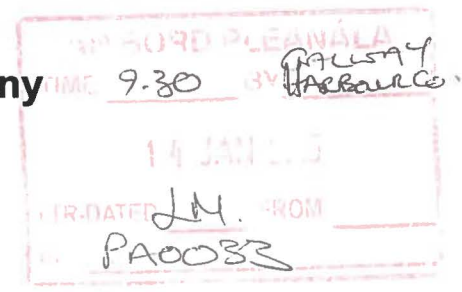




Galway Harbour Company



Galway Harbour Extension

**Response to Observations made
by
BirdWatch Ireland
to
An Bord Pleanála**

On 11th March 2014



11 BirdWatch Ireland

BirdWatch Ireland has a number of significant concerns relating to potential impacts on the wild bird interests of the area identified and makes a number of comments relating to the adequacy of the ecological assessments accompanying this application.

Significantly, the inadequacy of the Natura Impact Statement and the conclusions that are drawn without sufficient information:

- ***A single year of data is collected so as to inform the decision-making process. While IWeBS data provides essential context information, this survey is not designed to assess potential impacts or relative importance and habitat usage across a given site.***

Response:-

Waterbird monitoring of the GHE count area has been carried out through monthly counts from March 2011 – March 2012 (as presented in the EIS and NIS) in addition to October 2012 – March 2013 and from March – September 2014. The full data set is presented in Appendix 2.7 of the NIS Addendum/Errata document which was submitted as part of a response to a Request for Further Information from An Bord Pleanála. Each count involved an eight hour watch from a vantage point at the northern edge of the GHE development site. Maximum counts of all species were recorded for each 30 minute interval during these counts. Some counts also recorded bird numbers in the adjacent intertidal areas at Renmore Beach and the eastern end of Nimmo's Pier – South Park Shore. It is considered that the full data set is sufficient to characterise the birds within the GHE site.

For this assessment, the occurrence of the non-breeding SCI populations within the GHE count area has been analysed using the count data from September 2011-March 2012 and October 2012-March 2013. These periods correspond to the seasonal period normally used for assessing non-breeding waterbird populations (September-March), and can be compared with I-WeBS data for the same winters. The counts from March 2011 and 2014 have not been included, as comparisons between counts from a single month and I-WeBS data for a whole winter would not be representative.

The EIS and NIS have been updated (as part of the response to An Bord Pleanála's request for further information) to include latest I-WeBS survey of waterbirds in Ireland results (Crowe et al, 2012) and information from the most recent Birds of Conservation Concern in Ireland (Colhoun and Cummins, 2013). This information was taken into consideration as part of detailed species profiles which were prepared (Appendix 2.8 of the NIS Addendum/Errata document) by Dr. Chris Peppiatt including a detailed review of Great Northern Diver and Red-breasted Merganser, and throughout the review of the impact assessment process by Dr. Tom Gittings, which is included in Section 3.3 of the NIS Addendum/Errata document.

The Species Assessments (Appendix 3.4 of the NIS Addendum/Errata document) make extensive use of I-WeBS data, supplemented by data from the NPWS Baseline Waterbird Survey from various periods, including the most recent available. These uses include:

analyses of species distributions and habitat associations within Inner Galway Bay; examination of recent population trends to inform assessment of potential sensitivity to displacement impacts; the use of recent I-WeBS data to provide the denominator in calculations of percentage displacement.

- ***Lack of consideration of ecological needs of species particularly in extreme weather and potential impacts of the proposal on this***

Response:-

The Species Assessment (Appendix 3.4 of the NIS Addendum/Errata document) which was undertaken as part of the Response to Further Information to An Bord Pleanála included a more thorough and critical assessment of the likely levels of impacts on a species-by-species level. This included an assessment of impacts on breeding and non-breeding populations from habitat loss and degradation, disturbance, construction activities and in-combination effects, among others. The assessment, which was based on the detailed desk study, has resulted in the ability to assign more specific levels of potential impact associated with the proposed development. This information has been compiled into the EIS and NIS Addenda/Errata documents accompanying the response to An Bord Pleanála.

With regard to some of the specific points raised regarding extreme weather, relevant information has been provided below.

Extreme Weather

Extreme weather causes increased energetic demands, requiring birds to feed for longer to meet these demands. Extreme weather may also reduce the availability of food resources (e.g., frozen fields), causing increased densities of birds in the remaining available habitats. Extreme weather may also cause influxes of birds from continental regions causing increased densities of birds in the site. These factors can, potentially, cause the local population to reach, or exceed, the effective carrying capacity of the site, and cause increased mortality rates due to density-dependent processes. In addition, birds may be more susceptible to disturbance impacts in extreme weather due to the energetic costs of responding to the disturbance (when birds are already energetically stressed) and the loss of feeding time (when birds are already having difficulty meeting their food requirements).

With reference to the GHE development, there is no evidence that any of the above factors is a significant issue. The levels of displacement that will be caused by the GHE development are so small that it is not reasonable to suppose that such displacement will significantly increase densities in the remaining habitat to the extent that would be required for this displacement to contribute to increased mortality rates in extreme weather. The area around the GHE development site is already subject to high levels of disturbance, and birds using these areas will be habituated to some degree to disturbance impacts. Therefore, it is not reasonable to suppose that the birds will be so sensitive to disturbance impacts that there will be significant increases in energetic costs/loss of feeding time in extreme weather conditions.

- **Lack of assessment of cumulative impacts on the associated bird populations using the SPA**

Response:-

The Species Assessment which was undertaken as part of the Response to Further Information included a more thorough and critical assessment of the likely levels of impacts on a species-by-species level. This included an assessment of impacts on breeding and non-breeding populations, including likely in-combination and cumulative effects. These are addressed in specific detail within Sections 3.3, 3.5 and 3.6 of the NIS Addendum/Errata document. Some relevant extracts are presented below.

Historical habitat loss from the development of the Galway Harbour Enterprise Park is estimated to have caused the loss of 8.6 ha of intertidal sediments and another 7.7 ha of saltmarsh and *Scirpus maritimus* habitat.

The timing of this habitat loss is not clearly described anywhere. However, OSI orthophotography indicates that by 1995 work had commenced, but had been largely restricted to the terrestrial zones, while by 2000 the infill had been largely completed.

1.1.1 Light-bellied Brent Goose and Wigeon

The habitat loss from the development of the GHEP, in combination with the 5.9 ha remaining within the GHE site, would have amounted to 22.2 ha of potential foraging habitat. This may have provided a sufficient area for birds to remain foraging throughout the low tide period and, therefore, the potential usage of this habitat may have been significantly greater than would be implied by a simple pro-rata calculation from the numbers using the remaining habitat. Therefore, it is possible that the historical habitat loss from the development of the Galway Harbour Enterprise Park caused a measurable level of displacement. However, as the GHE development is not predicted to cause measurable displacement impacts to these species, there will be no cumulative impact from habitat loss due to the GHE development in combination with the historical habitat loss from the development of the Galway Harbour Enterprise Park.

1.1.2 Red-breasted Merganser, Great Northern Diver and Cormorant

The intertidal habitat lost from the development of the GHEP would have been available to these species on all high tides, while the saltmarsh and *Scirpus maritimus* habitat would have been available on spring high tides. However, given that the loss of 75 ha of subtidal habitat is predicted to cause displacement of 1%, or less, of the Inner Galway Bay population of these species, the loss of 16.5 ha of habitat that will only have been partially available to the species is unlikely to have caused any measurable displacement impact.

1.1.3 Grey Heron

The habitat loss from the development of the GHEP, in combination with the 5.9 ha remaining within the GHE site, would have amounted to 22.2 ha of potential foraging habitat. Based on the nature of the habitat (fucoid-dominated) and the mean occurrence of the species in the adjacent subsites OG497 and 499 (1.8 and 5.4% of the SPA count, respectively), the intertidal habitat and saltmarsh in the GHEP site is unlikely to have held significant numbers of Grey Heron. Therefore, the cumulative impact of the historical habitat loss from the development of the Galway Harbour Enterprise Park in-

combination with the projected habitat loss from the GHE development will not result in significant displacement impacts.

1.1.4 Curlew and Redshank

The intertidal habitat lost from the development of the GHEP would have been potential low tide foraging habitat, while the saltmarsh and *Scirpus maritimus* habitat may have been used as roosting habitat. Based on the nature of the habitat (fucoid-dominated) and the mean occurrence of the species in the adjacent subsites 0G497 and 499 (3.1 and 6.0% of the SPA count, respectively, for Curlew; 3.1 and 6.3% of the SPA count, respectively, for Redshank), the intertidal habitat in the GHEP site is unlikely to have held significant numbers of Curlew or Redshank, while it is likely that the saltmarsh habitat would have only been used infrequently. Therefore, the cumulative impact of the historical habitat loss from the development of the Galway Harbour Enterprise Park in-combination with the projected habitat loss from the GHE development will not result in significant displacement impacts.

1.1.5 Turnstone

The fucoid-dominated intertidal habitat lost from the development of the GHEP would have been very suitable foraging habitat for Turnstone and, in combination with the 2.1 ha remaining within the GHE site, would have amounted to 10.7 ha of foraging habitat (around 1% of the total area of fucoid-dominated biotope within the SPA). This may have provided a sufficient area for birds to remain foraging throughout the low tide period and, therefore, the potential usage of this habitat may have been significantly greater than would be implied by a simple pro-rata calculation from the numbers using the remaining habitat.

The population trend for the Inner Galway Bay Turnstone population between 1995/96 and 2007/08 was strongly positive (**Error! Reference source not found.**) and the increasing trend appears to have begun around 1990 (following a decline in the second half of the 1980s; Nairn et al., 2000). The population trend graph for Turnstone is not included in NPWS (2013a), but examination of the raw I-WeBS count data indicates that the 1995/96-2007/08 indicates that there was a fairly consistent rate of increase across most of this period. Therefore, it appears that the Inner Galway Bay Turnstone population had not reach the effective carrying capacity during this period, so any displacement impact caused by the development of the GHEP would not have had population-level consequences.

1.1.6 Black-headed Gull and Common Gull

The intertidal habitat lost from the development of the GHEP would have been potential low tide foraging habitat, while the saltmarsh and *Scirpus maritimus* habitat may have been used as roosting habitat and/or as subtidal habitat on spring high tides. Based on the mean occurrence of the species in subsite 0G497 and 499 (1.6 and 18% of the SPA count, respectively, for Black-headed Gull; 1.4 and 4.7% of the SPA count, respectively, for Common Gull), the intertidal habitat in the GHEP site is unlikely to have held significant numbers of these species, while it is likely that the saltmarsh habitat would have only been used infrequently. Therefore, the cumulative impact of the historical habitat loss from the development of the Galway Harbour Enterprise Park in-combination with the projected habitat loss from the GHE development will not result in significant displacement impacts.

1.1.7 *Sandwich Tern and Common Tern*

The intertidal habitat lost from the development of the GHEP would have been available to these species on all high tides, while the saltmarsh and *Scirpus maritimus* habitat would have been available on spring high tides. Given the small area involved, its restricted availability, and its distance from the breeding colonies¹, it is highly unlikely that the habitat lost from the development of the GHEP was ever of significant importance to this species.

- ***The lack of rationale for determining the relative importance of the specific location in question***

Response:

Additional information has been presented in the NIS Addendum/Errata document including additional count data (Appendix 2.7) and additional consideration of the ecology of the species recorded (Species Profiles in Appendix 2.8) which provide more rationale for the determination of the relative importance of the site. In addition, the Species Assessment (Appendix 3.4 of the NIS Addendum/Errata document) considers the significance of the site in terms of the overall SPA, including statistical analysis. It is considered that this presents adequate rationale for determining the relative importance of the subject site within the context of the SPA and nationally.

- ***Lack of full consideration of Mitigation measures and Alternatives in advance of IROPI considerations.***

Response:

Within the NIS and EIS documents, a selection of mitigation measures were included the prevention of significant impacts to the Natura 2000 sites, including the Inner Galway Bay SPA and its special conservation interests. A holistic approach was taken with regard to mitigation measures, taking into consideration that some broader mitigation such as protection of water quality, will mitigate impacts for various species and habitats. While perhaps not outlined specifically for birds, the following mitigation measures were proposed within the NIS and EIS to reduce or minimise impacts to bird species.

Mitigation by Design - The layout and footprint of the proposed development has evolved over the course of the design process with a view to minimising impacts on Natura 2000 sites, including the Inner Galway Bay SPA and its special conservation interests. A sensitive lighting plan to avoid lighting of the water body has been proposed and rock built sea walls on the eastern side of the development will more than replace existing rock walls to be lost. The use of textured construction material has been proposed, which will enhance settlement by algae and invertebrates, which are food sources for bird species.

Construction Methods and Timing – The proposed use of geotextiles to minimise escape of silt during construction of lagoons will ensure minimised impact on water quality and associated impacts on the SPA and its special conservation interests. Suspended solids and

¹ In the 1990s, the only known tern breeding colonies were on the southern shore of Inner Galway Bay, with the Sandwich Tern colony in Corranroo Bay (its current location) and the main Common Tern colony in Ballyvaughan Bay (no longer occupied).

dissolved oxygen, which have the potential to effect the quality of the aquatic habitat and food resources, will be monitoring as part of the Environmental Management Plan.

The Species Assessment which was undertaken included a more thorough and critical assessment of the likely levels of impacts on a species-by-species level. The assessment, which was based on the detailed desk study, included and considered species specific mitigation measures which were relevant to breeding and non-breeding populations. This information has been compiled into the EIS and NIS Addenda/Erata documents accompanying this response to An Bord Pleanála.

A summary of the relevant mitigation measures included:

Blasting and piling will not be carried out during the tern breeding seasons (01 April to 31 July, inclusive).

Pile driving and blasting will not be undertaken during the night, thus limiting the effects of noise on the marine environment, which will reduce disturbance impacts on prey species such as fish.

With particular regard to Red-breasted Merganser, Great Northern Diver and Cormorant, a RIB will quarter over and around the blast site immediately prior to blasting with the intention that any birds present will be scared away from the danger zone. Blasting will be delayed/postponed if individuals are seen in the area when blasting is scheduled. Therefore any such impact will be very unlikely. Even in the worst case scenario of such an impact occurring, given the numbers present in the area and dispersed distribution of the birds, the number of birds suffering injury would be very low and would not cause population level consequences.

In addition, the NIS Addendum/Errata document includes additional mitigation measures including Oil Contingency, Emergency and Environmental Management Plans.

With regard to Alternatives considered, the planning application for GHE includes a more comprehensive assessment of alternatives than any other project proposal in this jurisdiction.

Following extensive pre-application consultation with an Bord Pleanála the assessment of Alternatives was carried out under the requirements of Article 6(4) of the Habitats Directive which is not just confined to Alternative locations as is otherwise the case, but must include a range of Alternative Solutions which include:

- Locations
- Scale or size
- Means of meeting objectives (e.g. demand management)
- Methods of construction
- Operational methods
- Decommissioning methods at the end of the projects life
- Scheduling & timescale proposals (e.g. Seasonal working)

This assessment is contained in Chapter 3 of the EIS and an Addendum to Chapter 3 was also submitted in response to the Request for Further Information by An Bord Pleanala.

It is our view that:

- the background information provided to draw conclusions relating to impacts on Natura features is not sufficient
- the NIS exercise presented are inadequate
- the granting of consent without having completed robust assessment would not be in keeping with the EU Habitats Directive and EU Birds Directive requirements.

Response:-

It is considered that with regard to the comments made above, sufficient information has been presented as part of the original NIS and EIS and supplementary information included as a response to the Further Information Request by An Bord Pleanala to allow for an adequate and robust assessment of impacts in line with the requirements of the EU Habitats and Birds Directive Requirements.

We would welcome the opportunity to discuss the details of this submission.

Response:-

In the event that BirdWatch Ireland have additional items they would like to discuss or clarify in light of the more recent information submitted, the project team would be happy to discuss the submission in additional detail.



Galway Harbour Company

AN BORD PLEANÁLA
 TIME 9.30 BY GALWAY HARBOUR CO.
 14 JAN 2015
 IR-DATED JM. FROM
 RA0033

Galway Harbour Extension

Response to Observations made
by
BirdWatch Ireland
to
An Bord Pleanála
on

5th December 2014



BirdWatch Ireland

Based on the new information provided, our concerns still remain regarding the potential impacts on the wild bird interests of the area identified and below we have outlined those concerns in relation to the adequacy of the ecological assessments accompanying this application:

- ***While I-WeBS data provide essential context information, this survey is not designed to assess potential impacts or relative importance and habitat usage across a given site. Based on the new Bird Species Assessment information, count data across two winters at the site from a total of 13 counts (with no specific dates listed) is insufficient for measuring the likely variability in site usage over time. The assessment of the suitability of saltmarsh habitat as a potential roosting site for birds was inadequate.***
- ***Bird populations from nearby SPAs that may also use the site have not been addressed. There is a mention of species of potential interest from Lough Corrib SPA being assessed separately but this report has not yet been published and results with the new information provided are not included here.***
- ***Lack of consideration of ecological needs of species particularly in extreme weather and potential impacts of the proposed development***
- ***Location of the development compared to other areas within the SPA. The report states the site is not of significant importance for any species in comparison with other areas of the SPA. However, there is a clear lack of rationale for determining the relative importance of the specific location in question.***
- ***The likely disturbance impacts to birds and intertidal habitats will extend far beyond the footprint of the planned development area.***
- ***We understand the total area of intertidal and subtidal habitat concerned is circa c.26.9 ha. The direct loss of habitat should be fully assessed in terms of habitat type and prey availability, and knowledge about the tidal sediment regime at this location to determine whether any change in the regime would result in adverse effects on the integrity of the site as a whole is required. The integrity of individual sites and their functioning in the context of the entire Natura 2000 Network is a key objective of the Natura Directives affording this site its protection.***
- ***There remains a lack of full consideration of Mitigation measures and Alternatives in advance of IROPI considerations in this new report. There are some mitigation measures listed in new information to avoid disturbance to a common Tern colony on Rabbit Island although the bird section of the new information states the Rabbit Island colony has been abandoned in 2014 with the main colony having returned to Mutton Island.***
- ***Concerns regarding the possible significant cumulative impacts from habitat loss in combination with impacts on waterbird populations of the Inner Galway Bay SPA from other pressures, such as increased disturbance, mussel bottom culture, and other extrinsic factors such as sea-level rise and storm surge events.***

RESPONSE

USE OF I-WEBS DATA

The BWI submission states that I-WeBS data is “not designed to assess potential impacts or relative importance and habitat usage across a given site”.

In the assessment by Dr. Tom Gittings, the I-WeBS data was used for two purposes: to provide overall estimates for the total Inner Galway Bay populations of the SCI species; and, in conjunction with data from the NPWS Baseline Waterbird Survey, to carry out analyses of species distribution across subsites.

The use of I-WeBS data to provide overall population estimates is an established use of I-WeBS data. Indeed, I-WeBS data was used by NPWS to derive population estimates and population trends in the SPA Conservation Objectives Supporting Document for Inner Galway Bay.

The analyses of species distribution across subsites was initially carried out using just the data from the NPWS Baseline Waterbird Survey. This data was specifically collected to provide information on species distribution between subsites. However, because the data was collected from a single year only, and could be criticised for not being sufficiently representative, Dr. Gittings extended the analyses by incorporating I-WeBS data from the most recent five seasons available at that stage. The analyses of the data from the NPWS Baseline Waterbird Survey alone, and the combined NPWS Baseline Waterbird Survey/I-WeBS dataset, produced very similar results. Therefore, only the latter were reported (as is convention in scientific publications).

For species where these analyses showed consistent relationships between subsite distribution and relevant habitat parameters (indicating that the species tend to be relatively evenly distributed throughout suitable habitat in Inner Galway Bay), the percentage occurrence in subsites adjoining the GHE site (as calculated in the above analyses) were used to inform the assessment of historical habitat loss due to the development of the GHEP.

It is our scientific opinion that the above is an appropriate use of I-WeBS data and note that the BWI submission does not make any detailed scientific criticism of the analyses.

IMPACTS ON LOUGH CORRIB

Impacts on Lough Corrib SPA were assessed and provided in Appendix 2.9 of the NIS Addendum / Errata Document I as submitted with the response to Further Information requested by An Bord Pleanála in October 2014.

SITE COUNT DATA

The BWI submission states that “count data from across two winters at the site from a total of 13 counts (with no specific dates listed) is insufficient for measuring the likely variability in site usage over time”.

In fact, the assessment of displacement impacts used a dataset of 24 counts across two winters. It is considered sufficient to make an adequate assessment and note that this level of sampling effort is comparable to other similar assessments and scientific studies.

The 13 counts referred to is to the dataset of counts used to assess potential disturbance impacts to adjacent intertidal areas at Renmore Beach and Nimmo’s Pier-South Park Shore.

SALTMARSH HABITAT

The BWI submission states that “the assessment of saltmarsh habitat as a potential roosting site for birds was inadequate”.

This presumably refers to the discussion of the potential use of the saltmarsh that was lost in the GHEP development as a roosting habitat by Curlew, Redshank, Black-headed Gull and Common Gull.

The submission does not state in what way the assessment was inadequate. In any event it is the opinion of the project team ornithologists that the assessment of saltmarsh habitat is accurate and appropriate.

The fragmented nature of the saltmarsh habitat in the GHEP site means that it would not have been very suitable as roosting habitat. In addition, the fact that this area was never included in the regular waterbird counts that have been carried out since the early 1980s indicates that it was not regularly used by significant numbers of waterbirds.

ECOLOGICAL NEEDS

The BWI submission criticises the “lack of consideration of ecological needs of species particularly in extreme weather and potential impacts of the proposed development”.

The issue of extreme weather is dealt with in Section 7.4 of the Response to the Request for Further Information. While it is difficult in the absence of any specific complaint to know precisely the complaint being suggested here, it is considered that all relevant aspects of the “ecological needs of species” and “potential impacts of the proposed development” have been dealt with in the Response to the Request for Further Information.

LOCATION OF THE DEVELOPMENT

The BWI submission criticises the alleged “clear lack of rationale for determining the relative importance of the specific location in question”.

The assessment of potential displacement impacts, as a percentage of the overall SPA population, in Appendix 3.4 in the NIS Addendum Errata Doc. I (Oct. 14) is, in effect, a detailed analysis of the relative importance of the development site for each of the SCI species: i.e., for each species, the size of the potential displacement impact indicates the relative importance of the development site for that species.

DISTURBANCE

The BWI submission states that “the likely development impacts will extend far beyond the footprint of the planned development area”.

This is correct and Appendix 3.4 in the NIS Addendum Errata Doc. I (Oct. 14) includes detailed analysis of the potential disturbance impacts extending well outside the development footprint.

No specific scientific criticism is made of my assessment of disturbance impacts.

INTEGRITY

The BWI submission states that the “direct loss of habitat should be fully assessed in terms of habitat type and prey availability, and knowledge about the tidal sediment regime at this location to determine whether any change in the regime would result in adverse effects on the integrity of the site as a whole”.

The EIS, NIS and RFI contain detailed assessments of the potential impacts of the development on the tidal sediment regime and the conclusions of these assessments informed my decision on the likely extent and severity of habitat degradation impacts that were considered in my assessment.

MITIGATION MEASURES

Mitigation measures as outlined in the NIS and subsequent Addendum / Errata documents will be implemented.

CUMULATIVE IMPACTS

The BWI submission refers to “concerns regarding the possible significant cumulative impacts from habitat loss in combination with impacts on waterbird populations of the Inner Galway Bay SPA from other pressures, such as increased disturbance, mussel bottom culture, and other extrinsic factors such as sea-level rise and storm surge events”.

Section 4.3 of Appendix 3.4 in the NIS Addendum Errata includes a detailed analyses of potential disturbance impacts, including potential impacts arising from construction work, operational activities within the development site and shipping and boating traffic associated with the development.

The potential cumulative impacts from the GHE development in-combination with impacts from mussel bottom culture arise is dealt with in paragraphs 0-0 above.

AQUACULTURE

The Inner Galway Bay SPA: Appropriate Assessment of Aquaculture and Shellfisheries & Fisheries Risk Assessment identified that there was a potential risk of impact to Sandwich Terns and Common Terns, due to mussel bottom culture in Rinville Bay, which is within the likely core foraging range of their colonies, and occurs partly within shallow water zones where benthic fish prey would be accessible to terns. As the GHE development is not considered likely to have measurable impacts on foraging resources for the Sandwich Tern colony, there is no potential for cumulative impacts in-combination with impacts from mussel bottom culture for this species. In the case of the Common Tern, the GHE development could possibly have a measurable, but not significant, impact, so, the assessment in the aquaculture AA, raises the possibility for significant cumulative impacts in-combination with impacts from mussel bottom culture for this species.

The aquaculture AA reviewed the biotope characteristics of the mussel bottom culture plots in Rinville Bay in relation to fish survey data from Kinvarra Bay and concluded that the plots could contain suitable benthic prey resources for terns. However, this conclusion was not informed by local knowledge of the area. More specific information on Rinville Bay indicates that, in fact, the area is not likely to provide important benthic prey resources for feeding terns:

Rinville Bay is of minor value as a feeding resource for terns as the sea bed is anoxic and benthic production is therefore low. This is due to the fact that water exchange with Galway Bay is restricted due to the narrow and shallow opening to the open sea. It behaves more like a mill pond than an open mouthed bay - the tide rises and falls quite passively giving rise to low current speeds. It also acts as a sink for suspended sediments - these fall out to the sea bed at slack high water and are not exported on the following ebb tide as bottom velocities are not high enough to re-mobilise them. However, there is no reason why juvenile fish (including sand eels) cannot enter the bay giving rise to at least some source of prey items for fish-eating birds. (Brendan O'Connor, pers. comm.)

The potential impact of bottom mussel culture to prey resources to terns is limited to impacts on benthic prey. Therefore, in light of the further assessment, it can be concluded that the precautionary assessment in the aquaculture AA is incorrect and that, beyond reasonable scientific doubt, there will not be any significant impact from bottom mussel culture on benthic prey resources for terns. Therefore, no potential cumulative impacts from the GHE development in-combination with impacts from mussel bottom culture arise.



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