**Aquaculture Licences Appeals Board**

**Report of Oral Hearing Chair**

**Reference:** AP2/1-14/2015

**Title:** Appeal against the decision by the Minister for Agriculture, Food and the Marine to grant Aquaculture and Foreshore Licences to Bradán Fanad Teo t/a Marine Harvest Ireland, on site Ref: T05/555 for the cultivation of Atlantic Salmon on a site on the foreshore at Shot Head, Bantry Bay, Co Cork

**Location:** West Lodge Hotel, Bantry, Co. Cork

**Appellants:** Save Bantry Bay; Residents of Roosk, Adrigole; John Brendan O’Keeffe; Denis, Kieran and Jason O’Shea; Bantry Salmon & Trout Anglers Association; Marine Harvest Ireland; Harrington/O’Sullivan/Murphy/Forker; Coomhola Salmon & Trout Anglers Association; Galway Bay Against Salmon Cages; Salmon Watch Ireland; John Hunt; Friends of the Irish Environment; Inland Fisheries; Federation of Irish Salmon & Seatrout Anglers

**Date of Oral Hearing:** 14/15 February and 19/20 September 2017

**Chair:** Prof Owen McIntyre, Aquaculture Licences Appeals Board

(School of Law, University College Cork)

8th November, 2017**1. Introduction**

This appeal under section 40(1) of the Fisheries (Amendment) Act 1997 concerning the grant of an aquaculture licence to Bradan Fanad Teo. t/a Marine Harvest Ireland, in respect of a salmon farm at Shot Head, Bantry Bay involves 14 Appellants – 13 Appellants objecting to the grant of the licence and one Appellant, the Licensee, requesting amendment of licence conditions relating to production limits and to harvesting periods, and removal of conditions relating to dimensions and spatial arrangement of the fish pens and feeding barge and to protection of underwater archaeology. The 13 Appellants objecting to the licence raise a wide range of substantive and procedural grounds in support of their appeal.[[1]](#footnote-1)

Consistent with section 49 of the Fisheries (Amendment) Act 1997, three of the Appellants requested an oral hearing and, due to the scientific complexity of the issues raised in this Appeal and the public importance of its outcome, the Board decided to hold an oral hearing in order to benefit from the participation of the key stakeholders and from having the relevant technical submissions presented and examined. In particular, the Board required clarity regarding the following issues:

1. The nature of the risk posed by the licensed aquaculture facility to wild salmonids in the Dromagowlane and Trafask Rivers;
2. Any associated impact on the freshwater pearl mussel populations in the Dromagowlane and Trafask Rivers; and
3. The robustness of the Licensee’s Integrated Pest Management Plan and Single Bay Management Plan.

Under section 61 of the 1997 Act, the Board is required to take account, as appropriate, of a range of factors, including:

* the suitability of the place or waters in question;
* other beneficial uses of the place or waters concerned;
* the likely effects of the proposed aquaculture on the local economy; and
* the likely environmental or ecological effects of the proposed aquaculture.

Under section 40(4) of the 1997 Act, the Board shall determine an appeal by:

1. confirming the decision or action of the Minister;
2. determining the application for the licence as if the application had been made to the Board in the first instance; or
3. in relation to the revocation or amendment of a licence, substituting its decision on the matter for that of the Minister.

In accordance with section 59 of the 1997 Act, the present report has been prepared and submitted to the Board for its consideration in advance of its determination of the present Appeal.

**2. Background**

The Licensee, Marine Harvest Ireland (MHI), is an established operator of salmon farms throughout Ireland and is Ireland’s largest producer of farmed salmon.[[2]](#footnote-2) The company operates existing salmon farming facilities in Bantry Bay at Ahabeg and Roancarraig, which it proposes to operate in conjunction with the proposed facility with a view to ‘enabling improved rotation of the fish crop and creating a world-class operation in the Beara Peninsula which will secure the long-term future of the aquaculture industry in the area’.[[3]](#footnote-3) The present aquaculture licence permits biennial production of 3,500 tonnes of farmed salmon over a 24 month production cycle, with harvesting over a six month period between months 17 and 22 inclusive, with the final two months providing a fallowing period prior to re-stocking. The licence stipulates that the facility shall comprise 12 circular cages of 128m circumference / 41m diameter each, and arranged in two rows of six cages. The facility is also licenced to include a single feed barge located along the northern side of the cage grid. All floating structures and associated moorings and anchors are to be located within the boundaries of the licensed site area.

Grounds of Appeal

The 13 objecting Appellants raise a wide and diverse of grounds on which they base their respective appeals. The key grounds of appeals include:

* the limited carrying capacity of the bay;
* the inadequacy of the EIA / EIS, including failure to address cumulative impacts;
* threats to wild salmon stocks from sea lice and from escaped farm fish;
* the unsuitability of the site;
* nutrient discharges;
* toxic chemical pollution from pesticide use;
* impacts on vulnerable protected species and habitats;
* impacts on shellfish culture;
* impacts on inshore fisheries;
* impacts on amenities and tourism, including angling;
* inadequate public consultation;
* the threat posed to navigation;
* inadequate licence conditions, regarding the production schedule, fallowing period and Synchronised Bay Management;
* noise impacts;
* inadequate disease control;
* the general sustainability of the salmon farming industry, including the production of farm feed, the industry’s contribution to climate change and impacts on wild salmon stocks globally; and
* the poor compliance record of the Licensee;

The objecting Appellants also raise a number of general concerns and criticisms which are not relevant to determination of this appeal and will not be considered further. These include:

* structural deficiencies in the aquaculture licensing process, including inherent conflicts of interest;
* the risks posed to human health by consumption of farmed salmon;
* a lack of effective regulation of the salmon farming industry in Ireland; and
* the lack of a SEA for relevant Government policy initiatives; and
* the lack of a Co-ordinated Local Area Management Scheme (CLAMS).

Submissions Received Pursuant to Section 44 of the Fisheries (Amendment) Act 1997

Neither the Minister nor any officials of the Department of Agriculture, Food and the Marine made submissions or observations in writing to the Board within one month of the date on which a copy of the notice of appeal was sent out, as provided for under section 44(2) of the Fisheries (Amendment) Act 1997.

The Licensee, though an Appellant in respect of certain licence conditions (Appellant 6), made submissions under section 44(2) in its role as respondent to the submissions of the 13 objecting Appellants, seeking to address the key grounds of appeal raised thereby. For example, regarding public consultation the Licensee contends that it had satisfied all public consultation requirements by circulating all application documents to the list of Statutory Consultees supplied by the Department of Agriculture, Fisheries and the Marine (DAFM) and to other interested actors. It also points out that the licence application was publicised in the press (two local and one national newspaper) and that all relevant documentation was made available on the MHI website. Similarly, regarding pollution impacts the Licensee argues that the models and data submitted to inform evaluation of the hydrographic regime and dissipation rates surpassed any previous licence application, and also submitted details of a further study, incorporating updated hydrographical modelling techniques. The Licensee notes the 5km proximity to Shot Head of the closest haul-out site for common seals (*Phoca vitulina*), a qualifying species in respect of the Glengarriff Harbour and Woodland SAC, and adds that it may be necessary to assess the requirement for anti-predator nets or acoustic deterrents. Regarding impacts on wild salmonids, the Licensee points out the historical decline in wild salmon populations in Bantry Bay rivers prior to the arrival of the salmon farming industry, but also contends that the location of the Shot Head facility minimised the risk of interaction between wild and farmed salmon at that disease and lice control methods further reduce risks associated with such interaction. In addition, the Licensee refuted the objecting Appellants’ concerns regarding its compliance and operation record, highlighting MHIs various achievements, awards and certifications and emphasising that international environmental and sustainability standards will be applied to the Shot Head facility.

In turn, several of the objecting Appellants made submissions under section 44(2) regarding the Licensee’s appeal in respect of certain licence conditions. These included submissions from:

* Save Bantry Bay (Appellant 1);
* John Brendan O’Keefe (Appellant 3);
* Denis, Kieran and Jason O’Shea (Appellant 4); and
* Salmon Watch Ireland (Appellant 10).

These submissions related to the requested name change on the aquaculture and foreshore licences, the requested relaxation of the stocking and harvesting schedule, the requested change of production limits from a harvested weight basis to a Maximum Allowable Biomass (MAB) basis, the licence’s flexibility in the selection of appropriate pen and mooring technology, and the failure to consider the Dromagowlane River in the EIS.

Submissions Received Pursuant to Section 47 of the Fisheries (Amendment) Act 1997

ON 6 October 2016, the Board requested further information from several parties pursuant to section 47 of the 1997 Act and the following responses were received and made available on the ALAB website:[[4]](#footnote-4)

* Response received from Inland Fisheries Ireland, 19 October 2016, and supplemental response received, 6 September 2017;
* Response received from Marine Harvest Ireland, 3 November 2016 and 18 November 2016;
* Response received from Marine Institute, 9 November 2016 and 12 December 2016;
* Response received from National Parks and Wildlife Service, 17 November 2016.

Technical Reports

The key technical report which has informed the conduct of the Oral Hearing is ALAB Technical Advisor’s Interim Report,[[5]](#footnote-5) which examines in detail the context of the licence area and advises the Board as regards possible application of section 61 of the Fisheries (Amendment) Act 1997, which sets out the matters to which ALAB shall have regard in determining the appeal.[[6]](#footnote-6) ALAB’s Technical Advisor also provides a detailed evaluation of the key grounds of appeal raised by the objecting Appellants and of the submissions and observations received,[[7]](#footnote-7) as well as detailed recommendations to guide the Board in its determination.[[8]](#footnote-8)

Taking account of the categorisation of the proposed Shot Head project as an Annex II project under the EIA Directive, the Technical Advisor’s Interim Report takes the view that it will not have significant effects on the environment by virtue of, *inter alia,* its nature, size or location and, thus, that it should not be subject to an environmental impact assessment pursuant to the requirement under the applicable Regulations.[[9]](#footnote-9) In addition, in light of the screening and detailed evaluation of *Natura* interests in the original EIA documentation, the Technical Advisor’s Interim Report concludes that the proposed fish farm is unlikely to have any deleterious effect, either individually, or in combination with other plans or projects, on the qualifying features of any of the designated sites within Bantry Bay or the surrounding area.[[10]](#footnote-10)

**3. Oral Hearing**

The Oral Hearing took place over four days, commencing on 14-15 February 2017 and concluding on 19-20 September 2017. The proceedings in February were adjourned due to an accidental omission to circulate to all parties with details of a further study conducted on behalf of MHI, incorporating updated results from a calibrated hydrodynamic modelling exercise, which was considered relevant to the conduct of the Oral Hearing and of the appeal. This modelling exercise had only commenced at the time of the preparation of the EIS and has only recently been perfected. Therefore, these results were not included in the EIS or submitted in the course of the original licence application. The adjourned Oral Hearing was reconvened and concluded in September. Therefore, the present report seeks to summarise, without distinction, evidence heard during the course of the entire four days. It does not seek to recount evidence received from participants in chronological order but, instead, arranges such evidence in accordance with the particular matters examined at the Oral Hearing to which the Board shall have regard in determining the present appeal(s) under section 61 of the Fisheries (Amendment) Act 1997. Such matters relevant to determination of the present appeal(s) include:

* the suitability of the place or waters in question / other beneficial uses of the place or waters concerned / the likely effects of the proposed aquaculture on the local economy; and
* the likely environmental or ecological effects of the proposed aquaculture.

The Oral Hearing commenced with an introduction by the Chair setting out the purposes of an Oral Hearing held under section 49 of the Fisheries (amendment) Act 1997, and in particular the three key issues on which the Board was seeking further clarity:

1. The nature of the risk posed by the licensed aquaculture facility to wild salmonids in the Dromagowlane and Trafask Rivers;
2. Any associated impact on the freshwater pearl mussel populations in the Dromagowlane and Trafask Rivers; and
3. The robustness of the Licensee’s Integrated Pest Management Plan and Single Bay Management Plan.

The Chair also introduced the matters to which the Board is required to have regard in determining the Appeal under section 61 of the 1997 Act, and the types of determination which the Board may make under section 40(4) of the 1997 Act. The Chair further outlined the format that the Oral Hearing would follow, the process for reporting back to the Board from the Oral Hearing, and the process which the Board would follow in making its final determination of the Appeal.

On behalf of the Department of Agriculture, Food and the Marine (DAFM), Mr John Quinlan explained that the Department remains satisfied that the Minister’s decision to grant the present aquaculture licence was evidence-based and considered, that all relevant documents have been made available in the public domain and, consequently, that the Department has concluded its work in this matter.

Suitability of the Place / Other Beneficial Uses / Likely Effects on Local Economy

In response to concerns raised regarding the adverse impact of the Shot Head salmon farm on local tourism and inshore fishing, Dr Neil Bass pointed out, on behalf of MHI, that the company has operated in Co. Donegal since 1979, and that in various parts of the western seaboard it has made a very significant contribution to local rural communities as an indigenous industry and source of local livelihoods.

*Tourism and Inshore Fisheries:*

On behalf of the residents of Roosk, Ms. Breda O’Sullivan expressed dissatisfaction with inadequate communication with local people about the project and concern regarding the impact of the fish farm on local tourism, and on the viability of local holiday cottages, from where the facility would be visible.

Regarding the Appellants’ claim of inadequate public consultation, Ms Catherine McManus explained on behalf of MHI that they undertook a comprehensive scoping exercise despite the lack of any such requirement in the Fisheries (Amendment) Act 1997,[[11]](#footnote-11) and that they consulted over 60 stakeholder groups, statutory consultees and individuals, including such bodies as Tourism Ireland. She noted that all relevant information and documents are available on the MHI website, which shows that MHI has tried to address all the issues raised by the objecting Appellants.

Mr Kieran O’Shea disputed this account, stating that the licensed inshore fishermen operating in the area had neither been informed of the project nor had they been invited to participate in any approval process.

Mr Kieran O’Shea, a local fisherman, expressed the view that the various studies conducted to date do not reflect the impacts on fishing activities carried out in the vicinity of the proposed site, where the six fishermen currently operating three fishing boats stand to lose 15 percent of the available fishing grounds in Bantry Bay. The site of the proposed fish farm is abundant in *Nephrops* and this fishery would be lost. He also explained that several species of crustacean are fished at the licence site during the Summer season. Appellants also expressed concern that sea-lice treatments such as ‘Slice’ (emamectin benzoate – EmBz) and ‘Alpha-Max’ (Deltamethrin) are toxic to crustaceans and would bio-accumulate in benthic communities and, further, that the likely treatment times would coincide with shrimp spawning. These problems might be exacerbated by the possibility of resistance to treatment emerging, and by any increase from 12 to 18 in the number of cages located at the site.

On behalf of the Licensee, Dr Neil Bass agreed that much of the site is situated over sand and gravel which would be suitable for fishing crustaceans. However, he also pointed out that there are further potting grounds to the south of the site and further eastwards in Bantry Bay and that the site would only reduce the fishing are of Bantry Bay by 0.5 percent. He suggested that closer cooperation between the fish farm and local fishermen could permit potting in the vicinity of the site.

Likely Environmental or Ecological Effects

*Threats to Wild Salmon and Trout Stocks:*

Representing the Coomhola Salmon and Trout Anglers Association, Mr Mark Boyden expressed concern that escaping farmed salmon might result in breach of SI 443/2005.[[12]](#footnote-12)

On behalf of Salmon Watch Ireland, Mr Peadar Ó Maolain BL expressed concern about the lack of binding measures to control any infestation of sea-lice and a failure adequately to address this problem in the technical documentation. He emphasised that consequential risks to wild salmonids also endangers local freshwater pearl mussel (*Margaritifera margaritifera*) populations in the Dromagowlane River, due to these species’ symbiotic relationship. He pointed out that, though the freshwater pearl mussel is not a species of interest in respect of the Glengarriff Harbour and Woodland SAC located 9.8km from the licence site, it is listed in both Annex II and Annex IV of the EU Habitats Directive,[[13]](#footnote-13) thus requiring effective protection.[[14]](#footnote-14) [Though in fact the freshwater pearl mussel is listed under Annex II and Annex V.[[15]](#footnote-15)] Mr Ó Maolain considered the contention that brown trout could substitute for salmon as hosts for breeding freshwater pearl mussels to be speculative having regard to the best available scientific knowledge, and unproven having regard to the (purported) judicial requirement to establish beyond any reasonable scientific doubt that there would be no detrimental effect upon such protected species. Mr Ó Maolain further argued that cumulative impacts of this and other fish farms upon freshwater pearl mussel populations in the Bantry Bay area ought to be considered. He also suggested that, due to considerable scientific uncertainty in this area, the precautionary principle, which informs every aspect of the EU Habitats Directive, requires that due consideration of opposing, even minority, scientific views must not be omitted. In this regard he pointed to conflicting peer-reviewed research publications suggesting the vulnerability of sea trout in the vicinity of salmon farm cages. Mr Ó Maolain also expressed concern regarding problems in compelling fish farm operators to disclose details of their operations, due to the commercial sensitivity claimed for such information, and regarding weaknesses in the Single Bay Management System. More generally, he complained that a failure properly to transpose the access to justice requirements of EU environmental law severely restricts the Appellants ability to participate in proceedings such as the present Oral Hearing.

On behalf of Appellant Mr John Hunt, Mr Paddy Ger O’Sullivan, a retired NPWS South-Western Regional Manager, pointed out that Ireland has the world’s best population of freshwater pearl mussels and that this is the most ecologically important species occurring naturally in Ireland. While five rivers in the Bantry Bay area host populations, he explained that rivers such as the Dumagowlane are spate rivers from which water runs off very quickly, so that most salmonids enter for a short time to spawn before returning to Bantry Bay to swim around, making them highly vulnerable to sea-lice infestation from salmon farms. This is particularly the case as salmonids can be very curious and may be attracted to farm cages. There is a particular risk of sea-lice infestation of salmonids from the Adrigole River, which must swim between two salmon farms. He also pointed out that the decline in the brown trout populations in these rivers has been dramatic and may be due to disease, and in particular ulcerative dermal necrosis (UDN), which has been linked to salmon farms. Brown trout in spate rivers are particularly susceptible to such diseases as they must remain in shallow water for lengthy periods. In addition, Mr O’Sullivan suggested that studies on white eagles in the area suggest contamination of bottom-feeding species of fish and crustaceans due to waste from salmon farms.

Representing Friends of the Irish Environment (FoIE), Mr Tony Lowes expressed concern regarding the fairness and objectivity of the aquaculture licensing procedure due to DAFM’s conflict of interest in regulating aquaculture activity whilst promoting the industry. More specifically, he pointed out that inspections of MHI sites have routinely found evidence of overstocking and that DAFM have failed to take appropriate action. For example, a Departmental inspection conducted at MHI’s Lough Altan hatchery facility in Co. Donegal on 4th December 2015 found that written records showed that the site had produced 2.936 million smolts, despite being subject to a licence condition requiring that ‘the annual production of salmon smolts shall not exceed 2.5 million smolts’ – an excess of 0.436 million smolts or 17.5 percent. In relation to this site, Donegal Co. Co. had advised DAFM that the Licence Holder has ‘been consistently in breach of their [effluent] discharge licence conditions, especially in the 2nd half of the year, when fish biomass reaches a certain critical point’ and, further, that Council officials

‘have persistently asked them [MHI] for an action plan which address this, (including moving fish from the site earlier in the cycle), but they have cited economic reasons for not implementing the scale of treatment facilities which their current production rates would demand in order to achieve compliance’.[[16]](#footnote-16)

However, both the Secretary General[[17]](#footnote-17) and Assistant Secretary General[[18]](#footnote-18) of DAFM advised, contrary to the advice of Departmental officials,[[19]](#footnote-19) against revocation of MHI’s aquaculture licence.[[20]](#footnote-20) Despite the aquaculture licence expressly requiring compliance with the effluent discharge licence,[[21]](#footnote-21) the Secretary General and Assistant Secretary General merely recommended amendment of the licence when it came due for renewal to include ‘stronger and clearer provisions and definitions’.[[22]](#footnote-22) Similarly, an inspection of a facility operated by MHI (Silver King Seafood Ltd) at Inishfanard, Beara, Co. Cork[[23]](#footnote-23) in June 2015 found significant overstocking, with 820.604 smolts inputted to the site in March 2014 in breach of a stocking limit of 400,000 smolts[[24]](#footnote-24) – an excess of 420, 604 (or 105 percent). Despite the recommendation of Departmental officials that the Licensee’s entitlement under section 19(A)(4) to continue aquaculture operations be discontinued,[[25]](#footnote-25) both the Assistant Secretary General[[26]](#footnote-26) and the Secretary General[[27]](#footnote-27) recommended against removing the Licensee’s entitlement to operate, recommending instead to amend the relevant licence conditions. FoIE cited these incidents as evidence of a lack of functional separation of DAFM’s dual role in both regulating and promoting the aquaculture industry, and as proof that the Licensee is not fit to hold an aquaculture licence.

On behalf of FoIE Ms Caroline Lewis challenged MHI’s allegedly ‘simplistic’ characterisation of tidal flows within Bantry Bay and contended that, in some conditions, tidal flows will transport pollutants, pathogens and sea-lice from Shot Head into the inner bay, presenting a risk to protected species and habitats. She also noted the emergence in Scotland and Norway of resistance to sea-lice treatments and expressed concern that MHI exacerbate this problem by the practice of treating fish before the sea-lice trigger level is reached. She was also concerned that MHI treats fish in advance of Marine Institute inspections, and so there is no reliable data on the prevalence of sea-lice infestation. Ms Lewis suggested, therefore, that contained systems of fish farming are the only sustainable option.

On behalf of Inland Fisheries Ireland (IFI), Dr Paddy Gargan expressed concern that the EIS was inadequate regarding the impact of sea-lice on salmon and trout stocks, particularly in terms of its failure to consider the full body of relevant scientific literature on the topic – a shortcoming acknowledged in the Technical Expert’s Interim Report. In addition, the issue of escapes of farmed salmon is not adequately addressed, particularly in light of the escape of 230,000 farmed salmon in Bantry Bay in 2014. He referred to two Norwegian studies (Tarringer, 2014; Torstad, 2015) reviewing the impacts relation to sea-lice and farmed salmon escapes - the latter suggesting that wild salmon returns might be reduced by as much as 39 percent. Dr Gargan also referred to an influential 2016 study by the International Council for the Exploration of the Sea (ICES) on the possible effects of salmonid aquaculture on wild Atlantic salmon populations in the north Atlantic.

Dr Gargan further pointed out that, though the local salmon rivers potentially affected by the proposed facility are not protected under SAC designation, they still enjoy protection under the EU Habitats Directive. In fact, only 40 of 141 salmon rivers in Ireland are included within SACs, but due consideration is given to protection of all salmon populations across their natural range. [However, as wild salmon (*Salmo salar*) is protected under Annex II and Annex V, outside of an SAC it is only protected against indiscriminate capture or killing (and only in freshwater) under Article 15 of the Habitats Directive.]

Finally, he argued that the timing of the production cycle proposed for the facility, with peak biomass achieved in February / March of every second year and harvesting starting in March and continuing for a six-month period, runs counter to all the principles of single bay management and CLAMS. He points out that fully grown fish are unlikely to undergo sea-lice treatment prior to harvesting, at the very time that wild salmon and sea trout smolts are heading to sea, thereby increasing the risk of cross-infestation. Dr Gargan recommends that best practice would require that fish farming within Bantry Bay is managed as a single bay area and that all sites should be stocked together in March, rather than October, in order to ensure that they are not due to be harvested when wild are heading to sea.

On behalf of the Federation of Irish Salmon and Sea Trout Anglers (FISSTA), Mr Noel Carr supported the calls of a number of objecting Appellants (FoIE and Save Bantry Bay) that an incident report(s) into a large-scale escape of farmed salmon in Bantry Bay be immediately made available by DAFM.

In addition, he described the deteriorating state of Irish wild salmon and trout stocks and habitats and highlighted the particular problem of sea-lice infestation and that of gill disease linked to rising water temperatures. While he conceded that fish farming is not the sole cause of such deterioration, he claimed that it is a significant cause. He expressed concern, not only about the impacts of the present licence, but also about its implications for 45 other sites identified as potential offshore aquaculture sites in the recent Next Steps report from the Marine Institute. Mr Carr also cited ICES research showing that salmon farms increase the abundance of sea-lice and the incidence of sea-lice infestations of wild salmonids, particularly post-smolts during the early period of marine migration. He cited international research demonstrating the scale of the potential impact of sea-lice on the number of wild salmonids surviving to return to rivers to spawn. He also highlighted the risk of genetic contamination of wild salmonid stocks by escaped farmed salmon. For this reason FISSTA urges the phasing out of the use of open net systems in estuarial or marine settings, and use instead of closed containment systems.

On behalf of Galway Bay Against Salmon Cages, Mr Brian Curren objected to the limited coverage of the EIA study, which fails to include possible impacts upon the Dromagowlane River, and to DAFM’s failure to release the incident report(s) relating to the major escape of farmed salmon in Bantry Bay.

He also highlighted recent research linking salmon farms with sea-lice infestation of wild salmonid stocks and the related impact on local populations of freshwater pearl mussels. He asked how one can prevent juvenile wild salmon from approaching or entering farm cages. He also questioned why the Oral Hearing was concerning itself with the single bay management plan (SBMP) as no SBMP or CLAMS exists for Bantry Bay, and as MHI are not enthusiastic about adopting one.

Regarding the risk presented to wild salmon stocks due to sea-lice dispersal in Bantry Bay, Dr Neil Bass explained that the assessment model employed by MHI examined the worst case scenario -at peak fish levels, assuming no natural predation, in Spring when sea-lice concentrations are highest (*i.e.* when host salmonids are most populous) – yet it predicted a background concentration of 0.0001 sea-lice copapods per cubic metre.

Appellants raised a number of doubts concerning the accuracy of the sea-lice dispersal model employed, including the fact that it didn’t take account of the vertical movement of sea-lice in the water column, or that seal-lice can swim over short distances, a lack of cumulative modelling of all fish farm related sea-lice plumes in Bantry Bay, and the fact that wild salmon tend to migrate along the northern shore of Bantry Bay placing them at greater risk of infestation.

Dr Bass stressed that, unlike Norwegian Fjords (about which research studies were cited by Appellants), Bantry Bay is open sea with huge volumes of water flushing the bay, that sea-lice cannot possibly travel between Shot Head and other salmon farms (a distance of over 8km), and that there is little evidence of salmon farm interaction with wild salmon stocks in local rivers. On the latter point, he pointed out that salmon farming has been practiced in Bantry Bay for 40 years, during which time the industry has experienced a steep ‘learning curve’ as regards good farming practice.

Mr Noel Carr of FISSTA put it to Dr Bass that the Norwegian salmon farming insustry has now abandoned open-pen technology in favour of contained systems, but Dr Bass disputed this claim. Mr Carr argued that Ireland should aim to catch up with international developments in salmon farming, such as the Norwegian industry’s commitmet to being completely sea lice free by 2022, rather than relying on “last century’s technology”. Mr Carr also raised concerns about the significant risk of anaemic gill disease (AGD), which has not been addressed.

Mr John Murphy of Salmon Watch Ireland asked why *caligus elongates* was not modelled and whether MHI treat fish for *caligus elongates* infestation. Dr Bass replied that NHI treat for all parasites.

On the basis of the hydrographic evidence presented by Dr Neil Bass, Mr Alan Doyle and Mr Peadar Ó Maolain expressed concern, in the light of the concerns of Inland Fisheries Ireland and related academic research,[[28]](#footnote-28) regarding an increased risk of sea-lice infestation of wild salmon in the nearby estuaries of the Trafask and Dromagowlane Rivers due to the proposed salmon farm at Shot Head. Dr Bass countered that no published research established a decline greater than 2 percent in annual returns of wild salmon due to sea lice infestation, and even then that such infestation might not be related to any fish farm.

On behalf of DAFM and the Marine Institute, Dr David Jackson advised the Oral Hearing that neither the Dromagowlane nor Trafask Rivers were identified as salmon rivers in the comprehensive salmon stock assessment and conservation programme operating since 2007. Neither has either river been specified as closed to salmon and trout fishing in the annual statutory instruments in respect of angling. In addition, neither river was among the 261 identified in a 2003 study as holding biologically significant salmon and/or sea trout populations. While Dr Jackson acknowledged (anecdotal) evidence of brown trout populations, he explained that these non-migratory salmonids will not be exposed to sea-lice or otherwise impacted by the proposed salmon farm.

As regards the risks to wild salmon from sea lice infestation, Dr Jackson cited recent research which concludes that lice-induced mortality in wild salmon post-smolts is in the order of 1 percent.[[29]](#footnote-29) He concluded generally that there is no correlation between the presence of aquaculture and the performance of adjacent wild salmon stocks.

Regarding the robustness of the Licensee’s Integrated Pest Management Plan / Single Bay Management Plan, Dr Jackson noted that the National Sea Lice Monitoring and Control programme has witnessed a steady and sustained improvement in sea lice control since introduction of the new pest management strategy in 2008,[[30]](#footnote-30) which promotes a more strategic approach to sea lice control at bay level and the targeting of efforts on the Spring period when there is potential for impacting wild smolts embarking on their outward migration. Dr Jackson concluded that the pest management plan submitted by the Licensee dated 26 October 2016 is an appropriate and workable plan in line with established practice in the region, and that it fully meets the conditions of the single bay management (SBM) process.

On behalf of Galway Bay Against Salmon Cages, Mr Brian Curren expressed concern that there exists inadequate knowledge regarding, *inter alia*, the number of wild salmonids in Bantry Bay, the risks posed to farmed salmon from jellyfish, the possible impacts of planned kelp harvesting activities on fish stocks and the management of wastes, and the effects of pesticides on crustaceans. He suggested that further research is required on a wide range of environmental matters. He also expressed concern that measures in relation to anaemic gill disease (AGD) are not included in the pest management plan, and that there are no measures for effective management of farmed salmon escapes, for example through the use of micro-tags. Finally, he expressed concern regarding failures on the part of DAFM to control overstocking and to apply dissuasive penalties where overstocking was discovered.

On behalf of Salmon Watch Ireland, Mr Peadar Ó Maolain BL pointed out that the salmon farm at Shot Head would create a greatly increased reservoir of sea lice, resulting in plumes of sea lice copapods which would make their way to nearby estuaries so that outgoing or returning salmonids would have to swim through the plume risking transfer and infestation. He expressed concern regarding the Shot Head facility’s contribution to the cumulative impact of sea lice in combination with other fish farms. He was also concerned that the risk of AGD was not properly assessed, and that this disease could further weaken local populations of wild salmonids. He expressed concern that the above risks to salmonids threaten the local populations of freshwater pearl mussels.

On behalf of FoIE, Ms Caroline Lewis also referred to scientific research suggesting that sea lice copapods congregate in estuaries.

On behalf of An Taisce, Mr Alan Doyle argued that the sea lice plumes do not necessarily need to reach the estuaries of the Dromagowlane and Trafask Rivers, as the fish will come to the cages. Young salmon migrating out to sea will pass by the cages and may be attracted by excess feed. In addition, brown trout will occasionally venture out from these rivers, especially as these are spate rivers with few if any holding pools for fish, before returning with transferred sea lice. He raised further concerns regarding well boat discharges in the vicinity of the licence site, which presents a risk of discharging live sea lice after washing, which might invalidate the results of the sea lice dispersal modelling.

Representatives of FISSTA and Salmon Watch Ireland questioned whether farmed salmon will be treated for other diseases, such as anaemic gill disease (AGD), which threaten wild salmon stocks.

*Nature Conservation (Habitats and Species Protection):*

On behalf of An Taisce, Mr Alan Doyle raised a number of concerns regarding the fairness, objectivity and accessibility of both the aquaculture licensing procedure and appeals procedure, as well as a range of substantive reasons why the appeal(s) against the grant of the present licence ought to be upheld. Having regard to the Glengarriff Harbour and Woodland SAC, Mr Doyle argued that Art. 6(1) of the Habitats Directive requires Member States to put in place the necessary conservation measures for protection of Annex II species present on the site, including salmon naturally ranging into the SAC. Also, Art 6(3) requires that an “appropriate assessment” (AA) should consider not only the conservation objectives of the SAC but also Annex II species present on the site, such as salmon. He argued that smolts heading out to sea from Glengarriff might come into close proximity of the Shot Head facility, thereby being exposed to danger of sea-lice infestation, and that it is not possible to prove beyond reasonable scientific doubt that this would not adversely affect the “integrity” of the SAC. He also suggested that the proposed fish farm might have a negative impact on the salmon population of Bantry Bay more generally, which could indirectly effect species protected under the Glengarriff SAC, such as otters, which depend on the salmon population throughout the bay. Once again, this could not be discounted beyond reasonable scientific doubt, as required under the jurisprudence of the ECJ/CJEU. He also argued that the light trigger normally employed for AA screening had not been considered.

Mr Doyle also pointed out that the Drumagowlane River contains two significant [Annex V] protected species, salmon and freshwater pearl mussel, and is likely to contain Annex IV species, such as otters, which would be entitled to strict protection under Art 12 of the EU Habitats Directive, including the avoidance of accidental disturbance of these species. Though no AA is required in the absence of designation as an SAC, under the EIA Directive the EIA conducted must consider any accidental disturbance of protected species, thereby creating a proactive duty to identify any such impact, *e.g.* by means of an otter survey.

Regarding the adequacy of any EIA and AA more generally, Mr Doyle pointed out the lack of up-to-date and comprehensive baseline data regarding migratory wild salmonids.

Regarding the freshwater pearl mussel, which is a protected under the Annex V of the Habitats Directive, he suggested that the population in the Dromagowlane River does not enjoy “favourable conservation status”, but is in decline as there is no evidence of recruitment in 30 years. He contended that the EIA should have identified the likely impact of the project on the Dromagowlane River by collecting and evaluating the relevant data.

On behalf of the National Parks and Wildlife Service (NPWS), Dr Jervis Good confirmed that a population of freshwater pearl mussels exists in both the Dromagowlane and Trafask Rivers and that the condition of both rivers is above normal. He also explained that the principal conservation issue is that of phosphate contamination of waters and siltation and that there exists little evidence to date that salmon production has impacted freshwater pearl mussels locally. He further explained that it is a difficult habitat to protect as this would require phosphate controls across the entire catchment. He characterised the Dromagowlane population as an important one as low levels of intensive forestry and agriculture in the catchment would make it relatively easy to take measures for freshwater pearl mussel conservation. Therefore, smaller rivers, which might not be designated for protection as SACs may have a particularly significant role to play in freshwater pearl mussel conservation.

Dr Good confirmed that a reduction in wild salmonids will have a detrimental impact as the mussel’s long-term survival depends on a host population of salmonids. He suggested that migratory trout might be the more important host, due to their better health and dynamism. He cited a Scottish study showing that fish farming, in combination with other adverse impacts, could have a cumulative effect on wild fish hosts. This study (Sarah Lineres *et al*, 2015) suggests that salmon farms should be located a minimum distance of 30km from salmon rivers. Dr Good concluded that detrimental effects of sea-lice on wild salmon populations cannot be ruled out and should be dealt with in the EIS.

In the light of Dr Bass’s presentation of the results of the RPS/Watermark hydrographic modelling, Appellants raised continuing concerns that the populations of freshwater pearl mussels in five rivers which drain into Bantry Bay might face a threat due to a reduction in returning wild salmonids. In response, Dr Neil Bass suggested that indigenous brown trout populations in these rivers might play a key role in hosting reproducing freshwater pearl mussels, but Appellants suggested that, under the EU Habitats Directive, a lack of adverse impact upon such protected species must be established beyond reasonable doubt.[[31]](#footnote-31)

On behalf of DAFM and the Marine Institute, Dr David Jackson advised the Oral Hearing that previous studies carried out by the National Parks and Wildlife Service (NPWS) provide overwhelming evidence that declines in the freshwater pearl mussel populations have been caused by sedimentation and eutrophication of juvenile and adult mussel habitats. In support of this conclusion, he points out that the 2009 Freshwater Pearl Mussel Sub-Basin Management Plans[[32]](#footnote-32) identified 27 populations, of which 26 were found to be in an unfavourable conservation status, that juvenile salmon were found in all 26 catchments surveyed and juvenile trout in 25 and, further, that glochidial attachment to fish was detected in 12 of these catchments. Dr Jackson suggested that this contradicts concerns that changes in salmonid populations have contributed to the current unfavourable status of the freshwater pearl mussel in Ireland. In addition, he advised that in the Dromagowlane/Trafask Rivers it is the non-migratory salmonids (brown trout) which act as hosts for the freshwater pearl mussel glochidia larvae and that these fish are not subject to any interactions with marine salmon farms. He concluded that there is therefore no mechanism for impacts upon the pearl mussel populations.

On behalf of Save Bantry Bay, Mr Alec O’Donovan noted the fact that otters (*Lutra lutra*), a species listed for strict protection under the EU Habitats Directive,[[33]](#footnote-33) are found in the immediate vicinity of the Shot Head site and suggested that the project requires an appropriate assessment pursuant to Article 6(3) of the Habitats Directive, on account of its potential impacts on otters as a species of interest in respect of the Glengarriff Harbour and Woodland SAC.

Mr Ó Maolain referred to recent Irish case law that suggests that a licensing authority is required to satisfy itself beyond reasonable scientific doubt that a proposed project will not adversely affect species enjoying general protection under the EU Habitats Directive other than in the context of a Natura 2000 site, such as otters and freshwater pearl mussels. He contended that this standard of proof has not been established in respect of the present proposed salmon farm.

On behalf of FoIE, Ms Caroline Lewis supported this argument, pointing out the conflicting scientific evidence presented by IFI and the NPWS.

On behalf of An Taisce, Mr Alan Doyle recounted the conclusion in the ALAB Technical Consultant’s report (and Dr Bass’s acceptance thereof) that use of ‘Slice’ (EmBz) treatments would breach the relevant EQSs, though the effects may be short-lived and levels will be acceptable 1km from the site. He pointed out, however, that residues will bio-accumulate in benthic fauna at the site, which may be preyed upon by protected species such as harbour seals, thereby having an indirect effect which should be assessed in the context of the EIA. In addition, he argued that such indirect effects through contamination of a potential food source should be examined in the context of an ‘appropriate assessment’ of the potential impacts of the project on harbour seals protected within the Glengarriff Harbour and Woodland SAC and on fulmar protected within the Beara Penninsula SPA.

Mr Doyle cited case law of the European Court of Justice (ECJ)[[34]](#footnote-34) to contend that the requirement under Article 12 of the EU Habitats Directive for Member States to prohibit ‘deliberate disturbance’ of species of fauna listed in Annex IV(a) of the Directive, involves an obligation for the competent authorities of the State proactively to take all measures required to ensure that any form of disturbance is identified and prevented. He argued that it is necessary to identify and address all such disturbance(s) associated with the present fish farm project, and that this has not happened to date. For example, he contends that the ALAB Technical Consultant’s Interim Report fails (at p. 77) to sufficiently consider potential indirect effects on Annex IV(a) species, such as otters frequenting the coast near to the Shot Head site, which might be impacted by declining wild salmon stocks.

In addition, Mr Doyle pointed out that any impact on wild salmon stocks might impact Annex II species of fauna found within nearby SAC’s, such as common seals (*Phoca vitulina*), which are a feature of interest for the Glengarriff Harbour and Woodland SAC. He noted that there are haul-out sites for seals only 4.5km from the Shot Head site and that wild salmonids from local rivers are likely to be a food source. He insisted that an Article 6(3) “appropriate assessment” is required in relation to potential impacts upon seals within the Glengarriff SAC. He further argued that an appropriate assessment should consider possible impacts on birds protected within nearby SPAa, such as the Sheep’s Head to Toe Head SPA and the Beara Peninsula SPA, particularly bearing in mind the distances over which some species of protected birds might range in order to forage for food.

*Adequacy of EIA/EIS:*

Mr Mark Boyden of the Coomhola Salmon and Trout Anglers Association expressed doubt that the narrowly focused EIA for the project took adequate account of the waste to be produced by 3,000 tonnes of salmon p.a., or of its cumulative effects in combination with other fish farms in Bantry Bay. He questioned whether production of this volume of polluting waste might amount to a breach of the water quality requirements arising under the EU Water Framework Directive. He also noted that the EIA failed to consider the supply chain impacts of the thousands of tonnes of fish feed to be used, thereby constituting a breach of the EU EIA Directive. Generally, he expressed concern that the Minister’s conclusion at the licencing stage that the project was not likely to have a significant negative impact was vague, insufficiently reasoned and substantiated, and unconvincing. He also argued that the EIA did not take sufficient account of the precautionary principle.

Mr Doyle argued that the existing EIA/EIS does not provide comprehensive information on which the Board can make its decision. For example, he pointed out that it did not address the risk of sea lice infestation of the Dromagowlane and Trafask Rivers at all. Taking account of the information in the RPS Report on currents, tidal movements and the number of sea lice copapods, he estimated that on certain occasions a plume of sea lice would be drawn across the mouth of the Dromagowlane River.

He also claimed that the EIA failed properly to consider the cumulative impacts of the project in combination with other fish farms in Bantry Bay (including only one mention at p. 51). Such impacts would include waste, nutrients, *etc*. Further, he argued that it doesn’t consider indirect environmental impacts, including those associated with the fish-feed supply chain, despite Irish case law suggesting that such indirect effects ought to be considered. In addition, he suggested that the EIS doesn’t deal with the risk of large-scale farmed salmon escapes. He also raised the issue of the potentially relevant impacts on biodiversity of other activities, such as the industrial harvesting of kelp proposed in Bantry Bay.

Mr Doyle also argued that the practice of not requiring disclosure of details regarding the design of the salmon cages, which are to be approved later by DAFM, is inimical to the purpose of the EU EIA Directive, as this important matter cannot be subjected to public scrutiny.

Dr Neil Bass, a consultant who conducted a technical analysis of the suitability of the Shot Head site on behalf of MHI, pointed out that the EIS for the project was completed seven years ago and submitted six years ago, and that the Licensee has made every effort to update the results set out therein where new assessment technologies or methodologies have become available.

*Waste and Water Pollution:*

Mr Mark Boyden highlighted the very significant amount of waste to be produced by 3,000 tonnes of salmon p.a., and expressed general concern regarding its cumulative effects in combination with other fish farms in Bantry Bay.

Mr Alan Doyle referred to case law of the ECJ/CJEU which interprets the EU Water Framework Directive (WFD) so as to require national competent permitting authorities to refuse authorisation for any project which would result in water standards falling below “good water status” as defined under the WFD. He contended that the EIA fails to identify and assess impacts on water quality in these terms, despite the fact that the WFD protects a stretch of coastal waters up to one mile beyond the baseline, thereby including all of Bantry Bay. He pointed out that, while the EIA relied on modelling, there is no background data on the status of the waters of Bantry Bay and so no way of assessing the contribution of the Shot Head salmon farm to cumulative pollution impacts in the bay. Mr Doyle referred to the projections in the RPS Report regarding maximum and average plumes for nitrogen pollution from Shot Head (p. 32) and for cumulative impacts of nitrogen (p. 33), but pointed out that this does not address the question of whether such pollution might cause deterioration of water quality status under the WFD. Similarly, while the ALAB Technical Consultant’s Interim Report concludes that nutrient increases are likely to remain below the EQS for nitrogen, it cannot clarify whether water quality status might be modified.

As an additional attendee at the Oral Hearing, Mr Louis Luijken raised concerns regarding, *inter alia*, protection of the freshwater pearl mussel, the volume and toxicity of waste produced by farmed salmon, the risk of bacterial infection of salmon, and indirect impacts on human health.

On behalf of MHI, Dr Neil Bass pointed out that the current aquaculture licence actually authorises the production of 3,500 tomes of salmon every two years and reminded the Oral Hearing that agriculture, rather than aquaculture, is responsible for the principal impacts on water quality and on the general environment in Bantry Bay. He stated that operation of the site would not breach any environmental quality standards (EQSs) for nutrients, medicines, or other pollutants. He also noted that MHI had only employed sea-lice treatment at its Bantry Bay facilities six times in the last 8 years, that it is very costly to allow sea-lice infestation and to conduct sea-lice treatment and, further, that the use of treatment chemicals is very carefully monitored by Food Safety Ireland. He explained that biological control of sea-lice was favoured and that the additional Bantry Bay site at Shot Head would help to control sea-lice infestation though stock rotation.

Dr Bass introduced the hydrodynamic modelling system deployed in Bantry Bay since 2005/6 by RPS Group and Watermark with a view to informing future salmon farm licence applications. He explained that the system uses the MIKE suite of hydrographic models developed by the Danish Hydrological Institute (DHI) and widely used around the world, but that the Bantry Bay modelling system is specially tailored to local conditions, taking account of local wind interaction, tidal amplitude, *etc*. The system records measurements every 10 seconds over a 22 day cycle, collecting 8.5 billion datapoints. According to Dr Bass, the modelling exercise shows that Bantry Bay has a flushing period of 8 to 18 days and that 27 billion tonnes of water flow through the Bay each month, thus maintaining Bantry Bay’s carrying capacity. In response to questions from Ms Caroline Lewis, Dr Bass differentiated the RPS/Watermark model from that used by the Marine Institute, which is a three day predictive model used to inform the operation of shell-fish farms and to predict algal blooms. In response to questions regarding the usefulness of models as predictive tools, he emphasised the broad scope and sophistication, and hence the likely accuracy, of the RPS/Watermark model.

Regarding nutrients, Dr Bass explained that, taking the worst case scenario, a total of 13 tonnes of nitrogen wastes (soluble plus solids) would be produced monthly, though on average only 30 percent of this amount would be produced. He further explained that, even taking the highest / worst case values, the relevant EQS for nutrients would not be breached.

Regarding sold wastes from feed and faecal matter, Dr Bass advised that worst case monthly deposition would amount 65 tonnes which, after taking account of natural dispersal, would result in an accumulation of 13mm deposited directly under the pens after 12 months, which drops to deposition of 0.5mm 50 meters from the cages. However, he stressed that these deposition projections do not take account of natural decay and grazing by seabed organisms, which would reduce such deposition. He also noted that at full stocking density the site might lose its organic status and, thus, that MHI would prefer a production limit based on a maximum allowable biomass of 2,800 tonnes.

Regarding pollution due to the use of medication, Dr Bass pointed out that the use of chemical sea-lice treatment is limited by the requirements for organic certification and, therefore, that MHI preferred to rely upon biological controls, such as wrasse and clinger-fish. He further noted that the applicable EQS for ‘Slice’ (EmBz) was very strict at 0.22 billionths of a gram at 100m from the treatment site 24 hours post-treatment, while the EQS for ‘Alphamax’ (deltamethrin) is 2.0 billionths of a gram at 100m from the treatment site 24 hours post-treatment. The maximum biomass of fish that could be treated with ‘Slice’ (EmBz) while complying with the relevant EQSs is 440 tonnes, which would only permit strategic treatment of young fish in Spring of Year 1, thereby protecting wild migrating salmonids during the period when they would be susceptible to transfer of sea-lice. For more accurate and cost-effective sea-lice treatment, ‘Alphamax’ (deltamethrin) is applied by bath treatment in a well boat and doesn’t bioaccumulate or leave any residues. Therefore, its use will not breach any EQS.

Several appellants did, however, express concern about the disposal of the contents of well boats in the bay. Mr Alan Doyle expressed particular concern regarding risks to benthic micro-organisms feeding under the cages and being exposed to deltamethrin contamination (and in turn being fed upon by higher fauna). Mr Doyle also questioned the methodology employed for the measurement of biological oxygen demand (BOD), particularly use of the Lamb’s Head control site. Mr Doyle was concerned regarding the lack of representative data regarding background water quality in Bantry Bay. He pointed out that the Castletownbere and Lamb’s Head stations, where the available data were recorded, are unrepresentative of general water quality in Bantry Bay as both are subject to anthropocentric impacts. He expressed serious concern that all conclusions were based on a model rather than real, comparable data.

**4. Conclusions**

A broad coalition of objecting Appellants have raised a range of relevant concerns which can be grouped under two broad headings:

1. The suitability of the site, having regard to the likely effects of the project on other beneficial uses and on the economy of the area; and
2. The likely environmental and ecological effects, having particular regard to threats to wild salmonid stocks and consequential threats to protected species dependent thereon, to the impacts of salmon farm wastes and water pollution, and to alleged inadequacies in environmental and ecological assessment of the project.

In relation to the first heading, it appears from the Minister’s file on the original aquaculture licence application that public notice of the project was provided, that a range of submissions were received and that reasonably broad consultation took place. Though such consultation could almost always be more comprehensive and better targeted, it must be assumed that the Minister’s decision took adequate account of the suitability of the project location, including consideration of the likely effects of the project on other beneficial uses and on the local economy.

Concerns raised under the second heading require further examination. It is clear that the EIA for the project neglected to consider the risk of sea lice infestation of wild salmonid populations in the Dromagowlane and Trafask Rivers, or the indirect consequences for a range of dependent protected species of any resulting decline in wild salmonid populations. Such gaps in environmental assessment of the project may require a supplemental EIA and/or supplemental appropriate assessment screening. However, it is not at all clear that, in assessing possible impacts on species protected under the EU Habitats Directive, the Board must satisfy itself ‘beyond reasonable scientific doubt’ of an absence of adverse effects before granting the project an aquaculture licence. Salmon (*Salmo salar*) and the freshwater pearl mussel (*Margaritifera margaritifera*) are listed under Annex II and Annex V of the Habitats Directive, meaning that the presence of these species qualifies a site for designation as a SAC (Annex II), and that where found outside an SAC they are to be protected under Article 15 (as Annex V species) from indiscriminate or excessive capture or killing. In the case of Annex IV species, such as the otter (*Lutra lutra*), Article 12 requires that Member States take the necessary measures to ensure their ‘strict protection’ in their natural range and avoid their ‘deliberate disturbance’. The degree of scientific certainty which national competent authorities must achieve in satisfying themselves that measures taken will achieve such ‘strict protection’ is as yet unclear. In the case of the common seal (*Phoca vitulina*), as an Annex II and Annex V species which is a species of interest in respect of the nearby Glengarriff Harbour and Woodland SAC [and the otter (*Lutra lutra*), an Annex IV species which is also a species of interest in respect of the Glengarriff SAC], it is firmly established in the jurisprudence of the ECJ/CFEU that a national competent authority must establish beyond reasonable scientific doubt that the project will not impact these species to the extent that it affects the integrity of the site having regard to its conservation objectives.

If a licence is to be granted, a further means of addressing the risk of sea lice infestation of wild salmonids in Bantry Bay might involve amending licence conditions to change the timing of the production cycle or to control stocking densities at particular times, in order to reduce the risk of sea-lice infestation of migrating wild salmon. It would also be appropriate to amend/replace the existing licence conditions to so as change the applicable production limit to one based on a maximum allowable biomass of 2,800 tonnes, as requested by the Licensee.

**5. Recommendations**

Further to section 59 of the Fisheries (Amendment) Act 1997, the Chair of the Oral Hearing recommends as follows:

* Conditional upon the results of the supplemental EIA and desk-top studies recommended immediately below, the Board should issue an aquaculture licence for the Shot Head facility (Ref: T05/555) pursuant to section 40(4) of the Fisheries (Amendment) Act 1997, subject to the conditions identified below.
* Before making a determination pursuant to section 40(4) of the Fisheries (Amendment) Act 1997, the Board should request a supplemental EIS addressing the following matters:
  + The risk of sea-lice infestation of wild salmonids migrating from/to the Dromagowlane and Trafask Rivers, and any resulting implications for local freshwater pearl mussel populations, based on available research and data;
  + An assessment of the potential impact of salmon farm waste on water quality, having particular regard to the maintenance of ‘good water status’ as required under the WFD; and
* Before making a determination pursuant to section 40(4) of the Fisheries (Amendment) Act 1997, the Board should conduct desk-top studies of the following matters, which may indicate the need for supplemental appropriate assessment (AA) screening for such matters:
  + An assessment of the otter population of the Dromagowlane and Trafask catchments, and (if necessary) assessment of potential impacts on otters, including the potential impact of declining wild salmon stocks;
  + The potential impacts upon common seal populations in the Glengarriff Harbour and Woodland SAC; and
  + The potential impacts upon wild birds within nearby SPAs.
* Before making a determination pursuant to section 40(4) of the Fisheries (Amendment) Act 1997, the Board should make every effort to consider the potential impacts of large-scale farmed salmon escapes.
* If, on the basis of such further information, the Board should decide to grant an aquaculture licence pursuant to section 40(4) of the Fisheries (Amendment) Act 1997, the Board should consider the inclusion of appropriate conditions requiring a change to the production schedule in order to protect migrating wild salmon and sea trout smolts, or otherwise to control stocking densities at the time of wild salmonid migration, for example by means of early harvesting of mature salmon.
* If, on the basis of such further information, the Board should decide to grant an aquaculture licence pursuant to section 40(4) of the Fisheries (Amendment) Act 1997, the Board should include conditions to change the current production limit to one based on a maximum allowable biomass of 2,800 tonnes.

**6. Acknowledgements**

The Chair of the Oral Hearing would like to thank all of those who attended for having taken the time and trouble to inform the Board’s deliberations by participating in the proceedings in a positive and constructive manner.

1. Set out in detail in the Technical Advisor’s Interim Report, at 4-15. [↑](#footnote-ref-1)
2. See <http://marineharvestireland.com/about/> [↑](#footnote-ref-2)
3. <http://marineharvestireland.com/about/marine-harvest-ireland/our-locations/> [↑](#footnote-ref-3)
4. All are available at: <http://www.alab.ie/boarddeterminations/2015/scheduleofdocuments/section47requests/> [↑](#footnote-ref-4)
5. Prepared by Dr. Graham Saunders, available at: <http://www.alab.ie/media/alab/content/technicalreports/TechnicalAdvisorReportBantryBayInterim120117.pdf> [↑](#footnote-ref-5)
6. Technical Advisor’s Interim Report, at 48-51. [↑](#footnote-ref-6)
7. Technical Advisor’s Interim Report, at 52-90. [↑](#footnote-ref-7)
8. Technical Advisor’s Interim Report, at 91-99. [↑](#footnote-ref-8)
9. S.I. 468/2012, Aquaculture Appeals Regulations 2012, Regulation 3(2)(b). See Technical Advisor’s Interim Report, at 51. [↑](#footnote-ref-9)
10. Technical Advisor’s Interim Report, at 51 -52. [↑](#footnote-ref-10)
11. Though Mr. Peter Sweetman argued, on behalf of Save Bantry Bay, that the requirements under the 1997 Act are not fully in line with the various requirements relating to public participation arising under EU law. [↑](#footnote-ref-11)
12. S.I. No. 443/2005 - Natural Heritage Area (Trafrask Bog NHA 002371) Order 2005, prohibits, *inter alia*,

    ‘Stocking pools, ponds, lakes or rivers with fish’. [↑](#footnote-ref-12)
13. See <https://www.npws.ie/research-projects/animal-species/invertebrates/freshwater-pearl-mussel> [↑](#footnote-ref-13)
14. According to Art. 3(1) of the Habitats Directive, the presence of species listed in Annex II qualifies a site for designation as an SAC. Art. 12 stipulates that

    ‘Member States shall take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV(a) in their natural range, including …

    (b) deliberate disturbance of these species, particularly during the period of breeding, rearing, …’. [↑](#footnote-ref-14)
15. Annex V species, which are entitled to protection under Article 15, requiring that

    ‘Member States shall prohibit the use of all indiscriminate means [of capture and killing] capable of causing local disappearance of, or serious disturbance to, populations of such species ….’ [↑](#footnote-ref-15)
16. Submission dated 8th July 2016. Donegal Co. Co. further advised DAFM in relation to this con-compliance that

    ‘If there is any mechanism within your aquaculture licence to limit production capacity, which will positively impact on compliance, we would welcome such a development.’ [↑](#footnote-ref-16)
17. Memorandum dated 23rd September 2016. [↑](#footnote-ref-17)
18. Memorandum dated 6th September 2016. [↑](#footnote-ref-18)
19. Submission dated 8th July 2016. [↑](#footnote-ref-19)
20. Section 68(1)(a) of the 1997 Fisheries (Amendment) Act provides that

    ‘the Minister may, in his or her discretion … without compensation to the licensee, revoke an aquaculture licence if the Minister

    Is satisfied that there has been a breach of any condition specified in the licence’. [↑](#footnote-ref-20)
21. Condition No. 1 of the Aquaculture Licence issued by ALAB for the Lough Altan site provides:

    ‘This licence shall remain in force only for so long as the fish farm complies with … the Effluent Discharge Licence granted by Donegal County Council on 30th January 2004 (or a further such Licence granted by the said Council or by the Environmental Protection Agency).’ [↑](#footnote-ref-21)
22. Memorandum dated 6th September 2016. [↑](#footnote-ref-22)
23. The licence for this facility expired on 15th February 2007 but, as an application for renewal has been received by DAFM, under section 19(A)(4) of the 1997 Fisheries (Amendment) Act 1997 the licensee is

    ‘entitled to continue the aquaculture or operations in relation to aquaculture authorised by the licence pending the decision on the said application.’ [↑](#footnote-ref-23)
24. Condition 2(d) of the applicable aquaculture licence states:

    ‘the stock of fish in the cages shall not exceed such quantity as may be specified by the Minister from time to time, the number of smolts to be stocked at the site should not in any event exceed 400,000. Licensed stocking densities are not to be exceeded and will be subject to inspection at any time by the Department of the Marine.’ [↑](#footnote-ref-24)
25. Submission dated 21st December 2016, at 15. [↑](#footnote-ref-25)
26. Memorandum dated 6th January 2017. [↑](#footnote-ref-26)
27. Memorandum dated 30th January 2017. [↑](#footnote-ref-27)
28. For example, S. Shepherd and P.G. Gargan, ‘Quantifying the contribution of sea lice from aquaculture to declining annual returns in a wild Atlantic salmon population’, (May 2017) *Aquaculture Environment Interactions.* [↑](#footnote-ref-28)
29. D. Jackson, P. O’Donoghue, T. Mcdermott, F. Kane, S. Kelly and A Drumm, ‘Report on Sea Lice Epidemiology and Management in Ireland with Particular Reference to Potential Interactions with Wild Salmon (*Salmo salar*) and Freshwater Pearl Mussel (*Margaritifera Margaritifera*) Populations’, (2013) *Irish Fisheries Bulletin*, No. 43 (Marine Institute); ICES, *Report of the Workshop to address the NASCO request for advice on possible effects of salmonid aquaculture on wild Atlantic salmon populations in the North Atlantic* (WKCULEF), 1-3 March 2016, Charlottenlund, Denmark (ICES CM 2016/ACOM: 42); O.T. Skilbrei, B. Finstad, K. Urdal, G. Bakke, F. Kroglund and R. Strand, ‘of early salmon louse, *Lepeophtheirus salmonis*, infestation and differences in survival and marine growth of sea-ranched Atlantic salmon, *Salmo salar L*., smolts 1997-2009’, (2013) 36(3) *Journal of Fish Diseases* 249-260. [↑](#footnote-ref-29)
30. See D. Jackson, ‘Ireland: the development of sea lice management methods’, in S. Jones and R Beamish (eds.), *Salmon Lice: An Integrated Approach to Understanding Parasite Abundance and Distribution* (Wiley-Blackwell, Oxford, 2011), 177-203. [↑](#footnote-ref-30)
31. Though the precise nature of any requirement to establish an absence of risk of harm to Annex V species remains unclear, with Article 15 of the EU Habitats Directive merely requiring that

    ‘In respect of the capture or killing of species of wild fauna listed in Annex V (a) … Member States shall prohibit the use of all indiscriminate means capable of causing local disappearance of , or serious disturbance to, populations of such species …’ [↑](#footnote-ref-31)
32. Dept. of Environment, Heritage and Local Government, *The Freshwater Pearl Mussel: Sub-Basin Management Plans – SEA Scoping Document* (DEHLG, 2009). [↑](#footnote-ref-32)
33. Otters are listed under Annex IV of the Habitats Directive. [↑](#footnote-ref-33)
34. Specifically, Case C-103/00, *Commission v. Greece*, Judgment, 30 January 2002, available at <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:62000CJ0103&from=EN> and Case C-221/04, *Commission v. Spain,* Judgment, 18 May, 2006, available at <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:62004CJ0221&from=EN> [↑](#footnote-ref-34)