the letter prepared by the Group, a copy of which is attached, including their objection to the MORL proposals.

It is imperative for the survival of salmon and sea trout at sea and the fisheries and people whose livelihoods depend on them that the Moray and Pentland firth renewable projects should not progress until their security can be assured.

Yours faithfully

[REDACTED]

[REDACTED]

[REDACTED]

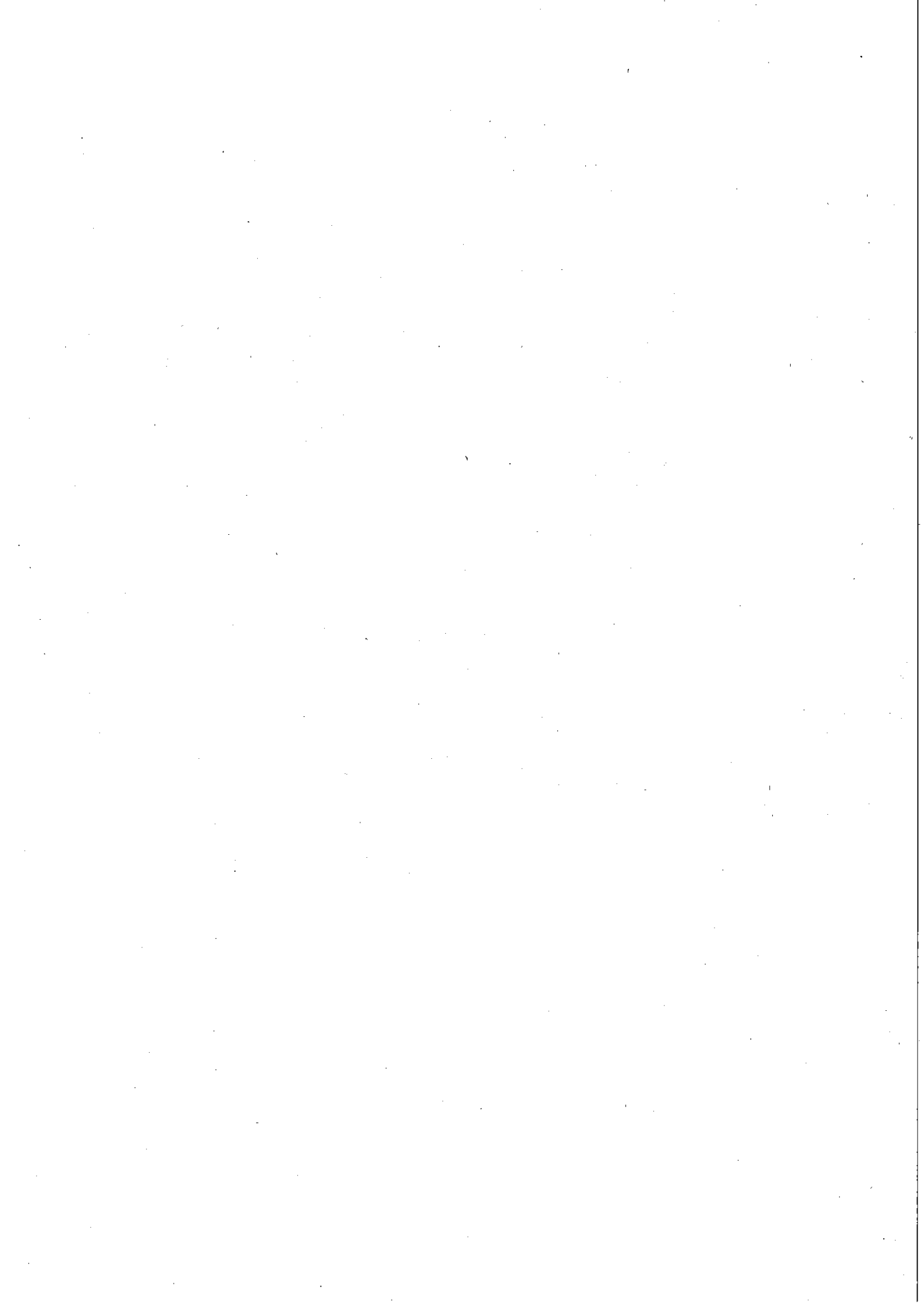
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Response to the marine licence application for the Moray Offshore Wind Ltd project

6th November 2012

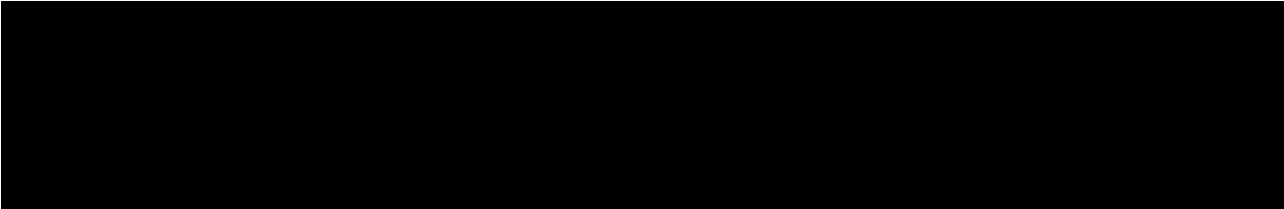
Dear Sir/Madam

Introduction

The Moray & Pentland Firths Salmon Protection Group (MPFSPG) welcomes the opportunity to comment on the proposed development of the Moray Offshore Wind Ltd (MORL) project. For your information, MPSPG is an informal group made up of those concerned with the welfare of salmon and sea trout in the Moray and Pentland Firth areas and was initiated as a result of growing concerns surrounding the potential impact of offshore renewable energy developments. The initial meeting of the Moray & Pentland Firths Salmon Protection Group included representatives from The Spey District Salmon Fishery Board, Findhorn, Nairn & Lossie Fisheries Trust, Ness District Salmon Fishery Board, Beaully District Fishery Board, Ness & Beaully Fisheries Trust, Cromarty Firth Fisheries Trust, Cromarty Firth District Salmon Fishery Board, Kyle of Sutherland District Salmon Fishery Board, Kyle of Sutherland Fisheries Trust, Helmsdale District Salmon Fishery Board, Caithness District Salmon Fishery Board, Naver Fishery and with additional input from the Deveron, Bogie and Isla Fisheries Trust. MPSPG wishes it to be known that it recognises the importance of the development of renewable energy sources provided this is not achieved at the expense of ecologically, economically and culturally important wild fish stocks. It is likely that, along with the commercial sea fishing sector, the wild salmon and sea trout interest group is the largest in terms of economic benefit and employment that is potentially at risk due to the proposed development. MPFSPG also wish to state that it fully endorses the representations made by the Association of Salmon Fishery Boards and Moray Firth Sea Trout Project in relation to this licence application.

General Comments

The application contains limited information regarding the number of structures likely at each wind farm site i.e. a range is given (63-139) therefore making it difficult to assess the extent of possible impacts. Similarly, potentially two types of foundation and substructures to be deployed if consent is granted are included in the project description with, presumably, different construction techniques required during installation. Again, this renders a proper assessment of the risks likely to be posed by the scheme to diadromous fish extremely difficult.



It is clear from the Environmental Statement (ES) provided in support of the application that the recommendations regarding information requirements outlined in the initial scoping response received from Marine Scotland Science (MSS) in relation to diadromous fish have not been met. In particular, the need to produce detailed information in respect of the usage of the proposed development area by diadromous species is absent. MSS suggest that if such information is not available then alternatively an appropriate monitoring strategy should be adopted. The ES appears to adopt a dual approach by assuming that diadromous fish will be present within the site and also proposing monitoring. The assumption that diadromous fish are present would be an appropriate methodology if the risks posed to migratory fish species such as salmon and sea trout as well as other important diadromous fish such as eels and lamprey, were well understood and readily quantifiable. It is clear from research commissioned by SNH¹ and other recently peer-reviewed published literature e.g. Gill *et al.*², particularly in respect of underwater noise resulting from the construction and operation phase of the operation and the creation of electromagnetic fields resulting from the cabling array, that this is far from being the case. This is of particular concern given that a number of rivers within the area covered by the MPFSPG are Special Areas of Conservation for Atlantic salmon, pearl mussels and sea lamprey. The proposal to develop a monitoring strategy is, superficially, to be welcomed. However, no substantive details of such a strategy are given and MPFSPG can only be alarmed that the MORL approach to the MSS scoping response contains the statement:

Due to the difficulties in monitoring salmonids, surrogate monitoring techniques are being proposed. Include monitoring of noise during construction and monitoring of sandeel populations (a key prey species).

This is clearly an inadequate monitoring strategy. While the monitoring of sandeels pre and post construction has considerable merit in assessing impacts on the sandeel populations themselves within the development area, its use as a surrogate species for salmonids is inherently flawed given the large differences in the life cycle of salmonid and sandeel species, particularly physiological and behavioural differences. For example, the effects of noise on a fish with a swim bladder (salmon) may well differ considerably from fish that lack a developed swim bladder (sandeels). Should the approach of monitoring what is considered to be a 'surrogate species' in sandeels reveal a decline in that species within the area will it be automatically assumed that there will be a proportionate impact on the status of salmon SAC rivers? If so, what measures will be taken to mitigate for these impacts? Additionally, what measures will be taken to ensure that the sandeel information is backed up by monitoring of adult salmon and sea trout populations in their native rivers? The monitoring of noise would also only be sufficient if a better understanding of fish hearing becomes available.

¹ Gill, A.B. & Bartlett, M. (2010). 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 Commissioned Report No.401*

² Gill, A.B., Bartlett, M Thomsen, F. (2012) Potential interactions between diadromous fishes of U.K.conservation importance and the electromagnetic fields and subsea noise from marine renewable energy developments. *Journal of Fish Biology* 81, 664–695

Given the paucity of information in the ES with regards to the usage of the proposed development site by salmon and sea trout, MPFSPG have no option but to assume that the area involved in the project is the key migration route for both adult salmon returning to our rivers and salmon smolts migrating to the main feeding grounds. Additionally, it can only be considered to be the key feeding ground for our sea trout populations. Indeed, a precautionary approach dictates that the application should be considered with the assumption that **all** salmon and sea trout entering or leaving the rivers within the MPFSPG utilise the proposed development area.

Given the inherent uncertainties regarding the potential impacts of the proposed development and the paucity of information regarding the utilisation of the proposed development area by diadromous fish species it is particularly concerning that potential mitigation measures such as, for example, the avoidance of any piling operations within key migration periods for salmon have apparently been ignored.

Specific Concerns

Increased Suspended Sediment Concentrations

MPFSPG questions the use of the parameters to ascertain the effects of increased suspended sediment concentrations as outlined in Table 7.2-4. The parameters are identified as those reported by Birtwell (1999) but examination of the report in question suggests that the research itself was conducted in fresh water and not the marine environment. As such we question the validity of directly transposing research findings based in the freshwater environment to the marine environment. Paragraph 7.2.5.19 includes the sentence:

In the case of migratory species, assuming fish are migrating through the site, increased SSC may result in localised disturbance to migration.

The ES appears to assume that delays in migration, forced movement from preferred migration pathways, disorientation, potential increases in stress etc as a result of this localised disturbance do not influence ultimate survival and fitness rates particularly as an individual fish may experience such disturbance at several locations within the development area thus leading to cumulative effects. The primary literature contains numerous examples of increased predation risk of salmonids due to various stressors in both the freshwater (e.g. Mesa³) and marine

³ Mesa, M.G. 1994. Effects of multiple acute stressors on the predator avoidance ability of juvenile Chinook salmon. *Transactions of the American Fisheries Society*. 123(5) 786-793.



environments (e.g. Handeland *et al.*⁴) Given the relatively close proximity of the proposed development to the coastline and therefore the mouths of rivers and burns coupled with the speed at which smolts are known to travel in the marine environment (e.g. Lacroix *et al.*⁵) there is also the potential for smolts already suffering markedly reduced anti-predator responses due to osmotic stress to experience further increased stress levels, disorientation with concomitant implications in respect of mortality.

Given the risks associated with the increased sediment concentrations it is suggested that sensitive operations should be avoided during the annual smolt migration period. This would have the additional benefit of avoiding the migration period of returning early-running adult salmon which themselves have high economic and ecological value.

Electromagnetic Fields

The conclusions of the SNH commissioned review regarding information available in respect of electromagnetic fields and noise resulting from offshore renewable energy developments and a recent peer-reviewed paper have previously been referenced in this response. We understand that research to better understand the responses of salmonid fish and eels to electromagnetic fields by Marine Scotland Science is ongoing (paragraph 7.2.5.79). Given the paucity of information currently available it not possible to form an informed view as to whether the proposed mitigation is adequate, particularly in respect of the depth of burial that will be ultimately required to fully mitigate for any potential adverse effects. It is suggested that the results of peer-reviewed science should dictate the depths to which cables are buried rather than a depth be chosen by the developer on an apparently arbitrary basis. Should any diadromous fish species be experimentally shown to exhibit any response to electromagnetic fields then no cable should be left unburied or unshielded irrespective of the technical issues involved for the developer.

We also note that the statement in paragraph 7.2.5.91:

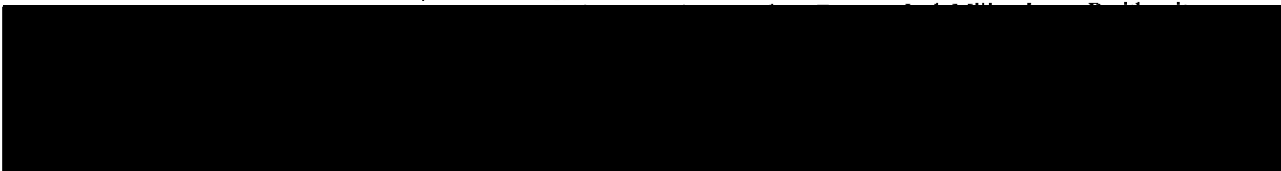
Salmon and sea trout transiting the area of the three proposed wind farm sites will for the most part, not be exposed to the strongest EMFs as they normally swim in the upper metres of the water column during migration (Technical Appendix 4.3 B: Salmon and Sea Trout Ecology and Fisheries Technical Report). Water depths in the area of the proposed wind farm sites range from 38 to 57 m).

However, Technical Appendix 4.3 B in fact states:

Malcolm et al (2010) concluded based on research undertaken to date (Jakupsstovu 1986, Holm et al 2005, Starlaugsson 1995) that in general terms salmon spend most of the time close to the

⁴ Handeland, S.O., Jarvi, T, Ferno, A & Stefansson, S.O. 1996. Osmotic stress, antipredatory behaviour and mortality of Atlantic salmon (*Salmo salar*) smolts. *Canadian Journal of Fisheries and Aquatic Science*. 53 (12) 2673-2680.

⁵ Lacroix, G.L., Knox, D., & Stokesbury, M.J. 2005. Survival and behaviour of post-smolt Atlantic salmon in coastal habitat with extreme tides. *Journal of Fish Biology*. 66 485-498.





Ness & Beaully Fisheries Trust

surface although dives to greater depths of up to 280m have often been observed. Dives do not appear restricted to offshore areas, persisting late into the migration on the return to home waters. Early studies (Jakupsstovu 1986) suggest an association between diving and feeding. This is in line with research by Fraser (1987) which found grilse feeding in western Scottish coastal waters until early July.

As such it would appear that feeding salmon may in fact be in proximity to the sea bed in areas with cables present. We also believe the ES underplays the potential of the development area as a sea trout feeding ground, particularly if the area supports a sandeel and juvenile herring population. Sea trout are also apparently more likely to be benthic feeders than salmon as witnessed in Technical Appendix 4.3 B:

In addition, Pemberton (1976b) suggested a diel feeding pattern, with bottom feeding being greatest during the day and mid-water and surface feeding increasing between sunset and sunrise.

It is also likely that diadromous fish migrating near to the shore would have little option but to be in close proximity to the cabled area in the vicinity of the transmission line landfall.

Underwater Noise (Construction and Operation)

The ES highlights that a considerable area of potential migratory routes and feeding grounds for salmon and sea trout within the Moray Firth will potentially be impacted, principally by the piling or drilling operations depending on the final choice of substructure type. Again we draw attention to the lack of detailed information of the effects of underwater sound on salmonid behaviour as previously referenced in the SNH commissioned review and recently published peer-reviewed paper in respect of electromagnetic fields and noise. We contend that the ES assumes that the displacement and the adoption of avoidance behaviour by individual or aggregations of salmon and sea trout from their original locations as a result of underwater noise has no implications in respect of fitness or survival. Given that the marine ecology of salmon and sea trout are so poorly understood we suggest that a precautionary approach would dictate that it should be assumed that potential alterations in behaviour **will** negatively impinge on survival and fitness of the fish in question and as such piling or drilling operations should not be undertaken in periods when juvenile salmon and sea trout are migrating and when populations of adult salmon believed to be numerically depressed are likely to be transiting the area. The adoption of soft start piling cannot be considered to be adequate mitigation in itself. Additionally, operational noise has the potential to impact diadromous fish species and it is clear that the present understanding of the effects of noise on fish is severely deficient.

Loss of Habitat and Potential Damage to Prey Species

MPFSPG believe that there is considerable potential for reduced abundance in key prey species such as sandeels and juvenile herring which are likely to form an important component of the diet of juvenile salmon and sea trout if the proposals are granted a licence. Whilst the survey

undertaken in respect of sea trout is welcome, it is clear that a paucity of information remains in relation to the utilisation of the area by key prey species.

Creation of New Habitat

We contend that the introduction of hard substrate as a result of the development accompanied by the presence of the turbine towers has the potential to locally increase the abundance of certain species and therefore act as predator aggregation locations for migrating juvenile salmon and feeding sea trout as well as other diadromous fish. Of particular concern would be aggregations of gadoids such as cod which are known to be predators of Atlantic salmon (e.g. Hvidsten and Mokkelgjerd⁶)

Concluding Remarks

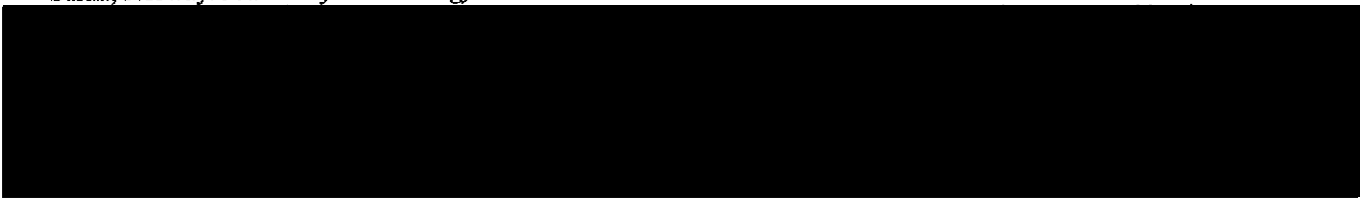
Given the lack of information in respect of the degree of utilisation of the proposed development area by salmon and sea trout, the inherently uncertain nature of the assessment of the risks posed by factors such as the creation of electromagnetic fields and noise and the lack of appropriate mitigation outlined by the developer the MPFSPG wishes to formally register its objection to the proposals.

Yours Faithfully,



Spokesman, Moray & Pentland Firths Salmon Protection Group.

⁶ Hvidsten, N.A. & Mokkelgjerd, D.I. 1987. Predation on salmon smolts, *Salmo salar* L., in the estuary of the River Surna, Norway. *Journal of Fish Biology*. 30 273-280.



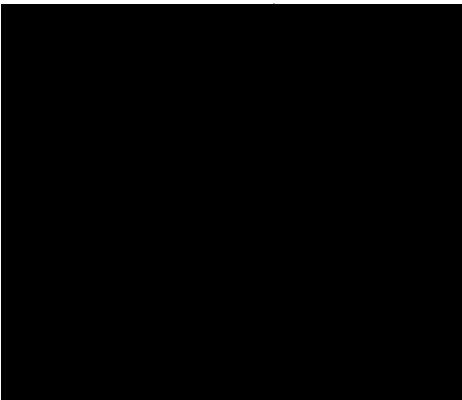
Ford A (Alexander)

From: [REDACTED]
Sent: 19 August 2013 17:28
To: MS LOT MORLE
Subject: MacColl, Telford and Stevenson windfarms

Dear Sirs

I understand the deadline to object has passed but would like to point out that I believe these proposals to be illegal as according to the Scottish Govt. website "All cetaceans are protected under the Wildlife and Countryside Act 1981, the Nature Conservation (Scotland) Act 2004, and the EU Habitats Directive, which make it an offence to deliberately capture, kill or recklessly disturb cetaceans."

It is well known that the Moray Firth is home to whales, dolphins and porpoises, all of which will be disturbed by the construction of these windfarms.



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