

From: Paul Caprani
Sent: Tuesday 5 November 2019 19:47
To: Kieran Doherty
Subject: RE: Galway Harbour

Follow Up Flag: Flag for follow up
Flag Status: Flagged

Kieran, this is getting very complicated and very technical, and it is unfortunate for you that you are stuck in the middle of it!

There are a number of options available to the Board in my view.

The most reasonable in my view is to ask Danny to redraft the AI required under point ten. Not to tell you or me what he wants but to actually draft the request himself, and we would send that out to the applicants. Explain to Danny that you (or me!) Do not have the technical expertise to know precisely what he wants for this reason **he** would be better off drafting a request to applicant just so as the applicant is sure what he wants.

The second option is to allow the applicant and Danny to conference call and get things sorted. There is obviously some miscommunication here as to what Danny wants and the applicant thinks Danny wants? They have met already in person and discuss matters on compensatory measures, would it be possible or permissible under the Boards protocols? Maybe ask Rachel/ Marcella/Josephine/ Anne Marie? If it is permissible it is worth exploring

The third option is to wait until Danny is back from the middle east and arrange a meeting to get all around the table and bang heads!

I'm sorry I can't be of more use but I'm no expert of methodologies to be employed in ecological surveys and I really think that any such technical request should come from Danny and not you or me. That's why the Board are employing him.

I've an Irish water OH down in Cork and won't be around for the rest of the week. Leave a message on my mobile if you want to discuss further.

Thanks
Paul

From: Kieran Doherty <K.Doherty@pleanala.ie>
Sent: Tuesday 5 November 2019 17:23
To: Paul Caprani <P.Caprani@pleanala.ie>
Subject: FW: Galway Harbour

Hi Paul,

Would you be able to assist here.

Please see Daniel's latest response below. I don't want to be telling the applicant to be cost-effective, or be removing conclusions from their report, as suggested by Daniel. Can you suggest a better working for Daniel's 3rd sentence?

Thanks,
Kieran

From: Daniel Bastreri <daniel@mpm-environment.london>
Sent: Tuesday 5 November 2019 16:50
To: Kieran Doherty <K.Doherty@pleanala.ie>
Subject: Re: Galway Harbour

Hello Kieran

Apologies for my lack of clarity – I'll try to explain this better:

The origin of the confusion is the lack of clearly set objectives for the monitoring programme.

This is something that I raised in my report, and it is independent of the flaws of part of the programme. The flaws are only in the comparison between Renmore and Tawin, and I will discuss this later. As an advance, I think that this comparison is not necessary, so there is no point in dedicating significant monitoring effort on it, as they propose.

Aside of this, the rest of the monitoring programme (taking and analysing samples in Tawin Island, over the proposed sites, etc) is appropriate. My only concern is the lack of reference sites, outside the management/compensatory measures area. The problem with this approach (as I also pointed out in my report) is that benthic populations are subject to natural fluctuations, which are independent of the management measures (compensation). So, even if the proposed management is successful, there is a possibility that due to a particularly harsh winter, storms, or predation by birds, etc. the diversity indices that they are measuring may actually go down. This would not be necessarily an indication that the compensatory measures are not working, but it would not provide evidence that they are.

For this reason, a better approach would be to use a 'reference site', similar in everything to the site of the compensatory measures, but not subject to these. Statistical comparison of data of these two sites would at least give a chance to detect any improvement in biodiversity produced by the compensatory measures, as the reference site would be subject to the same natural fluctuation, but not to those expected from the management programme. This is why this approach is widely used to test impact hypotheses in regulatory marine monitoring – a positive impact (improvement) in this case.

The part of the monitoring programme that I am not sure about its objective is the comparison between the intertidal habitats of Renmore and Tawin, beyond the fact that this comparison -as explained – was flawed in the previous sampling and analysis.

The new approach is sound to compare benthic populations in both sites, but this is unnecessary.

I do understand that the applicant is trying to address point 10 in the Board's request for clarification. However, this only states that *any conclusion must be based on evidence*, and not that *they must get more data*. They could just edit the report and withdraw the specific conclusion(s) made on the basis of the flawed design, and that would save them from dedicating significant resources on a comparison that is not relevant to prove that the compensatory measures are successful. Unless they intend to use Renmore as a reference site, but this would be also flawed, as the site is subject to a different set of pressures, as they explained in their report. So if this comparison between Renmore and Tawin is not a specific request from the Board, or NPWS, perhaps it's worth letting them know that they can just amend the report, withdraw the conclusions made on the basis of that specific part of the monitoring programme, and address the parts that are important: What is the monitoring programme meant to prove (objectives) and how to achieve this.

Obviously this is a decision for the Board, and NPWS should also provide guidance on the monitoring

programme approach. In any case, if the Board agrees with me that the comparison is not relevant, perhaps a possible wording for the response may be:

'In principle, the proposed sampling strategy would appear to provide a sufficient number of samples to enable a robust statistical analysis to compare the intertidal benthic populations in Renmore and Tawin Island. However, the applicant must explain why this comparison is relevant to ascertain the success of the compensatory measures. If it is not, it would be more cost-effective to amend the report, removing conclusions based on this specific flawed methodology, rather than dedicating a significant sampling and analytical effort to establish a comparison that may not provide evidence on the results of the compensatory measures.'

The focus should be on monitoring the sites where the compensatory measures will be applied, and a reference site - a similar site in Galway Bay, that won't be subject to the management measures and where the same pressures apply (tracking, grazing, fertilising, etc), and that won't be lost to the development, so the comparison can be continued over time, if required. This shouldn't require a large amount of samples (in the reference site), certainly not as many as in the main (compensatory) site.

In summary, the sampling programme needs to test whether the compensatory measures have brought about ecological improvement. Therefore, any monitoring effort should be focused on whether the compensatory measures work.'

I hope this is more clear, but of course you can edit the above, and/or get back to me if you want to discuss any of this in more detail.

Best regards,

Daniel

Daniel Bastreri BSc CSci CMarSci MIMarEST
Director



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On 05/11/2019 13:21, Kieran Doherty wrote:

Hi Daniel,

Thank you for getting back to me.

I may be getting a little confused here. The applicant has not referred to any comparison of benthic communities.

Just to clarify, the applicant is querying point 10 in the Board's request for clarification, which states:

- The Board have concerns that the monitoring programme for the intertidal habitats has some significant methodological errors, such as samples taken at different times of the year, with 5 replicas taken in Tawin Island (correct for statistical analysis), and only provide only two samples provided at Renmore (not correct). The results of the two samples are compared for analytical purposes in the report. The Board recommend that any inferred results are based on more consistent and robust data set.

In order to answer this, the applicant is suggesting the following sampling:

4 transect lines at each of the 2 locations, Renmore and Tawin, will be sampled simultaneously.

Samples to be taken at 3 points on each of the transect lines, High, Middle and Low Water levels .

5 replica samples will be taken at each point thus generating a total of 60 samples at each location.

I would be grateful if you could confirm that extent of sampling will be deemed to be adequate.

Therefore, would it suffice to direct the applicant as follows:

In principle, the proposed sampling strategy would appear to provide a sufficient number of samples to enable a robust statistical analysis.

The focus should be on monitoring the sites where the compensatory measures will be applied, and a reference site - a similar site in Galway Bay, that won't be subject to the management measures and where the same pressures apply (tracking, grazing, fertilising, etc), and that won't be lost to the development, so the comparison can be continued over time, if required. This shouldn't require a large amount of samples (in the reference site), certainly not as many as in the main (compensatory) site.

In summary, the sampling programme needs to test whether the compensatory measures have brought about ecological improvement. Therefore, any monitoring effort should be focused on whether the compensatory measures work.

Thanks Daniel, and apologies if I have missed the point.

Kieran

From: Daniel Bastreri <daniel@mpm-environment.london>

Sent: Monday 4 November 2019 18:23

To: Kieran Doherty <K.Doherty@pleanala.ie>

Subject: Re: FW: PA 00 33 : Galway Harbour Extension , Compensatory Measures Report / NIS : Clarifications item 10 :Extent of additional Sampling Proposed

From: Daniel Bastreri <daniel@mpm-environment.london>
Sent: Monday 4 November 2019 18:23
To: Kieran Doherty
Subject: Re: FW: PA 00 33 : Galway Harbour Extension ,
Compensatory Measures Report / NIS : Clarifications
item 10 :Extent of additional Sampling Proposed

Hi Kieran

I had more time to look at your response now, and this is in general very good. Just a couple of points:

One question first: The objective of the proposed survey - to compare benthic communities in both sites - is something that they set up, or is it a request of the Board? Regardless of this, I would suggest that the objective should be beyond the comparison. This is, why is this comparison necessary? If it is, this should be explained, especially in relation to the compensatory measures.

Leaving aside the necessity or not of this comparison, the proposed sampling design is correct, in terms of number of samples and general methodology. However, this is all information I have, so I would say that it would provide the necessary amount of data for a meaningful comparison, provided that the rest is also technically correct - sampling device, methodology, etc.

The main point is whether the Board considers that this comparison is necessary or that it would contribute to the evaluation of the success or the compensatory measures. Perhaps, they need more direction on this, and if this is the case, I would word the response differently:

Is the purpose the survey to compare the infaunal benthic communities in both sites? If so, could you explain the rationale beyond the necessity of this comparison in relation to measuring the success of the compensatory measures?

In principle, the proposed sampling strategy would provide a sufficient number of samples to enable a robust statistical analysis, should the comparison of both sites be necessary. However, you may wish to consider whether it is necessary to compare both sites to evaluate the success of the compensatory measures.

The focus should be on monitoring the sites where the compensatory measures will be applied, and a reference site - a similar site in Galway Bay, that won't be subject to the management measures and where the same pressures apply (tracking, grazing, fertilising, etc), and that won't be lost to the development, so the comparison can be continued over time, if required. This shouldn't require a large amount of samples (in the reference site), certainly not as many as in the main (compensatory) site.

In summary, the sampling programme needs to test whether the compensatory measures have brought about ecological improvement. Therefore, any monitoring effort should be focused on whether the compensatory measures work.

I hope this helps. Please feel welcome to get back to me if you have any further questions, or would like to discuss any of this in more detail.

Kind regards,

Daniel

Daniel Bastreri BSc CSci CMarSci MIMarEST
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On 04/11/2019 13:23, Kieran Doherty wrote:

Hi Daniel,

Thank you for your prompt reply.

I have edited it into an official response for the applicant, if you are in agreement.

I think I follow your message; however, you haven't addressed the numbers of samples. Is this deliberate having regard to the content of your reply?

Please note that the purpose of the survey is to compare the infaunal benthic communities in both sites. Therefore, the sampling strategy needs to be robust. You may wish to consider whether it is necessary to compare both sites to evaluate the success of the compensatory measures. The new survey should provide enough data to establish a valid statistical comparison between both sites. The rationale beyond this comparison, in relation to the success of the compensatory measures, may need explanation.

The use of the existing data was methodologically flawed, and the conclusions on the comparison of the ecological status of benthic populations on Renmore and Tawin were not supported by evidence.

The focus should be on monitoring the sites where the compensatory measures will be applied, and a reference site - a similar site in Galway Bay, that won't be subject to the management measures and the same pressures apply (tracking, grazing, fertilising, etc), and that won't be lost to the development, so the comparison can be continued over time, if required. This shouldn't require a large amount of samples (in the reference site), certainly not as many as in the main (compensatory) site.

In summary, the proposed sampling programme needs to test whether the compensatory measures have brought about ecological improvement. Therefore, any monitoring effort should be focused on whether the compensatory measures work.

Thanks,

Kieran

From: Daniel Bastreri <daniel@mpm-environment.london>

Sent: Saturday 2 November 2019 11:11

To: Kieran Doherty <K.Doherty@pleanala.ie>

Subject: Re: FW: PA 00 33 : Galway Harbour Extension , Compensatory Measures Report / NIS : Clarifications item 10 :Extent of additional Sampling Proposed

Hi Kieran

The answer is - it depends. The main point that is missing there is, what is the objective of this proposed survey?

I guess it is to compare the infaunal benthic communities in both sites. If this is the case, the sampling strategy seems to be robust. However, is this important? Is it necessary to compare both sites to evaluate the success of the compensatory measures? I don't think that the results of the survey that they are proposing are going to tell them that, regardless of how robust the sampling design is. Overall, the new survey should provide enough data to establish a valid statistical comparison between both sites. However, what is the rationale beyond this comparison, in relation to the success of the compensatory measures? I think this needs explanation.

My objection to the use of the data they already have - as explained on my report - is that this was methodologically flawed, and that their conclusions on the comparison of the ecological status of benthic populations on Renmore and Tawin were not supported by evidence. They can just edit and re-issue the report, removing those conclusions, if necessary.

Furthermore, this would be a costly monitoring programme (comparing Renmore and Tawin), and my opinion remains that they should focus their efforts and resources in monitoring the sites where the compensatory measures will be applied, and a reference site - a similar site in Galway Bay, that won't be subject to the management measures and the same pressures apply (tracking, grazing, fertilising, etc). And, that won't be loss to the development, so the comparison can be continued over time, if required. This shouldn't require a large amount of samples (in the reference site), certainly not as many as in the main (compensatory) site.

So, in summary, I think that whilst technically correct, the proposed sampling programme will not test the relevant hypothesis, which is 'the compensatory measures have brought about ecological improvement'. In other words, any monitoring effort should be focused on the 'questions' that need an answer. And the main 'question' is, in my opinion, 'are the compensatory measures working?'

I hope this helps, please feel welcome to get back to me if further clarifications are required. We can also talk using Skype if this would help.

Kind regards,

Daniel

Daniel Bastreri BSc CSci CMarSci MIMarEST
Director



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On 01/11/2019 18:59, Kieran Doherty wrote:

Hi Daniel,

The applicant has a query with regard to point 10 of the Board's request for clarification, please see below.

Would you be able to confirm whether you consider the proposed level of sampling to be satisfactory.

Thanks,

Kieran

From: John P Kelly (Galway) <John.Kelly@tobin.ie>

Sent: Friday 1 November 2019 15:26

To: Kieran Doherty <K.Doherty@pleanala.ie>

Subject: PA 00 33 : Galway Harbour Extension , Compensatory Measures Report / NIS : Clarifications item 10 :Extent of additional Sampling Proposed

Kieran,

Item 10 additional sampling proposed.

Brendan O Connor, Aquafact has proposed that :

4 transect lines at each of the 2 locations, Renmore and Tawin, will be sampled simultaneously.

Samples to be taken at 3 points on each of the transect lines, High, Middle and Low Water levels .

5 replica samples will be taken at each point thus generating a total of 60 samples at each location.

I would be grateful if you could confirm that extent of sampling will be deemed to be adequate.

Thank you,

John.

John P Kelly B.E. M.I.E.I.

Project Director

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2017 KPMG Property Industry Excellence Awards Winner

2017 Association of Consulting Engineers of Ireland Award Winner

2017 National Standards Authority of Ireland Award Winner



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