



Renewal and Review of Marine Finfish Aquaculture Licence at

Deenish Island, Co. Kerry

Licence Site Ref: T6/202

Dear Minister,

Salmon Watch Ireland contends that the Department of Agriculture, Food and the Marine (DAFM) should not determine this renewal and review of the above mentioned licence until the determination by the Aquaculture Licence Appeal Board is finalised (if indeed ALAB has jurisdiction) in regard to the decision by the Minister for Agriculture, Food and the Marine to discontinue the entitlement to continue Aquaculture Operations under the provisions of S19(a)4 of the Fisheries Amendment Act 1997 at this site issued in April 2019.

We also hold that the original application for renewal of the licence in 2007 would be published to bring clarity to its legality and whether this application is withdrawn or has been determined by the Minister. DAFM should also provide clarification as to whether they consider it legally appropriate to accept a renewal or a review of an expired licence where an original renewal application has not been determined.

We strongly contend that an expired licence cannot be amended under Section 19(a)4 even though amendments have been granted by ALAB and indeed DAFM over a number of years.

1. Introduction

The documentation submitted by, Silver King Seafoods Ltd, trading as MOWI Ireland, seeking a renewal and review of licence T6/202 for an open cage salmon farm to be sited at Deenish Island 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 continuation and / or expansion at the Deenish site.

The site is within close proximity to many important salmonid rivers which are ecologically sensitive to any disturbance. It should also be noted that angling tourism in the Waterville

catchment has in the past been a substantial driver of economic activity in the localised and regional economy.

This economic importance has been systematically eroded caused principally by salmon farming activities in Kenmare Bay and Ballinskelligs Bay. These farms have caused a significant reduction of wild salmon stocks and the virtual extinction of sea trout stocks.

The unique genetic strain of sea trout and their size and numbers has in the past brought many angling tourists from all areas of Ireland, UK and internationally and has been the bedrock of the local economy from April to October.

The absolute crash in sea trout stocks coincided with the reopening of the Deenish and Inishfarnard sites and indeed the enormous overstocking of both sites carried out illegally by MOWI Ireland. The fish counter statistics and angling returns demonstrate a substantial decline since 2011 with the tourist angling industry now functionally extinct. This is certainly a collapse and is linked to these farms. This should be no surprise as without exception sea trout stocks have collapsed in every jurisdiction and area where salmon farming exists.

As the Marine Institute runs the salmonid index system at Burishoole in County Mayo it should come as no surprise that they have totally ignored their own census data concerning sea trout which have effectively been eradicated by salmon farming in Clew Bay¹. This is nothing short of a disgraceful abandonment of their duty to protect wild salmonids and certainly we do not have any confidence in their repeated assertions concerning the impact of sea lice on wild salmonids. Angling tourism is a sustainable product which can be revitalised but only in the absence of open cage salmon farming in Kenmare Bay and Ballinskelligs Bay.

The Waterville catchment has become a “ghost lake” with little angling activity taking place and it is impossible to bypass the salmon farming issue as being the principal driver of the decline of wild salmonid stocks.

2. Past Failures of MOWI- Deenish Island

It is absolutely clear that MOWI has in the past ignored the operating conditions of their licence (Expired). This led to the Ministerial decision to discontinue aquaculture at the site. This is still under consideration by ALAB.

However, it is essential to lay out the various anomalies and transgressions associated with this site.

- In October 2012 MOWI were granted a temporary amendment after an appeal process to ALAB which allowed the stocking of 800,000 smolts instead of 400,000 for grow out at the Deenish site. In spring 2013 MOWI stocked the site with 838,000 smolts (Excess of 38K) on site for grow out until late 2014 early 2015. The temporary

¹ Newport Annual Report Page 2021, Page 28 <https://drive.google.com/file/d/115-HFewsA7IEagjKKQILsJLTXaYy9297/view?usp=sharing>

amendment to the existing licence was of two years duration ending at end of March in 2015.

- A High Court judicial review in 2015 of the licencing of the Deenish Island site contained an affidavit from MOWI which mentions 800,000 smolts stocked in 2013. It also contains a deliberate attempt to give the impression that the existing licence allowed 400,000 smolts to be stocked every year. This yearly or annual stocking of 400,000 smolts is not contained in the licence and was a deliberate attempt to mislead.
- In their submission to ALAB regarding their Appeal against the notice of Ministerial decision of the Minister for Agriculture, Food and the Marine under the Provisions of Section 68(1) and Section 19(a)4 of the Fisheries (Amendment) Act 1997 , MOWI admitted that they requested an amendment to continue the trial licence or have a more permanent amendment ***“Mowi Ireland requested to repeat this trial or have a more permanent amendment (“the trial” having proven that there were no adverse environmental effects), also in respect of the sister site at Inishfarnard, but these requests were rejected out of hand by the Department.”*** It is evident that MOWI were aware that their request was rejected but continued to operate as they wished thus undermining the licence conditions and regulatory powers of the Irish State. This illustrates the abject disrespect by MOWI for Ireland and its laws.
- The Marine Engineering Division (‘MED’) file shows that stocking records provided by MOWI (following an engineering inspection of the site by MED) reported the stock on site in January 2015 to be 222,999 juveniles @ 40 g average weight. MOWI also reported that there were 738,458 fish with an average weight of 0.339kg in the site at the end of May 2015. The Marine Engineering inspection took place in July 2015²
- Aquafact (who are contracted by MOWI to undertake benthic inspections of their sites) noted in the Benthic Report of 2015 that, between 23rd January 2015 and 15th March 2015, 87.84 tonnes of salmon were inputted to the site. There is no mention of the December 14 input as specified in Marine Institute records.³
- The 222,999 juveniles (Average Weight 40g) mentioned in the MED report of 2015 are absent from the records released by the Marine Institute.
- In 2017 Mowi again stocked 560,000 smolts (Licensed input 400,000 smolts). This figure was ascertained by release of documents by the Marine Institute and is contained at following link.⁴
- According to reports released to Salmon Watch Ireland the stocking of smolts in 2019⁵ amounted to circa 507,119 which are not consistent with condition 2(d) of their existing licence. This is an overstocking by over 107,119 fish or approximately 27% over the maximum permitted under the licence. Salmon Watch Ireland would also

² Records released by DAFM - [Marine Engineering Report 2015](#)

³ Aquafact Benthic Reports - [Aquafact Report 2015](#)

⁴ [Fish Movement to Deenish 2017](#)

⁵ Records released by Marine Institute - [Marine Institute Released Movements Deenish](#).

reiterate that stocking on an annual basis is not mentioned or contained in the conditions attached to the licence.

- There would have been a significant increase in effluent from the farm from 2013 onwards. 838k (Licence 800K) smolts were stocked in 2013, circa 787K smolts (87.84 Tonnes) (Licence 400K) in 2015, 560 K (Licence 400 k) in 2017. These figures for stocking are outside the licence conditions. The trial licence was also overstocked by upwards of 38 K fish (High Court affidavit mentions 800 K). It is obvious that increased stocking of the site by such a large degree would certainly have increased organic materials emanating from the site. The interpretation by MOWI that effluent emanating from the physical process of harvesting was the reason that condition 2(e) was contained in original licence cannot be substantiated.
- There has been a concerted campaign of non-cooperation by MOWI in their dealings with the Department of Agriculture, Food and Marine in relation to the following licence condition.
- **“Aquaculture Licence – substitution for condition 2(1) of the following condition: The Licensee shall co-operate in the audit from time to time of its aquaculture operations and licensed area and facilities and premises in accordance with the detailed specifications of the Department of Communications, Marine and Natural Resources (Monitoring Protocol No. 4 for Offshore Finfish Farms – Audit of Operations, as may be revised from time to time)**
- The Marine Engineering Reports for Deenish Island note non-compliance with stocking rates and non-disclosure of standing stock. It is noted that operators of the site refused to disclose stock on site to inspectors thus breaching the terms and conditions of their licence. It is obvious that on-site personnel were instructed to refuse these stocking figures to frustrate compliance and audit activities of the Department.⁶

3. Natura Sites

The Deenish farm site is located within the Kenmare Bay SAC (002158) and the farm is also located within the confines of the Deenish Island and Scariff Island SPA (004175)

Adjacent SACs include the Blackwater River (Kerry) SAC (IE0002173), Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (IE0000365) Ballinskelligs Bay and Inny Estuary SAC, (000335) and the Glanmore Bog SAC (001879)

The qualifying interests of two of these SAC's include both wild Atlantic salmon, *Salmo salar* and Pearl Mussel, *Margaritifera margaritifera*. The two SACs in question are the Blackwater River (Kerry) SAC (IE0002173), Killarney National Park, Macgillycuddy's Reeks and Caragh

⁶ [Marine Engineering Reports](#)

River Catchment SAC (IE0000365). The Glanmore Bog SAC qualifying interests includes *Margaritifera margaritifera*.

In regard to wild salmon the rivers with a hydrological connection to these sites include the following designated salmon rivers, Sneem River, Owreagh, Kerry Blackwater and the Waterville or Currane catchment. However, there are other rivers and smaller catchments which may be affected by the Deenish site which also enjoy the protection status for wild salmon as a consequence of a hydrological connection to the above-mentioned SAC's but are not designated as salmon rivers. These include the following, Staigue, Bunnow and Coomnahorna and other lesser numerous streams on Northwest shore of Kenmare Bay which may be impacted by the farm at Deenish. These smaller catchments are unassessed but, in all probability, support small unique and vulnerable stocks of Atlantic salmon. It is important to note that the Kerry Blackwater has not met its conservation limit in any year since 2012 but is marginally above conservation limit for 2024 (Surplus of 38 fish), and the Owreagh has not been deemed to be attaining its conservation limit since 2007 and thus both are extremely vulnerable to continued or further deterioration from sea lice or disease emanating from Deenish or from a combination of other farms operating in Kenmare Bay. Another catchment which is a designated salmon river is Lough Fadda which has also a hydrological connection to the Glanmore Bog SAC. This catchment is deemed not to be attaining its conservation limit for Atlantic salmon.

In regard to *Margaritifera margaritifera* it is evident that activities at Deenish will have a significant effect on the internationally important populations contained within the Currane system and Kerry Blackwater by reducing salmonid juvenile populations as a consequence of sea lice and disease vectors thereby reducing viability of mussel populations. It is also important to note that other smaller catchments bordering Kenmare Bay have extant populations of *Margaritifera margaritifera* including the Owreagh Bunnow, Sneem, Tahilla, Finnihy, Sheen, Roughty, Owenshagh, and Dromoghty

The Glanmore Bog SAC (001879) has *Margaritifera margaritifera* as a qualifying interest and it is noteworthy that the two of the rivers which flows through this SAC are unassessed for their salmonid stocks. Another as mentioned above, Lough Fadda has a hydrological connection to this SAC. Any continuing or further impact from sea lice or disease will certainly reduce adult salmonid returns thus directly affecting juvenile salmon and trout numbers within the SAC with consequent erosion of mussel populations. The absolute necessity to have anadromous trout stocks as a requirement is aptly described in the following paper which describes anadromous females as the drivers of juvenile density.⁷

⁷ A small number of anadromous females drive reproduction in a brown trout (*Salmo trutta*) population in an English chalk stream. <https://onlinelibrary.wiley.com/doi/ful/10.1111/fwb.12768>

The limited assessment of these catchments is entirely unsatisfactory and does not conform to what is required pursuant to Article 6(3) of the Habitats Directive.

There has been an effort by the Marine Institute on occasions to suggest that brown trout juveniles would be able to fill any shortfall in salmon numbers or shortfall of anadromous trout in catchments. There is no scientific basis or study for this contention and thus should be discounted.

4. Sea Lice

It is clear that there is a substantial conflict between Inland Fisheries Ireland and the Marine Institute⁸ in regard to the impact of sea lice on wild Atlantic salmon and sea trout. The legal basis of the precautionary principal and case law is as follows.

"The precautionary principle is an approach to risk management, where, if it is possible that a given policy or action might cause harm to the public or the environment and if there is still no scientific agreement on the issue, the policy or action in question should not be carried out."⁹

It is evident that this specifically applies and is acknowledged in the NIS documents as supplied by MOWI.

As discussed above there are a large number of catchments which have a hydrological connectivity with the two SAC's which have *Salmo salar* as a qualifying interest.

The modelling of dispersal of sea lice from Deenish as submitted by MOWI is certainly flawed as the following study carried out by the Marine Institute¹⁰ and MOWI demonstrated substantially different outcomes. The study demonstrates a radically different outcome and the modelling presented in the NIS as submitted by MOWI should be viewed as unreliable and misleading.

It should be noted that the Marine Institute study is a physical study rather than a computer-generated study.

The Deenish site has two conditions attached to the original expired licence which affect sea trout stocks specifically and we wish to expand on the necessity that both conditions are examined in the light of the absolute collapse of sea trout stocks in Lough Currane and indeed throughout the catchments flowing into Kenmare Bay and Ballinskelligs Bay. These conditions are:

"This licence will remain subject to ongoing review in light of continued monitoring of, and research into, the two marine sites and neighbouring sea trout fisheries which may be undertaken by the Salmon Research Agency and/or the Fisheries Research Centre."

⁸ Correspondence Minister Eamonn Ryan and Reply by Minister Charlie Mc Conologue
<https://drive.google.com/file/d/1XPpqrOj6iwwd0SHE8c5Wddz1q72EfrL/view?usp=sharing>

⁹ Precautionary Principal - <https://eur-lex.europa.eu/EN/legal-content/glossary/precautionary-principle.html#:~:text=The%20precautionary%20principle%20is%20an,should%20not%20be%20carried%20out.>

¹⁰ Marine Institute Aqua Plan - <https://drive.google.com/file/d/1GtbIvtDyFksK6pGd-zYQw5iBwvsV5y38/view?usp=sharing>

"In the event of proven contra-indications for sea trout stocks causatively linked to the fish farming operations permitted under this licence, the Minister may exercise his discretion to take any necessary protective measures ranging from reduction in permitted production levels to revocation of the licence and harvesting of all stock."

We would also like to draw your attention to the following scientific papers which reflect damage to sea trout stocks with specific detailed references to Kenmare Bay rivers and the Waterville system. It should be noted that these studies were carried out when production levels were substantially lower than they are in modern times.

It is also noteworthy that the premise in the NIS that copepod lice have to reach nearby estuarine waters to infect wild salmon and sea trout is entirely without foundation and does not consider the movement of juvenile salmon and sea trout smolts during migration.

The first study relates to a paper published in 2017 ¹¹which demonstrates the different infestation pressures between areas where salmon farms are present and farms which are over 30km from salmonid rivers.

The second study is ***" The Relationship Between Sea Lice Infestation, Sea Lice Production and Sea Trout Survival in Ireland, 1992-2001."***¹²

A paragraph from this study adequately demonstrates the link between salmon farms and proximity to sea trout catchments.

"It is clear from the data presented that there is a strong relationship between high infestation of juvenile lice stages on sea trout and proximity to salmon farms and the patterns of infestation and infestation levels change markedly beyond about 25-30 km from salmon farms. There is also a decrease in risk of osmoregulatory imbalance and mortality from sea lice infection at distances greater than 25-30 km from farms. From these relationships we therefore conclude that sea lice from marine salmon farms were a major contributory factor in the sea trout stock collapses observed in salmon aquaculture areas in western Ireland, western Scotland, and western Norway."

The distance of 30 km is relevant in the context of Deenish Island as it encompasses the Waterville catchment, Sneem catchment and considering the narrowness of Kenmare Bay and the location of Inishfarnard it is more than probable that elevated levels of infestation will occur on fish migrating from the Kerry Blackwater.

It is also probable that smaller catchments which may depend on sea trout to produce the necessary density of juvenile trout to host *Margaritifera margaritifera* gloecidia are at substantial risk of extinction if indeed it has not taken place already. It is evident that there has

¹¹ 2017 Report Sea Trout Symposium -https://drive.google.com/file/d/19PeLini6w6opCL9uZlYXW2Ne7aeKzT_c/view?usp=sharing

¹² The Relationship Between Sea Lice Infestation, Sea Lice Production and Sea Trout Survival in Ireland, 1992-2001.
<https://onlinelibrary.wiley.com/doi/10.1002/9780470995495.ch10>

been no study to determine whether Atlantic salmon or sea trout progeny are the dominant host in the various catchments mentioned in the NIS or indeed some of the larger catchments including the Cummeragh or Coppal rivers within the Lough Currane catchment. This is not satisfactory and falls well short of the accepted level of investigation required pursuant to Article 6(3) of the Habitats Directive.

In regard to evidence of premature returning sea trout post smolts, we have secured footage on two dates which demonstrate high infestation pressure in the Waterville Catchment and the Kerry Blackwater. The Waterville catchment video is from June 2017¹³ and demonstrates elevated levels of juvenile lice on premature returning sea trout. The second video is from Kerry Blackwater¹⁴ in June 2021 which demonstrates a high level of infestation by juvenile and adult lice.

It is important to note that sea lice levels on Deenish and Inishfarnard are reported as low during these periods and below trigger levels. We contend that the trigger levels, as set out in the sea lice monitoring protocol, are arbitrary and have no basis in science and there is essentially no proof that the trigger levels or indeed lower levels of lice on farms result in no increase in normal background levels within bays.

We also contend that the sites in Kenmare Bay are marine in nature with high salinity and are affected by *Caligus elongatus* and *Lepeophtheirus salmonis*. It is essential that the impact of *Caligus elongatus* is included in the NIS submitted by MOWI. It is evident that this particular species can be dominant in full marine conditions and may be particularly harmful to migrating salmon and sea trout smolts.

There are a number of separate migration patterns in the sea trout stock in Waterville. One occurs in the spring with sea trout smolts migrating predominantly in April and May and post spawned sea trout adults also going to sea in early spring. There is a separate migration of non-maturing trout in the autumn which can also be affected by sea lice emanating from Deenish and other farms in Kenmare Bay.

It must be stressed that the presence of large numbers of farmed salmon in farms in Kenmare Bay result in a situation whereby they become a strong vector for the production and spread of both species of sea lice.

While sea trout are not a protected species under the Habitats Directive, they may have a significant role in protecting the life cycle of *Margaritifera margaritifera*, (Pearl Mussel). The rivers within the Killarney, Macgillicuddy's Reeks and Caragh SAC and the Blackwater River (Kerry SAC) and Glanmore Bog SAC have large population of mussels which are listed as a qualifying interest. The Currane catchment is one of eight priority catchments¹⁵ nationally for important populations of very endangered freshwater pearl mussels. However, the population is of poor conservation status and its viability will be further threatened by impacting it's

¹³ Waterville June 2017 Video - <https://drive.google.com/file/d/0B3onXoqc0rJtbE42dUhTV3dLcmM/view?usp=sharing&resourcekey=0-Nr2ThD8rsvNdpUE-sxNCvg>

¹⁴ Kerry Blackwater Video - https://drive.google.com/file/d/1nKsER0D-pRxNHZWyJvZoCp1u_Z_sLEcT/view?usp=sharing

¹⁵ Pearl Mussel Project <https://www.pearlmusselproject.ie/catchments-approach/>

glochidial host – juvenile migratory salmonids. As mentioned before a large number of these rivers will be affected by sea lice impact on migrating salmonids. Consequently the 'indirect effect' of these salmon farms, including T06/202, is having a detrimental effect on FPM populations and abundance, which has not been capable of assessment or quantification'.

As mentioned in the introduction the absolute crash in sea trout stocks coincided with the reopening of the Deenish and Inishfarnard sites and indeed the enormous overstocking of both sites carried out illegally by MOWI Ireland. The fish counter statistics and angling returns demonstrate a substantial decline since 2011 with the tourist angling industry now functionally extinct. This is certainly a collapse and is linked to these farms. This should be no surprise as without exception sea trout stocks have collapsed in every jurisdiction and area where salmon farming exists. As the Marine Institute runs the salmonid index system at Burishoole in County Mayo it should come as no surprise that they have totally ignored their own census data concerning sea trout which have effectively been eradicated by salmon farming in Clew Bay¹⁶. This is nothing short of a disgraceful abandonment of their duty to protect wild salmonids and certainly we do not have any confidence in their repeated assertions concerning the impact of sea lice on wild salmonids.

In regard to wild salmon, we are not satisfied with the level of scrutiny of peer reviewed material concerning the impact of sea lice on wild salmon. While the NIS does discuss the different interpretation of data, it totally ignores the effect on returning adults. We have prepared a document which outlines the various peer reviewed papers concerning the impact of sea lice on adult salmon returns¹⁷

The European Court of Justice (ECJ) in several judgments¹⁸ 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 ignores the ECJ jurisprudence and only considers a narrow range and indeed interpretation 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 Institute¹⁹ in respect of sea lice impacts on wild salmonids in the marine setting.

¹⁶ Newport Annual Report Page 2021, Page 28 <https://drive.google.com/file/d/115-HFewsA7IEagiKKQiLsJLTxaYy9297/view?usp=sharing>

¹⁷ Salmon Loss Calculation Adult Returns <https://docs.google.com/spreadsheets/d/1EuepvI1wJKDoGUFFd-vKzgr4APL2q8-B/edit?usp=sharing&rtfpof=true&sd=true>

¹⁸ 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

¹⁹ 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.

Salmon Watch Ireland strongly asserts that DAFM must consider the application by MOWI 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 MOWI in their NIS associated with this application and are once again at considerable variance with both national 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 MOWI in this application to minimize the effects caused by salmon farming.

While other peer reviewed papers concerning sea lice appear in the NIS it is obvious that a bias is towards the Marine Institute papers and that the Competent Authority in its examination of same is not independent in this matter as the resources of the Marine Institute were utilised to carry out the Jackson studies. Salmon Watch Ireland strongly suggests that an independent review be considered to examine the studies carried out by Jackson which have already been widely dismissed as defective²⁰. Simply put there is an impact on vulnerable salmon stocks and to licence open cage farming is effectively ignoring the inevitable outcome of this practice, less adult returns.

It is alarming to note the dependence of MOWI on sea lice treatments and the use of cleaner fish to mitigate the effects of sea lice on wild salmon as the studies concerning impacts were carried out while mitigation was in place. As mentioned previously we reiterate that trigger levels for treatment are arbitrary and have no scientific basis to suggest that background natural levels are maintained in the presence of salmon farms.

It is essential to note that there is a substantial difference in impact aligned with biomass, period fish are in farms and environmental conditions. There are significant differences in impacts if farms in bays are recently stocked with smolts during spring, grower fish in second year of production and bays that are fallowed. The situation in Kenmare Bay presently has fish in second year of production at all times in that Deenish or Inishfarnard are in production in alternate years. There is no whole-bay fallowing and there is a consistent source of sea lice larval distribution 12 months per year.

The impacts are readily recognisable from Passive Integrated Transponder (PIT) studies carried out by Inland Fisheries Ireland on the Erriff river in County Mayo.²¹ These studies clearly

[https://oar.marine.ie/bitstream/handle/10793/849/Impact%20of%20Lepeophtheirus%20Salmonis%20on%20Migrating%20Atlantic%20Salmon%20\(Jackson,%20D.%20et%20al.\).pdf?sequence=1](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>

²⁰ 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/1TtsD1Ra3R7bczcNtUZ2IMT6LS3BUpD1G/view?usp=sharing>

²¹ Inland Fisheries Ireland Annual Report Page 96/97 <https://drive.google.com/file/d/15VACohitPK9vjm-tSAhj9GOzXm1eBL94/view?usp=sharing>

demonstrate that there is a substantial effect on salmon and sea trout survival and all times but is substantially greater when farms are in second year of production.

The following peer reviewed papers although not exhaustive demonstrate the impact of sea lice on wild salmon and must be considered in order to comply with the standards required what is required pursuant to Article 6(3) of the Habitats Directive.²²

5. Amoebic Gill Disease

This disease has become established in all farming areas and is a direct threat to wild salmonid stocks. It is noteworthy that the Marine Institute has chosen to alert NASCO in the NASCO Implementation Plan for the period 2019-2024 EU – Ireland (Revised version submitted November 2021)²³ to the fact that wild salmon smolts may become infected on their migration through areas with infected salmon farms.

There would also be a considerable threat to sea trout. The Marine institute notes that the “threat of these diseases to wild salmon is unknown at present” thereby introducing scientific doubt.

It is also a concern that sea trout also may become infected during their smolt migration both in spring and autumn. The farms at Deenish and Inishfarnard are particularly affected by AGD and thus act as a reservoir to increase exponentially the causative agent.

The failure to analyse the impact of outbreaks of AGD on wild salmonids is certainly not in compliance with the provisions of required pursuant to Article 6(3) of the Habitats Directive.

These outbreaks and the potential of rapid increases in the causative agent as a consequence of farm induced exponential growth cannot be discounted. This is a very real issue and has not been adequately researched.

The following paper illustrates the difference between the mortality rate between farmed salmon smolts, farmed / wild hybrids smolts and wild smolts. It is apparent that wild salmon smolts suffer much greater mortality than the other categories.²⁴

6. Escapes

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.

²² Scientific Papers Sea Lice https://drive.google.com/drive/folders/14pkmp_eiA4zA_yE-w1wXrXJCyWdPQNr?usp=sharing

²³ Implementation Plan Ireland NASCO Page 25 https://nasco.int/wp-content/uploads/2021/11/IP1915rev2_Revised-Implementation-Plan_EU-Ireland.pdf

²⁴ Links between host genetics, metabolism, gut microbiome and amoebic gill disease (AGD) in Atlantic salmon <https://animalmicrobiome.biomedcentral.com/articles/10.1186/s42523-022-00203-x>

It is also noteworthy that a Marine Institute²⁵ paper has strongly noted the negative impact of escapees on wild stocks. Escaped farmed salmon have been observed sporadically in the Kenmare Bay area and captured by anglers.

The prospect of genetic introgression between farmed and wild populations gives rise to lower survival amongst the mutant strain progeny with lower marine survival.

It is agreed that salmon which are mature or near to maturation pose the most significant risk, but a scenario whereby escapes occur on a large scale cannot be ruled out as climatic influences become more problematic in regard to damage to infrastructure, particularly in winter.

The scenario whereby large escapes are described as problematic (thousands) is not considering the wild spawning stocks of the various rivers in and around Kenmare Bay. The number of wild salmon spawning is many multitudes lower than even a “minor” escape.

It is essential to realise that the farms presently operating in the environs of Kenmare Bay dwarf the total run of wild salmon back to Ireland by a factor of four. Thus, an escape of mature salmon numbering in hundreds could effectively overrun wild salmon populations in the Kerry Blackwater and Currane systems as well as numerous smaller catchments.

Introgression is a problem in salmon farming areas which has implications for both salmon populations and pearl mussel populations. Introgression studies should have been undertaken to provide an analysis of existence of introgression in the area and this failure to adequately address this issue demonstrates a further flaw in this application.

7. Benthic Studies

Salmon Watch Ireland contends strongly that benthic studies which are carried out annually are not a sufficient indicator especially in light of the location of this farm. Oceanic current and exposure to high winds at this site would certainly negate the results of the benthic studies due to underwater inspection sites being effectively located within a short distance of farms. Due to conditions at this site and the open coastal area, effluent and other materials can travel widely from this site and will certainly not be picked up by localised inspection.

It is also noted that the most recent Benthic Reports note that Deenish Island was in an unacceptable condition.²⁶

It is our contention that the protocol is totally insufficient to examine wider impacts of salmon farms outside the allowable zone of impact.

²⁵ 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

²⁶ A Review of Benthic Monitoring at Irish Finfish Aquaculture Sites During 2021
https://drive.google.com/file/d/1e4w56uTw1sJlbc_rb_AVy48kVI5sylUI/view?usp=sharing

8. Nutrient Pollution

In light of the study by the Marine Institute with MOWI (Marine Institute Aqua Plan) at footnote ⁴ it would be difficult to reconcile with the modelling presented in the NIS. It is abundantly obvious that it is unreliable and frankly not believable. There is also a requirement to design and designate a mixing zone for Dissolved Inorganic Nitrogen (DIN) and is explicitly contained in Irish Legislation. SI 272 of 2009.

9. Consideration of Alternatives

There has been no attempt to integrate modern closed containment technologies in this application. The obvious reason for this is that economic considerations are being given precedence over environmental damage. It is obvious that this industry will not survive without innovation particularly in view of warming oceans. Open cage farming will not survive economically or environmentally.

10. Animal Welfare

The total mortality figures contained in the Aquaculture Stewardship Council (ASC) reports note exceptional rates of up to 45.8% on Deenish which obviously demonstrate a substantial animal welfare issue at the site.

“For the previous crop (2015) the total input number was 828,286. Total mortalities were 393,417 or 45.8%.”²⁷

While environmental challenges exist presently due to higher water temperatures it is abundantly clear that this will only get worse as climatic conditions deteriorate. Harmful algal blooms, sea lice and jellyfish infestation will only be amplified by declining marine conditions.

The total mortality figures reported by MOWI to ASC ²⁸were as follows: production cycle 2013 (36.4%), 2015 (45.8%), 2017 (23.9%) and 2019 (28.9%). This is well above the figures reported in Scotland and Norway.

Ireland is certainly not suitable for open cage farming at sea. The veracity of these figures may be questionable as they are self-reported and with obvious anomalies with stocking and harvest figures may in fact be understated. This is a substantial animal welfare issue and is highly suggestive that farming should not continue as a matter of public concern.

²⁷ Aquaculture Stewardship Council - https://drive.google.com/file/d/1-6Qw39sTc0WIXOb2dpDggqv7pTR_c9XS/view?usp=sharing
Section 5.1.5

²⁸ Aquaculture Stewardship Council - <https://asc-aqua.org/find-a-farm/ASC01362/>

These figures are under-reported in the application by MOWI.

11. Conclusion

Salmon Watch Ireland has expressed our views on this application in the light of the alarming collapse of both sea trout and salmon locally and nationally but also in regard to one of the few remaining areas where sustainable angling tourism could be revitalised while preserving economic activity in the area.

The fact that the licensee, MOWI, has been in constant significant breach of the terms of its licence at this site should be taken as indicating that such breaches will continue at this site, as well as at its other sites off the West Coast, if the licence is renewed.

A strong refusal for blatant contempt for the terms of the licence needs to be delivered to the licensee if the integrity of the licencing system is to be upheld.

In addition to the forgoing serious consideration must be given to the weight of scientific evidence of the impact of open cage salmon farming on the survival rates of migrating salmon and sea trout smolts and we contend therefore that the precautionary principle needs to be invoked in respect of the decision as to whether to renew the marine finfish aquaculture licence at this site. As outlined in this submission the Deenish Island site is in close proximity to a number of SAC's and this further underlines the imperative of invoking the precautionary principle.



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Chair Salmon Watch Ireland

Salmon Watch Ireland
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