Salmon Watch Ireland
Website: https://salmonwatchireland.ie
Email: info@salmonwatchireland.ie

SALMON WATCH IRELAND
"Dedicated to the restoration of salmon abundance in Ireland"

16 December 2021

Mr Charlie Mc Conalogue T.D

Minister for Agriculture Food and the Marine

Agriculture Hose

Kildare Street

Dublin 2

Application for licence for an open cage salmon farm at Ballinakill Bay, Co Galway

Dear Minister,

The documentation submitted by Comhlucht Iascaireachta Fanad Teoranta, (CIFT), trading as MOWI Ireland, seeking a licence for an open cage salmon farm to be sited in Ballinakill Bay, County Galway, falls far short of what is required pursuant to Article 6(3) of the Habitats Directive. Nor can there be reliance on Article 6 (4) thereof, as there are no stated 'imperative reasons of overriding public interest', (IROPI), which could justify locating a salmon farm at this sensitive location.

The proposed site is within close proximity to the Dawros river mouth. This river forms part of the 'Twelve Pins Garraun Complex,' Special Area of Conservation, (Site Code 002031). In this river Wild Atlantic Salmon are a 'Qualifying Interest.' Juvenile salmonids, which are already susceptible to mortality from parasitic sea lice from the existing salmon farm in Ballinakill Bay, would be also subject to the cumulative impact of the additional sea lice loading from the proposed MOWI/Marine Harvest salmon farm. No appropriate assessment

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has ever been conducted in relation to the adverse impact of the existing salmon farm, which is there already. It is suggested that Appropriate Assessment must be conducted on the cumulative effect of both salmon farms before any decision may be reached.

Article 6 (3) (4) Habitats Directive (Council Directive 92/43 EEC)

> ***3. Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.***
>
> ***4. If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.***

It should be noted that assessments of salmon farms on sites which are in or near Natura 2000 areas require a full Appropriate Assessment. That necessitates an extensive project-based assessment, including a cumulative assessment in conjunction with other plans and projects in that vicinity.

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Application of Requirement for Appropriate Assessment.

The European Court of Justice (ECJ) in several judgments[1] have ruled that the test to be applied must be based on the 'best available scientific knowledge in the field.' We take issue, therefore, with the failure of the application to have regard to independent peer reviewed scientific reports which challenge the conclusions of the small and select number of reports which are the only ones that have been consistently considered by DAFM. It is unacceptable that the Natura Impact Assessment as presented by CIFT ignores the ECJ jurisprudence and only considers a narrow range of scientific literature concerning the impact of sea lice from salmon farms on wild salmonids.

Assessment of applications for grants of licences, and grants of renewal of licences, by the Minister for Agriculture Food and the Marine, have in the past relied exclusively on a limited number of scientific papers from the Marine Institute [2/3] in respect of sea lice impacts on wild salmonids in the marine setting. Salmon Watch Ireland strongly asserts that DAFM must consider the application by CIFT as flawed and thus not in compliance with Article 6 subsections (3) and (4) of the Habitats Directive.

The Jackson *et al,* studies have been relied upon by CIFT in their Natura Impact Assessment associated with this application and are once again at considerable variance with both national

[1] Court of Justice of the European Union (CJEU):
C-258/11 - Sweetman and Others v ABP (Galway Bypass)
C-258/11 - AG opinion, Sweetman and Others v ABP (Galway Bypass)
C-127/02 - Waddenzee
C-521/12 - T.C. Briels and Others v Minister van Infrastructuur en Milieu
C-323/17 - People Over Wind and Sweetman v. Coilte Teoranta

[2] *Jackson et al. 2013*. Impact of *Lepeophtheirus salmonis* infestations on migrating Atlantic salmon, *Salmo salar* L., smolts at eight locations in Ireland with an analysis of lice-induced marine mortality.
https://oar.marine.ie/bitstream/handle/10793/849/Impact%20of%20Lepeophtheirus%20Salmonis%20on%20Migrating%20Atlantic%20Salmon%20(Jackson,%20D.%20et%20al.).pdf?sequence=1

[3] *Jackson et al. 2011.* An evaluation of the impact of early infestation with the salmon louse *Lepeophtheirus salmonis* on the subsequent survival of outwardly migrating Atlantic salmon, *Salmo salar L.*, smolts.
https://www.sciencedirect.com/science/article/pii/S004484861100247X

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and international studies in relation to the impact of salmon farming and the impacts of sea lice emanating from these farms on wild salmonid stocks. The Marine Institute papers imply falsely in their interpretation that the impact of sea lice emanating from salmon farms are a minor and irregular component of wild salmon survival. This has been relied upon by CIFT in this application to minimize the effects caused by salmon farming.

Salmon Watch Ireland, along with numerous independent scientific experts contend that the studies by Jackson *et al.* (2013 and 2011) have been wrongly interpreted through a combination of incorrect statistical analysis and the inclusion of data from rivers which are outside aquaculture areas. This has the result of incorrectly minimizing the effect of the impact of sea lice from salmon farms on wild salmonids. Our contention relating to this has been vindicated through a firm rebuttal of the Jackson *et al.* study of 2013 and its conclusions by international scientists[4]. There is a very significant divergence from the Marine Institute publications downplaying sea lice impacts, in host of independent peer reviewed scientific studies regarding salmon farm aquaculture, which, with the greatest respect, cannot continue to be ignored.

However, it should be noted by your department that even the Jackson *et al*. (2013) Marine Institute papers note a 12.3% decrease in returning adults which is certainly significant but is at variance with other studies relating up to a 29% decrease in returning adults.

[4] M Krkosek *et al. (*2013) Comment on *Jackson et al*. 'Impact of Lepeophtheirus salmonis infestations on migrating Atlantic salmon, Salmo salar L., smolts at eight locations in Ireland with an analysis of lice-induced marine mortality' https://drive.google.com/file/d/1TtsD1Ra3R7bczcNtJZ2IMT6LS3BUpD1G/view?usp=sharing

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'Best Available Scientific Knowledge in the Field;' Mandatory for Assessments.

For the sake of clarity, the majority of international and Irish studies involve paired groups of tagged, hatchery-reared juvenile salmon smolts being released into rivers in Ireland and internationally. One group received an in-feed parasiticide and the other was a control (unprotected). The estimated average risk ratio of protected fish returning to their natal rivers to spawn compared to unprotected fish ranged from an average 1.14:1 to 1.41:1 (Jackson et al. 2011a, b, 2013, 2014, Gargan et al. 2012, Krkošek et al. 2013, 2014, Skilbrei et al. 2013, Vollset et al. 2014)[5]. Within any given release group, a risk ratio of 1.14–1.41:1 reflects that 12−29% fewer unprotected than protected fish ultimately survive to be recaptured as adults.

By way of explanation the mortality loss of juvenile salmon going to sea occurs either through disease or excessive parasitic infestation in coastal waters where salmon farms are located. Effects are both direct and indirect either through mortality caused by direct effects of above-mentioned factors or increased predation on compromised juveniles. A simple guide to the effects is contained in the spreadsheet which explains the differences between treated and untreated smolts in the various studies listed above and clearly demonstrates the effect on returns of adults to their natal rivers.[6]

Salmon farms are a reservoir for disease and parasites and cause an enormous explosion of sea lice far more than natural background levels which cannot be mitigated for. It must be re-emphasised that licensing of activities within or adjacent to a Natura site can only be permitted where there is certainty that there will be no adverse impacts which cannot be mitigated. If

[5] Salmon Farm Impact of Sea Lice.
https://drive.google.com/drive/folders/1gjYgsM6cOvID_L_bjBwSwa8u731OV3cN?usp=sharing

[6] Loss of smolts (SWIRL) https://docs.google.com/spreadsheets/d/1EuepvI1wJKDoGUFFd-vKzgr4APL2q8-B/edit?usp=sharing&ouid=111338563308166601523&rtpof=true&sd=true

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such certainty is not present, then the applications for grants or renewals ought to be refused. This is clearly the case with salmon farms.

Effectively if an aquaculture licence is granted in an area which is adjacent to a salmon river DAFM is licensing the destruction of between 12.3 % and 29% of out-migrating smolts at the commencement of their outward migration. This mortality is clearly unsustainable when considering that mitigation efforts were in operation on salmon farms to reduce lice levels during the periods under review.

The cumulative and continuing effect of the impacts of sea lice induced mortality must also be factored into any decision relating to licensing in that such losses may eventually give rise to an extinction vortex on salmon and sea trout stocks adjacent to salmon farming areas. These results clearly reflect the damage on migrating salmonid smolts despite much heralded mitigation strategies invoked by the Department of Agriculture, Food and the Marine which clearly have failed to work.

The present situation, with numerous salmon farms operating with expired licences, (including the one already operating in Ballinakill Bay), pursuant to section 19A (4) of the Fisheries (Amendment) Act 1997 in unacceptable indeed. The current application by CIFT therefore cannot be acceded to as there has never been an Appropriate Assessment there. Consideration of Marine Institute scientific reports exclusively, while entirely ignoring a considerable body of independent peer reviewed scientific reports, which offer a far less benign view, fails to meet the legal requirements to apply the ‘Best Available Scientific Knowledge in the Field’ and afford ‘certainty’ that no unmitigated adverse impacts will arise. It is respectfully suggested that the ‘O’Keeffe Test’ for ministerial and administrative decision-making, in this setting, can no longer be applied.

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Defects in CIFT Application and Licensing Practice.

The present situation with the existence of salmon farms operating under section 19A (4) of the Fisheries (Amendment) Act 1997 and the current application by CIFT cannot be allowed to continue and consideration solely of Marine Institute scientific reports, while entirely ignoring a considerable body of independent peer reviewed scientific reports which offer a far less benign view, fails to meet the legal requirements to apply the 'Best Available Scientific Knowledge in the Field'.

As such current licensing practice by the DAFM is not, in our view, in accordance with law. Significant damage is consequently being caused to wild salmonid stocks. We refer you to the attached scientific papers provided by Inland Fisheries Ireland, and independent international scientific experts[7]. We strongly assert that these confirm that open pen salmon farms located around the Irish coast are having significant adverse effects on the survival of protected wild salmonids for over thirty years which has not been mitigated. Furthermore, there is no decisive evidence which can demonstrate with certainty that such adverse impacts will not continue to impact on these protected species.

We would like to draw your attention to the recent study carried out by Inland Fisheries Ireland [8] on 10 rivers (5 rivers adjacent to salmon farms and 5 control rivers outside of salmon farming areas) which states categorically that "rivers with aquaculture showed lesser returns (mean 33%, range 19–46%) in years following high lice levels on nearby salmon farms".

[7] Sea Lice Studies
https://drive.google.com/drive/folders/14pkmp_eiA4zA_yE-_w1wXrXJCyWdPQNr?usp=sharing

[8] Inland Fisheries Ireland 2020- Samuel Shephard * and Patrick Gargan: Wild Atlantic salmon exposed to sea lice from aquaculture show reduced marine survival and modified response to ocean climate
https://drive.google.com/file/d/1dd_x4L32kbJwK5L0nVyWv6Hb4A0wpXVX/view?usp=sharing

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Speculative Basis for Application.

Specifically, the application from CIFT has significant defects which should be fatal to its success. The NIS is not remotely adequate to address the complex issues concerning the impacts of sea lice and disease transmission from the proposed farm and the obvious interaction with the existing farm which will take place resulting in an increase in parasites and disease transmission.

The NIS suggests that sea lice copepods cannot reach the so-called natural infestation zone outside the Dawros river or that there can be any inter farm transmission of sea lice infective stages. The NIS attempts to dismiss the bay wide infestation pressures which affect wild salmonids during their migration through marine waters.

This is highly questionable in the absence of detailed particle dispersal modelling in Ballinakill Bay on which to base such 'supposition'. The NIS attempts to dismiss the bay wide infestation pressures which affect juvenile wild salmonids during their migration through marine waters. However, there is a dearth of bay-wide current and tidal velocity data and modelling which renders such suggestions quite far-fetched.

This is typical of all the modelling conducted on behalf of CIFT which tends to suggest that farm lice densities in marine areas are not capable of causing mortality or indeed infesting migrating salmonids in near coastal areas adjacent to salmon farms. This is certainly not correct and multiple examples of loss of wild salmonids is evident despite assurances forthcoming from CIFT and agents working for aquaculture companies. Another study by Inland Fisheries Ireland [9]which examined data over a 26-year period from the Erriff River notes a reduction of

[9]Gargan and Shepard 2017 https://drive.google.com/file/d/1vD3VYzGSm0ctv3otkajOLdzWQPG28Q91/view?usp=sharing

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up to 50% on returning Atlantic 1 SW salmon following years of high lice levels coinciding with smolt migration.

It is also suggested that somehow environmental conditions may result in a large increase in infestation pressure from sea lice from natural wild sources. This is not a major factor and is certainly included in the NIS to confuse and downplay the effects of farm lice distribution.

Mortalities in Farmed Salmon

Another aspect which requires more scrutiny is the abject record of CIFT[10] in relation to mortalities on their farms. Mortality rates are running at up to 40% and it is objectionable that such events are allowed to continue. While climatic changes may negatively affect their operation it is indefensible that DAFM should continue to allow open cage farms which offer little if any protection from changing oceanic conditions which may amplify further harmful algal blooms, jellyfish infestations, sea lice and a myriad of pathogenic diseases. Permitting such ongoing mortality and predation in the farmed stocks raises fundamental questions regarding regulatory commitment to animal welfare.

Freshwater Pearl Mussel

The issue of Freshwater Pearl Mussel populations in the Dawros and Bundorragh Rivers has not been effectively addressed in the EIAR and NIS. The negative effect of farm origin lice on both Wild Atlantic salmon and sea trout is well established.

[10] ASC Reports https://www.asc-aqua.org/find-a-farm/

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As the FPM requires a healthy population of juvenile salmonids to ensure that reproduction capacity is not inhibited, it is noteworthy that the population of FPM on the Dawros is at unfavourable conservation status.

The addition of another farm in Ballinakill Bay will certainly reduce the survival of Atlantic salmon smolts and sea trout smolts thus further impacting adult returns which will impinge on the ability of the Dawros system to produce sufficient juvenile salmonids to sustain its FPM population.

Transmission of Sea Lice

To demonstrate the transmission of lice in marine areas, one does not have to travel far from Ballinakill Bay. The Newport Research Centre, where your own competent authority (the Marine Institute) carries out research into wild and ranched salmonids, has seen a dramatic and ongoing collapse of sea trout since the late 1970's (after the opening of salmon farming in Clew Bay).

As all the statements from the Marine Institute appear to indicate little evidence of sea lice impact on wild salmonids, the Newport Research Facility Annual Report No. 65 (2020)[11] is noteworthy in that lice were associated by the same body in 2005 with the collapse of sea trout stocks in Burishoole. The following statement from the report

"There was a collapse in 2005 down to 1.5% (sea trout smolts). This was associated with the heaviest infestations of sea lice observed in the Burrishoole area since 1992".

[11] Newport Research Facility Annual Report No. 65 ICES MASTER TEMPLATE (marine.ie)

Over the period from the mid 70's to 2020 the stock of sea trout has essentially collapsed and is probably now at its lowest ebb. The sea trout run numbered approximately 36 fish in 2020 down from over 2500 fish in the mid 1970's, all essentially caused by salmon aquaculture in Clew Bay. This represents a staggering, and quite avoidable, loss of biodiversity.

Amoebic Gill Disease.

The application from CIFT also does not address the issue of Amoebic Gill Disease (AGD) and its effect on wild salmonids. It is noteworthy that the NASCO Implementation Plan[12] submitted by Ireland and the relevant section on aquaculture (which explicitly assumes that the escape of farmed salmon) draws attention to the potential effect of AGD on salmon smolts:

"Amoeba has been occasionally recorded on wild salmon but do not appear to have caused any negative impact. The condition is best treated with freshwater baths so any adult salmon returning to freshwater will be appropriately treated, should they have been infected. Temperatures above 10oC are thought to trigger the disease, but Scottish outbreaks have occurred at temperatures from 7.5oC. This raises the possibility of wild salmon smolts being infected in the vicinity of salmon farms in spring, although there is no evidence to show that this has occurred to date."

Again, there is no certainty that wild smolts are not affected and thus it must be re-emphasised that licensing of activities within or adjacent to a Natura site can only be permitted where there is **certainty** that there will be no adverse impacts which cannot be mitigated. If such certainty is not present, then the applications for grants or renewals ought to be refused. This is clearly the case with salmon farms.

[12] NASC CNL (19)15REV https://nasco.int/wp-content/uploads/2021/11/IP1915rev2_Revised-Implementation-Plan_EU-Ireland.pdf

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Escapes of Farmed Salmon; Environmental Impacts

The issue of farmed salmon escape is poorly evaluated in the NIS. Escapes of farmed fish into rivers with small wild stocks can have a significant effect. This trickle effect is certainly problematic as there are many rivers in the vicinity which may have small populations with distinct genetic attributes which would be compromised. It is also noteworthy that a Marine Institute[13] paper has strongly noted the negative impact of escapees on wild stocks. Escaped farmed salmon have already been observed and captured in the Dawros catchment during 2021 but it was not possible to identify the farm from which they escaped. The prospect of genetic introgression between farmed and wild populations gives rise to lower survival amongst the mutant strain progeny with lower marine survival.

The recently published Status of wild Atlantic salmon in Norway 2021[14] identifies escapees and salmon lice as the largest contributors to the continued decline of returning fish.

"Escaped farmed salmon and salmon lice were identified as the largest threats to wild salmon, both to a large extent impacting wild populations negatively. Escaped farmed salmon and salmon lice are regarded as expanding population threats, which means they are affecting populations to the extent that populations may be critically endangered or lost in nature and that have a high likelihood of causing even further reductions. Current

[13] Mcginnity, Philip & Stone, C. & Taggart, J. & Cooke, Declan & Cotter, Deirdre & Hynes, Rosaleen & McCamley, C. & Ferguson, Andrew. (1997). Genetic impact of escaped farmed Atlantic salmon (Salmo salar L.) on native populations: Use of DNA profiling to assess freshwater performance of wild, farmed, and hybrid progeny in a natural river environment. Ices Journal of Marine Science - ICES J MAR SCI. 54. 998-1008. 10.1016/S1054-3139(97)80004-5. m

[14] Status of wild Atlantic salmon in Norway 2021
https://www.vitenskapsradet.no/Portals/vitenskapsradet/Status%20of%20wild%20Atlantic%20salmon%20in%20Norway%202021.pdf

mitigation measures are insufficient to hinder expansion of negative impacts in the future. Salmon lice have the greatest risk of causing further losses in the future"

It is evident that the current situation is similar in Ireland and that any renewal or grant of licence to the industry for open net technology will continue to impact on already threatened populations of Atlantic salmon.

Yours faithfully,

John Murphy

Director

Salmon Watch Ireland

Copy: Mr Eamon Ryan TD, Minister for Environment Climate and Communications

Copy: Mr Virginijus Sinkevicius, Commissioner for Environment, Oceans and Fisheries, EU Commission

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