



**Objection to Aquaculture Licence Applications T05/122 & T05/122A
Gearhies East & Gearhies West
Applicant: Murphy's Irish Seafood (MIS)
Location: Bantry Bay, County Cork
Application Type: Review & Renewal of Marine Finfish Aquaculture
T05/122 & T05/122A
Date: 01 December 2025**

The legal requirement for consent for this licence is contained in the following judgements:

Kelly (Eamon) v An Bord Pleanála [2014] IEHC 400¹ and Connelly v An Bord Pleanála [2018] IESC 31. In Connelly, the Supreme Court explained that the 'overall conclusion' which must be reached before the competent authority will have jurisdiction to grant development consent following an appropriate assessment 'is that all scientific doubt about the potential adverse effects on the sensitive area have been removed.'

Executive Summary

Salmon Watch Ireland (SWI) submits that aquaculture licences **T05/122 and T05/122A cannot lawfully be renewed**. The application by Murphy's Irish Sea Food fails to meet fundamental requirements under the **Habitats Directive, Water Framework Directive (WFD), EIA Directive**, and the **Nature Restoration Law**, and does not remove the scientific doubt necessary to permit authorisation.

Legal Compliance Not Achieved

- Article 6(3) of the Habitats Directive requires **no reasonable scientific doubt** of no adverse effects on SACs—this threshold is not met.
- Article 6(4) cannot apply: no **imperative reasons of overriding public interest (IROPI)** exist.
- Under the WFD, **any deterioration** of High-Status waters is unlawful outside narrow exceptions that are not invoked here.
- Irish case law (*Connelly, Kelly, SWI v ALAB*) confirms that consent cannot be granted where scientific uncertainty persists.

¹ http://www.europeanrights.eu/public/sentenze/Irlanda-25luglio2014-High_Court.pdf

Sensitive Location and Protected Species

- The farms lie close to major rivers and small catchments supporting **sea trout, salmon, and freshwater pearl mussel (FPM)**.
- The sites fall within the **zone of influence of SACs** in Cork and Kerry, including the **Kerry Blackwater and Currane system**.
- Recent farmed-salmon escapes (e.g., Killary Harbour) show escapees can travel **up to 100 km**, highlighting the inadequacy of the NIS screening.

Deficient EIAR, NIS and Modelling

- The **TELEMAC-3D model** lacks validation, error analysis, model-skill assessment, and transparent baseline inputs (DIN, BOD).
- **DIN exceedances** above 0.17 mg/L High-Status thresholds are already recorded in Bantry Bay.
- **Emamectin Benzoate (Slice®)** is modelled above the EQS, breaching the WFD.
- Solids deposition modelling (<0.5 mm/month) contradicts field findings of **Beggiatoa mats, organic enrichment, and degraded sediments**.
- The NIS and 2024 addendum remain incomplete, relying on flawed hydrodynamic and biological models.

Wild Salmonids, Disease and Sea Lice

- Sea-lice modelling is scientifically inadequate (no vertical movement, no infection thresholds, no calibration).
- Peer-reviewed studies show **substantial losses in adult salmon returns** linked to farm-origin lice, contradicting the narrow interpretation of Marine Institute papers.
- Increased biomass (up to **306,000 smolts; 1,125 t MAB**) and warming seas escalate lice proliferation and disease pressure (including **AGD**).
- Sea trout—now protected under the **Nature Restoration Law**—and FPM populations dependent on juvenile salmonids are at high risk.

Additional Ecological Concerns

- Escapee salmon threaten **genetic integrity** of wild populations and FPM host relationships.
- High farmed-salmon mortality rates in comparable sites (up to ~45%) indicate poor welfare and disease conditions.

Cumulative Impacts and Alternatives

- Bantry Bay contains multiple finfish farms, numerous aquaculture sites, heavy marine traffic, and sensitive Natura features, yet cumulative impacts are **superficially addressed**.
- No meaningful assessment of **alternative technologies** (closed/land-based systems) is provided.

Conclusion

Given the clear environmental risks, legal non-compliance, flawed modelling, incomplete assessments, and persistent scientific doubt, SWI concludes that the Department **cannot lawfully renew licences T05/122 and T05/122A**. The applications fail to protect biodiversity, habitat integrity, water quality, and legally protected species, and the modelling significantly **underestimates environmental impact**.

Introduction

The documentation submitted by **Murphy's Irish Sea Food** in support of the review and renewal of its existing aquaculture licence in **Bantry Bay, County Cork** falls substantially short of the requirements set out under **Article 6(3) of the Habitats Directive**. Reliance on **Article 6(4)** is also precluded, as no *imperative reasons of overriding public interest* (IROPI) have been identified that could justify the continued operation of a salmon farm at this highly sensitive location. The **EIAR** provided is materially deficient and cannot be regarded as compliant with EU environmental legislation.

The two aquaculture sites lie in close proximity to a significant number of **designated salmon rivers** discharging into Bantry Bay. The principal rivers include the **Mealagh, Owvane, Coomhola, Glengarriff, and Adrigole**. Numerous smaller catchments also flow into the bay—among them the **Dromgowla**, which received extensive scrutiny during the Shot Head appeal process. Although not formally designated as salmon rivers, these smaller systems do support salmon populations, as demonstrated in the Dromgowla. Several catchments also support populations of ***Margaritifera margaritifera***.

Using a Source–Pathway–Receptor framework, the proposed sites clearly fall within the **zone of influence** of multiple **Special Areas of Conservation (SACs)** for which **Atlantic salmon** is a qualifying interest, necessitating rigorous assessment of potential impacts. Additional Natura 2000 sites designated for ***Margaritifera margaritifera*** similarly requires appropriate assessment. The **Natura Impact Statement (NIS)** submitted fails to adequately address the vulnerabilities of either Atlantic salmon or *Margaritifera margaritifera*.

The SAC rivers flowing into **Kenmare Bay** and **Ballinskelligs Bay**—including the **Currane system** and the **Kerry Blackwater**—contain Atlantic salmon as a qualifying interest, with the Kerry Blackwater designated for both salmon and *Margaritifera margaritifera*. Given the geographic adjacency of these bays to Bantry Bay, potential impacts from escapes and disease transmission must be assessed comprehensively. The risk of escape cannot be discounted, particularly in the context of increasing storm intensity associated with climate change. The 2014

escape from this farm stands as a reminder that engineering solutions are no guarantee to avoid harm.

Both proposed farms are located in **middle reaches of Bantry Bay**, where they pose substantial risks to all rivers within the bay. They also present a significant threat to **sea trout**, and—when combined with the other farms already operating in the bay—the cumulative risk to wild salmonids becomes unacceptable. Potential impacts include transmission of **AGD, parasites, pathogens**, and the risk of **genetic introgression** arising from farmed salmon escapes.

The NIS considers impacts on the following SACs:

- Glengarriff Harbour and Woodland SAC (000090)
- Sheep's Head to Toe Head SAC (001917)
- Cahal Mountains SAC (000093)
- Kenmare River SAC (002158)
- Beara Peninsula SAC (002268)

However, SWI strongly maintains that the **Kerry Blackwater SAC** and the **Currane system** must also be included in any credible assessment, given their susceptibility to impacts from escaped farmed salmon and disease transfer originating from the Bantry Bay sites.

Although the applicant has produced a revised **TELEMAC-3D hydrodynamic model (2024)** and updated **NIS (2024)**, these do **not** remedy the fundamental shortcomings in the application. The model remains **unvalidated, unreviewed**, and inconsistent with recorded environmental data. The submission further fails to adequately address **cumulative effects, sea-lice dispersion, wild salmonid sensitivity, benthic impacts, Emamectin Benzoate (Slice®) exceedances**, and **nitrogen loading**.

The **Water Framework Directive** prohibits deterioration of **High-Status** waterbodies, yet empirical monitoring indicate **breaches of environmental thresholds**. Under the **Habitats Directive**, authorisation may only be granted where there is *no reasonable scientific doubt* regarding ecological safety—a standard that is plainly not met.

For these reasons, **SWI opposes the granting of these licences**.

Smaller Catchments

The minor rivers above as outlined enter Bantry Bay and Salmon Watch Ireland considers these rivers to be important waterbodies for migratory sea trout. Some of these smaller streams and rivers also sustain small and unique populations of Atlantic salmon which have not been adequately assessed in the environmental documents presented by the applicant.

The sea trout which inhabit these catchments and indeed all Irish catchments now enjoy protection under the Nature Restoration Law and are included along with Atlantic salmon as annex 111 species with specific protection under Article 5. (Restoration of marine ecosystems). ²

This essentially gives sea trout as a marine species added protection as follows:

Listed as a Marine Species of Concern: Sea trout are specifically included in Annex III (Article 5(3)) of the law—this means they are formally acknowledged alongside species like salmon.

Habitat Restoration Required: The law obliges EU countries to “put in place the restoration measures necessary to improve the quality and quantity of habitats of species” such as sea trout, and even to re-establish them where necessary. This includes the marine habitat.

Habitat Connectivity Focus: Restoring habitats is not just about individual sites. The law demands that connectivity between habitats be improved—crucial for migratory species like sea trout.

Ambitious Targets & Schedules: By 2050, the law requires that all ecosystems and species habitats in need of restoration be brought back to good condition. Intermediate milestones: 30% restoration by 2030, increasing to 60% by 2040, then 90% by 2050

Marine Habitat Measures

Under Article 5, Member States must assess marine habitats (e.g., coastal rivers, estuaries, sea-bed areas) and take restoration actions where they are not in “good condition”.

These include measures to counter pollution, restore river connectivity (barrier removal), and re-enable access to spawning grounds.

The transmission of sea lice and disease from these sites into the wider environment is already causing demonstrable harm to wild salmonids and will continue to do so if this licence is renewed. The risk of farmed salmon escape, with subsequent interbreeding and genetic introgression in wild salmon populations, is further heightened by climate change, which is driving increasingly severe and frequent storm events and more challenging marine conditions.

Ongoing problems with sea lice infestations, escapees, and disease-related mortality in wild juvenile salmonids have direct and serious implications for **pearl mussel (*Margaritifera margaritifera*)** populations in the affected catchments. These impacts are likely to intensify under projected climate change scenarios, as rising sea surface

² Nature Restoration Law – Article 5/5 - <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1991&qid=1722240349976>

temperatures shorten the sea-lice generational cycle and facilitate greater disease proliferation.

The potential for **deterioration in water quality** also cannot be discounted. The modelling of **BOD and dissolved inorganic nitrogen (DIN), and phosphorus** appears to rely on a suite of notional values, with little transparency regarding the input data used. The applicant has not provided the underlying datasets, preventing any independent verification or validation of the model. It is reasonable to assume that the Department of Agriculture, Food and the Marine (DAFM) is likewise not in possession of these data and therefore cannot undertake an independent appraisal.

It is wholly inadequate for a competent authority to accept a modelling exercise at face value without transparent data, independent scrutiny, and appropriate quality assurance. Similar concerns arise in relation to the modelling of **sea-lice dispersal**.

This issue of transparency in expert evidence and modelling was highlighted in a recent **High Court judgment**, where the Court stressed that experts should “show their workings,” or at least clearly set out the facts and assumptions upon which their opinions are based. In this context, the competent authority should have explained how it evaluated the hydrodynamic and water-quality modelling presented for the area in question. This is especially important given that hydrodynamic and dispersal modelling produced by the **Marine Institute** appears to differ significantly from the predictions contained in the NIS.

Given these shortcomings, all documentation submitted by the applicant requires fully **independent, rigorous, and critical appraisal** by your department before any review or renewal of this licence can be contemplated. Based on the material currently presented by Murphy’s Irish Sea Food, such an appraisal is not possible.

We further note that both sites are in **High-Status coastal waterbodies**, and we are particularly concerned with the **DIN modelling** in the environmental documentation. While the modelling indicates that DIN concentrations will generally remain within the High-Status category, it also predicts that the adjacent **Roancharraig** site will, at times, exceed the maximum permissible parameters (As noted in recent application by MOWI).

Field survey data confirm that sites within Bantry Bay have already exceeded the High-Status DIN threshold of **0.17 mg/l**. This demonstrates that the environment is already under nutrient pressure, and it strongly indicates that the **additional tonnage and expanded farm area** proposed in this application would further increase nutrient loading.

The planned increase in biomass and stocking density represents a substantial escalation compared to previous production cycles and will unavoidably heighten the risk of pollution. The applicant’s production model permits the stocking of **306,000 smolts**, enabling a **maximum allowable biomass (MAB) of 1,125 tonnes** at certain stages of the cycle. When combined with the potential for additional stock at

the other farms operating within Bantry Bay, the cumulative pressure on the receiving environment will be significantly exacerbated.

It is also relevant that the recent High Court judgment relating to **Shot Head** expressly addressed breaches of water-body status and underscored the legal consequences of such exceedances.

SWI acknowledges that the applicant has now introduced a **TELEMAC-3D hydrodynamic model**, replacing the previously criticised **MIKE-21 2D** model. However, the new modelling remains seriously deficient:

- It appears that no Acoustic Doppler Current Profiler (**ADCP**), tide-gauge, or current-meter data are presented to validate the model.
- No **error analysis**, RMSE, or correlation statistics are provided.
- There is no evidence that the **Marine Institute** has reviewed, tested, or accepted the TELEMAC-3D model.
- The model relies on **notional baseline values** for nitrogen and BOD that cannot be independently confirmed.
- There is **no model-skill assessment**, contrary to recognised best practice in environmental modelling.

Under Irish and EU law, any modelling used to support **Appropriate Assessment** must be **independently verifiable**, transparent, and grounded in the **best scientific evidence available**. The TELEMAC-3D modelling presented in this application does not meet that standard.

A temporary exceedance may only be permitted under Article 4.6 of the WFD, which applies in very limited and exceptional circumstances. Outside of those, any exceedance is a breach, including short-term or localized ones.

In the context of aquaculture licensing, temporary exceedance is not permitted.

“Article 4.6 WFD stipulates that 'Temporary deterioration in the status of bodies of water shall not be in breach' of the WFD – but only in limited listed circumstances not here relevant. Article 4.7 WFD stipulates, inter alia, that Member States will not be in breach where failure to prevent deterioration of body of surface water from high to good status is the result of new sustainable human development activities and certain conditions are met. It follows that outside those circumstances listed in Articles 4.6 and 4.7 – i.e. generally – deterioration from high to good status is in breach. No-one in this case has suggested reliance on the exceptions provided by Articles 4.6 and 4.7.”

This effectively demonstrates that in the absence of such circumstances any determination must be to refuse consent.

Special Areas of Conservation

We certainly are concerned with the recent escape of farmed salmon in Killary³ harbour and we consider that the large number of SACs with salmon and pearl mussel populations as a Q1 located in county Cork and Kerry may be at risk as demonstrated by the migration of farmed salmon into rivers up to 100 km from the Killary escape.

This certainly calls into question the inadequate examination of SACs outside Bantry Bay including SACs especially where Atlantic salmon and pearl mussel are listed as qualifying interests.

Sea Lice

The sea-lice modelling presented is fundamentally inadequate and fails to reflect established scientific understanding. Specifically:

- Larvae are modelled as **passive particles**, which contradicts biological evidence regarding their behaviour.
- **Vertical movement, surface aggregation, and diel migration patterns** are not included.
- No **infection threshold** is defined.
- No **dose–response relationship** for wild salmonids is assessed.
- The model is **uncalibrated** against field data on lice distributions.

Given these omissions, the modelling cannot meaningfully assess impacts on:

- **Atlantic salmon (Annex II species)**
- **Sea trout**, which are well-documented in the scientific literature as being highly vulnerable to sea-lice originating from aquaculture.
- **Freshwater pearl mussel (*Margaritifera margaritifera*)** populations, which depend on healthy salmonid hosts.

SWI emphasises that the **ecological risk posed to wild salmonids remains entirely unaddressed and unresolved**.

The NIS contains operational material relating to the transfer of farmed smolts to sea pens, but it contains no assessment whatsoever of the seawater-entry stage of **wild Atlantic salmon smolts**, despite this being the most vulnerable phase of their lifecycle and a recognised critical exposure window for sea-lice–induced mortality. The absence of any analysis of smolt migration timing, seawater-entry physiology, exposure pathways, route-specific infection pressure, or cumulative farm-origin lice load means that the assessment fails to consider an essential life stage of the

³ [Occurrence of Farmed Atlantic Salmon in Western River Basin Districts during August & September 2024](#)

Qualifying Interest. Consequently, the NIS does not provide the complete, precise and definitive findings required under Article 6(3) to rule out adverse effects on the integrity of salmon-related conservation objectives.

The environmental documentation relies on a selective summary of the Jaffa papers to downplay the well-established risks posed by farm-origin sea lice to wild Atlantic salmon and sea trout. However, the Jaffa material is **not peer-reviewed**, consists largely of conference abstracts and a preprint, and does not contain any hydrodynamic modelling, lice-exposure analysis, dose–response thresholds, or survival assessments relevant to Irish SAC salmon populations. Jaffa’s approach is limited to correlations in rod-catch data, which are not a valid indicator of marine survival and cannot attribute causation or rule out significant impacts from salmon aquaculture. Crucially, the NIS and EIAR omits the extensive, authoritative, peer-reviewed scientific literature that quantifies **12–44% increased marine mortality** in wild salmonids exposed to farm-origin lice—evidence routinely relied upon by regulatory authorities internationally. Reliance on weak, non-reviewed literature while disregarding the mainstream scientific consensus does **not** meet the Article 6(3) requirement for assessments to be based on the **best scientific knowledge in the field**, and the Jaffa papers cannot lawfully be used to support a conclusion of no adverse effect on the integrity of salmon-related conservation objectives.

We are not satisfied with the level of scrutiny of peer reviewed material concerning the impact of sea lice on wild salmon. We have prepared a document which outlines the various peer reviewed papers concerning the impact of sea lice on adult salmon returns.⁴

This clearly reflects the loss of adult returnees across a myriad of studies, and the interpretation of the Marine Institute is clearly flawed as the most important issue is returning adults and not focussing on a one percent differential in overall survival.

It is also clearly admitted that in years of poor survival indices at sea of wild salmon, wild smolts treated with Slice had a very substantial increase in survival against their wild untreated smolts. Conditions at sea are expected to be challenging due to climate and changing distribution of prey thus exacerbating issues surrounding the impact of sea lice originating from salmon farming areas.

We also strongly suggest that the efficacy of chemical treatments for sea lice has now become unreliable, and it is important to note that the paired releases which demonstrate a significant difference between treated and control cohorts in the earlier releases may be subject to a situation whereby the efficacy of the treatment may be reduced over time. The continued reliance on these trial releases should take account this reduction in efficacy rather than any suggestion that management

⁴ Smolt Loss Aquaculture Bays – Salmon Watch Ireland <https://docs.google.com/spreadsheets/d/1Euepvl1wJKDoGUFFd-vKzgr4APL2q8-B/edit?usp=sharing&oid=111338563308166601523&rtpof=true&sd=truehttps://docs.google.com/>

of sea lice on farms had improved. It is essential that the Marine Institute Studies⁵ be viewed with caution.

The following paper⁶ ***“notes that in a 19 year time series of release group studies of Atlantic salmon, we demonstrated that (i) the effect of subjecting out-migrating salmon smolts to parasite treatment on marine survival has been reduced over a time, (ii) the relation between salmon lice levels in the out-migration route of the salmon and effect of treatment against the parasite is weak, but also (iii) the return rates in both treated and untreated groups of salmon are negatively correlated with salmon lice levels, and (iv) returns of wild salmon to the region are similarly negatively correlated with salmon lice levels during the out-migration year. Our study suggests that salmon lice can have a large effect on wild salmon populations that is not revealed with randomized control trials using antiparasitic drugs. This should be better accounted for when considering the impacts of farms on wild salmon populations.”***

The European Court of Justice (ECJ)⁷ in several judgments 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 and their interpretation of the effect of sea lice on wild salmonids and which challenge the conclusions of the small and select number of reports which are the only ones that have been consistently considered by DAFM and indeed the industry.

It is unacceptable that the environmental reports 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 Institute in respect of sea lice impacts on wild salmonids in the marine setting.

⁵ Jackson, D., Cotter, D., Newell, J., McEvoy, S., O’Donohoe, P., Kane, F., McDermott, T., Kelly, S., and Drumm, A. (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. Journal of Fish Diseases. Available at [https://oar.marine.ie/bitstream/handle/10793/849/Impact%20of%20Lepeophtheirus%20Salmonis%20on%20Migrating%20Atlantic%20Salmon%20\(Jackson,%20D.%20et%20aL.\).pdf;jsessionid=C61B3246F793421270901A3CB67C911C?sequence=1](https://oar.marine.ie/bitstream/handle/10793/849/Impact%20of%20Lepeophtheirus%20Salmonis%20on%20Migrating%20Atlantic%20Salmon%20(Jackson,%20D.%20et%20aL.).pdf;jsessionid=C61B3246F793421270901A3CB67C911C?sequence=1)

⁶ [Direct evidence of increased natural mortality of a wild fish caused by parasite spillback from domestic conspecifics](#)

⁷ 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

Salmon Watch Ireland strongly asserts that DAFM must consider the application by **Murphy's Irish Sea Food** as flawed and thus not in compliance with Article 6 subsections (3) and (4) of the Habitats Directive and the EIA Directive.

The Marine Institute⁸ studies have been relied upon by **competent authority** in their appraisal of the NIS and EIA 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 the applicant in this case to minimize the effects caused by salmon farming.

These studies have been subject to much criticism⁹ and overall scientific consensus indicates a significant effect on wild salmon survival.

Salmon Watch Ireland strongly suggests that an independent review be considered to examine the studies carried out by the Marine Institute which have already been widely dismissed as defective. 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**.

We would also like to bring to your attention the following paper¹⁰, which was recently published, and which effectively disputes the Marine Institutes papers regarding the impact of sea lice from salmon farms on wild Atlantic salmon survival. The study involves 43 paired release trials from 2001 to 2019 across Ireland's west coast, researchers compared hatchery-raised salmon treated with anti-lice medication against untreated controls. The study represents the most comprehensive dataset of its kind in Ireland.

Key findings include:

- Treated salmon had a 19% higher survival adult return rate on average than untreated fish.

⁸ 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](https://oar.marine.ie/bitstream/handle/10793/849/Impact%20of%20Lepeophtheirus%20Salmonis%20on%20Migrating%20Atlantic%20Salmon%20(Jackson,%20D.%20et%20al.).pdf?sequence=1)

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>

⁹ 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>

¹⁰Gargan et al. 2025 Salmon lice from aquaculture reduce marine survival of Atlantic salmon.

https://drive.google.com/file/d/19580NNF2a_Ok6rEQjwtcEt_lisRHu7tc/view?usp=sharing

- Lice pressure was a major driver: survival dropped sharply with increasing lice densities.
- Even treated fish suffered reduced returns under high lice pressure, indicating partial resistance to treatment.

The implications are broad:

- Rivers with salmon farming nearby may see significantly lower salmon returns.
- Protected rivers under the EU Habitats Directive are at risk of missing conservation targets due to farm-related lice impacts.
- The findings challenge the fish farming industry's current sea lice management strategies, calling into question their effectiveness.

This study strengthens the case for spatial planning to move farms away from sensitive salmon habitats preferably to an on-land relocation. According to the North Atlantic Salmon Conservation Organisation, 100% of farms should prevent lice-related mortality of wild salmon. This research shows Ireland is failing Atlantic salmon.

This study essentially demonstrates that wild salmon are at significant risk during smolt migration. The study also calls into considerable doubt the ongoing attachment by regulatory bodies to research carried out by the Marine Institute which is now firmly at odds with this research.

It is alarming to note the dependence of the applicant on sea lice treatments and the recent transfer over to the use of cleaner fish to mitigate the effects of sea lice on farmed salmon, as most of the studies concerning impacts on wild salmonids were carried out while mitigation strategies were in place and while biomass was generally lower on farms.

It is also a rapidly changing temperature regime in the majority of bays in Ireland where salmon farming is taking place. The recent study¹¹ by the Marine Institute, Marine Environmental Characterisation of Irish Inshore Aquaculture Regions, **certainly notes that the longest running SST timeseries, based at Malin Head and submitted to ICES annually, has showed a steady increase in positive anomalies, suggesting a general trend of rising SST, particularly in the Northwest region. These anomalously high-water temperatures have been linked to salmon survivability in farms.**

This factor will make sea lice more problematic and disease more prevalent as indicated by the extraordinary mortalities experienced by the nearby farms both in

¹¹ Marine Institute "Marine Environmental Characterisation of Irish Inshore Aquaculture Regions https://drive.google.com/file/d/1C0meEnLHD6h9-okD_OSbh-8seWqkvwqk/view?usp=sharing

Bantry Bay and Kenmare Bay which alone on a welfare basis should not be allowed to continue. We are unable to access mortality reports for this application and indeed other applications but are in the process of an appeal to the information commissioner to release the mortality data of all farms.

We again strongly reiterate that trigger levels for treatment on salmon farms are arbitrary and have no scientific basis to suggest that background natural levels are ever 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 Bantry Bay presently and into the future may have farms always operating in their second year of production with a continuous availability of sea lice larvae from the farms.

The impacts are readily recognisable from Passive Integrated Transponder (PIT) studies carried out by Inland Fisheries Ireland on the Erriff river in County Mayo. These studies clearly demonstrate that there is always a substantial effect on salmon and sea trout survival but is substantially greater when farms are in second year of production and biomass is large.¹²

It is also mentioned that sea lice densities rapidly decrease away from the farm. There has been no concerted study to indicate larval sea lice densities or copepod densities in areas where no salmon farms are, so to suggest that background levels are achieved is entirely without merit.

The recent paper by Morton *et al.*¹³ clearly demonstrates that removal of farms reduces sea lice infestation pressure to background levels.

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.¹⁴

Salmon Watch Ireland also contends that no relevant studies have been undertaken to identify the migration routes of wild salmonids through Bantry Bay and other regions in Cork and Kerry which may pass on their migration route near to Bantry Bay. The mitigation strategies employed by the industry as a whole do not come

¹² Page 66- Annual Report and Financial statements – Inland Fisheries Ireland
https://opac.oireachtas.ie/Data/Library3/Documents%20Laid/2023/pdf/DECCdoclaid290623_102523.pdf

¹³ Effect of government removal of salmon farms on sea lice infection of juvenile wild salmon in the Discovery Islands - https://drive.google.com/file/d/1C0meEnLHD6h9-okD_OSbh-8seWqkvwqk/view?usp=sharing

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

anyway near to fulfilling their obligations concerning environmental standards as set out in both national and EU environmental legislation.

Regarding sea trout, 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 Bantry Bay rivers and the various systems nationally. 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 and EIAR 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 ¹⁵which 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.”***¹⁶

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.”

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.

In regard to the situation regarding *Caligus elongatus* to which the applicant appears to suggest that these can be discounted when examining the impact on wild salmonids. This is clearly not correct and should have been examined thoroughly in the environmental reports. We take exception to the suggestion that trigger levels for this species are not contained in the Sea Lice Protocol and it is abundantly clear that

¹⁵ 2017 Report Sea Trout Symposium -https://drive.google.com/file/d/19PeLini6w6opCL9uZiYXW2Ne7aeKzT_c/view?usp=sharing

¹⁶ 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>

this species of lice has historically been dominant in Bantry Bay. This is primarily related to salinity within the bay.

The protocol¹⁷ mentions only “sea lice” and does not differentiate between species. We suggest that the results of sea lice monitoring contained in the documentation is not sufficient to determine impact on wild salmon and sea trout populations.

In regard to the results of monitoring on this species, the results are alarming with levels in spring in a number of recent years up to 6.74 lice per fish.

The following paper ¹⁸readily demonstrates the larval density around farms with infestations dominated by *Caligus elongatus*. The study shows levels of larval density at 0.4 to 2.5 per M³ outside the cages but demonstrates near zero levels once farms are fallowed. This indicates significant overspill of lice from farms. This is more evidence that background levels cannot be attained in the presence of active salmon farms.

Specific comments on EIAR and NIS

Solids Deposition – Model Output Contradicts Observed Benthic Enrichment

The EIAR predicts monthly solids deposition of **<0.5 mm** beneath the cages. However, benthic survey results (Appendix 6) for **Gearhies West** demonstrate clear evidence of substantial organic loading, including:

- **Beggiatoa mats,**
- **Marked organic enrichment,**
- **Degraded and anoxic sediments,** and
- A benthic condition wholly inconsistent with the minimal deposition predicted.

This stark discrepancy shows that the deposition model is **not reflective of actual environmental processes**.

This failure is critical, as benthic enrichment has direct implications for:

- **Annex I reef-associated communities,** and
- **Coastal water quality.**

¹⁷ Sea Lice Protocol -<https://assets.gov.ie/static/documents/sea-lice-control-strategy-2008.pdf>

¹⁸ Planktonic and Parasitic Sea Lice Abundance on Three Commercial Salmon Farms in Norway Throughout a Production Cycle
<https://www.frontiersin.org/journals/marine-science/articles/10.3389/fmars.2021.615567/full>

Emamectin Benzoate (Slice®) – Exceedance of Environmental Quality Standards

The applicant's cumulative modelling predicts:

- **0.00155 µg/L** Emamectin Benzoate (EmBz) at Ahabeg,
- Exceeding the updated **UKTAG EQS standard of 0.0012 µg/L**.

This constitutes an **EQS exceedance** and therefore a breach of the **Water Framework Directive (WFD)**. The Marine Institute has already concluded that Slice®: "cannot be used at this site due to environmental exceedances."

In the original modelling the site under review was also above the limit.

As the WFD prohibits deterioration of water body status, and EQS exceedances cannot be legally authorised, granting a licence that permits such exceedance would be **unlawful**.

Dissolved Inorganic Nitrogen (DIN) – Lack of Transparency and Conflict with Monitoring Data

The applicant's DIN modelling asserts:

- Peak DIN at cages: **0.049–0.053 mg/L**,
- Below the High-Status boundary of **0.17 mg/L**.

However:

- The model's **baseline nitrogen concentrations** are not disclosed, contrary to the High Court requirement to "show your workings".
- Recent monitoring in Bantry Bay confirms **DIN exceedances above 0.17 mg/L**.
- The modelling fails to account for **climate-driven increases** in nutrient cycling and stratification.
- There is no transparency regarding **background nutrient inputs**, contrary to *SWI v ALAB* (2024 IEHC 421).

Accordingly, DIN impacts remain **scientifically unresolved** and **legally non-compliant**.

Cumulative Impacts – Superficially Treated and Scientifically Insufficient

Bantry Bay supports:

- Three finfish farms,
- Numerous other aquaculture sites,
- Heavy marine traffic,
- Numerous Natura 2000 receptors within an ecologically sensitive fjordic system.

Despite this, the applicant's cumulative assessment omits:

- Combined nutrient loads,
- Combined lice and disease pressure,
- Climate-related risk escalation,
- Impacts on migratory pathways,
- Implications for pelagic foragers (e.g., gannets, shearwaters).

Such deficiencies constitute breaches of both the **EIA Directive** and the **Habitats Directive**.

Net and Pen Design

Lack of Robust Engineering and Environmental Safeguards

The documentation provided in Appendix 1 (Site Schematics) and Appendix 2.1–2.2 (Pen Moorings & Decommissioning; Nets) is confined to generic operational procedures and schematic drawings and does not constitute a robust engineering design basis for the net-pen system. The mooring and pen layout is described in terms of anchor weights, chain and rope diameters and cage circumference, but there is no identification of design standards, safety factors, extreme storm or current loads, or minimum clearance to the seabed.

The Natura Impact Statement therefore provides no evidence that the structures are designed to prevent failure and escapes under realistic worst-case environmental conditions. Net-related procedures focus on washing, inspection and repair, without specifying containment mesh size, twine strength, or explicit pass/fail criteria for net replacement, and without integrating high-pressure in-situ cleaning into a quantified escape risk assessment. Predator and bird nets are specified with mesh sizes up to 6 inches, coupled with only “daily inspections, when possible”, which raises unresolved risks of entanglement for protected bird and marine mammal species. In the absence of a clearly documented, standards-based net and mooring design, including seabed clearance, escape prevention and predator-safe configuration, the

competent authority cannot be satisfied beyond reasonable scientific doubt that the proposed pen system will not result in structural failures, fish escapes, or adverse effects on protected habitats and species, as required under Article 6(3) of the Habitats Directive. This particular site was the location of Ireland's largest farmed salmon escape (circa.230,000 fish) and it is now being increased in footprint thus increasing the risk in this open and challenging bay.

Addendum – NIS Volume 2 (February 2024)

The newly uploaded appendices:

- Introduce **no new modelling**,
- Provide **no validation or verification**,
- Contain **no additional ecological data**,
- Repeat existing scientific and legal deficiencies.

Accordingly, NIS Volume 2 does not address or remedy any of the concerns outlined in this submission.

Mortalities in Farmed Salmon

Another aspect which requires more scrutiny is the abject record all operators in relation to mortalities on their farms. Mortality rates are running at up to 45% nearby and it is objectionable that such events are allowed to continue. While climatic change 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 in the farmed stocks raises fundamental questions regarding regulatory commitment to animal welfare.

Amoebic Gill Disease

With warming oceanic temperatures, it is evident that AGD will continue to increase in both intensity and indeed over longer periods and as such there is a consistent negative effect on both salmon and sea trout in areas where AGD is present on salmon farms. it is also important to note that the marine institute does note that wild salmon smolts may be affected by AGD dependant on temperatures during spring. The treatment of this topic in the documentation presented is not sufficient and falls far short of what is required. The juvenile wild migrating salmon and indeed sea trout from nearby rivers and from further afield areas in Bantry Bay are certainly at risk on their migration route. There is also a threat to adult sea trout from adjacent bays including Kenmare Bay and bays in west cork east of Bantry Bay.

The issues with AGD and wild salmonids have not been sufficiently addressed in the environmental documentation as presented and it is alarming that wild salmonids may be disproportionately affected by this disease when compared to farmed salmon. The following study¹⁹ demonstrated that wild fish showed substantially higher mortality levels (64%) than farmed fish (25%), with intermediate levels for hybrid fish (39%) suggesting that AGD susceptibility has an additive genetic basis. This is extremely important as there has been no attempt to analyse the effect on wild fish at sea in Ireland and the attempt in the documentation to mitigate this disease falls far short of what is required.

Numerous environmental reports presented previously suggest that the temperature regime required for the outbreak of AGD at 12 degrees Celsius are at odds with the marine institute temperature guidelines of 10 degrees Celsius. We would suggest that this is an attempt by the applicant to downplay the significance of salmon smolts being affected by AGD during their migration in April and May. Nearby temperature in Kenmare Bay regularly is below 12 degrees and above 10 degrees Celsius during this period. AGD is prevalent throughout the production cycles in the southwest of the country even at temperatures below 10 degrees Celsius. Marine data suggests very high temperatures in 2025, surely an indicator of future temperature regimes.

Freshwater Pearl Mussel

The issue of Freshwater Pearl Mussel populations in the Kerry Blackwater, Ownagappal and Lough Currane system in Kenmare Bay adjacent to Bantry Bay has not been effectively addressed in the environmental documentation presented. These rivers are priority catchments and are protected by SAC designation and thus require appropriate assessment. The primary concern relates to escapee salmon from Bantry Bay which may impact genetic purity if allowed to spawn in these rivers. However pearl mussel stocks are evident in a number of catchments in Bantry Bay also.

The negative effect of genetic introgression on salmon populations is well known. Farm origin lice impact on both Wild Atlantic salmon and sea trout is also well established. As the FPM requires a healthy population of juvenile salmonids to ensure that reproduction capacity is not inhibited and if this renewal is granted it will continue to deteriorate. It should also be noted that escapee salmon which may enter these catchments and successfully breed may impact genetic suitability of glacial attachment which have evolved with native populations of wild salmon.

Alternative Technologies

Alternative technologies as usual have again not been in any way addressed. There are many technologies available to rear salmon to market on land and this should have been addressed.

¹⁹ [Links between host genetics, metabolism, gut microbiome, and amoebic gill disease \(AGD\) in Atlantic salmon](#)

It is imperative that economics over ecology is not used by the applicant. As we have stated there are no imperative reasons of overriding public interest to allow these licenses to be renewed.

Conclusion

In conclusion, it has to be accepted that salmon farming in open cage technology is significantly harmful to juvenile wild salmon and sea trout. The prospect of escapee salmon from farms breeding with wild salmon is certainly an issue which may continue to increase as a result of climatic change causing more intense storms and expected damage to farm infrastructure.

The legal requirement for consent for this licence is contained in the following judgements:

Kelly (Eamon) v An Bord Pleanála [2014] IEHC 400 ²⁰ and Connelly v An Bord Pleanála [2018] IESC 31. In Connelly, the Supreme Court explained that the ‘overall conclusion’ which must be reached before the competent authority will have jurisdiction to grant development consent following an appropriate assessment ‘is that all scientific doubt about the potential adverse effects on the sensitive area have been removed.’

Accordingly, we state that consent cannot be given as scientific doubt exists concerning the impact of sea lice on wild salmon smolts originating in the above-mentioned SACs and other salmonid rivers as well as the escape of salmon which may impact on other SAC’s which have pearl mussel or Atlantic salmon as qualifying interest.

It should also be noted that the modelling of water quality data is certainly questionable and does not meet the standards required for environmental assessment.

We also state that the Nature Restoration Law is in place and Ireland is bound by this law even in the absence of detailed national plans. The restoration of sea trout populations may be difficult due to stock collapse caused in the main by the salmon farming industry but to renew this licence would only exasperate the already perilous position of these protected fish.

We also note that mitigation efforts by the industry have failed to arrest the impact on wild salmonids and this industry is unsustainable going forward.

Given the extensive deficiencies in the EIAR, NIS, hydrodynamic and biological modelling, documentation accuracy, and cumulative impact assessment—and taking account of EU legislation, Irish law, Marine Institute findings, and relevant High Court

²⁰ http://www.europeanrights.eu/public/sentenze/Irlanda-25luglio2014-High_Court.pdf

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

judgments—SWI submits that the Department **cannot lawfully grant licences T05/122 and T05/122A.**

The applications fail to meet the required standards for:

- **Biodiversity protection,**
- **Habitat integrity,**
- **Scientific certainty,** and
- **Legal compliance under EU and national environmental law.**

The modelling significantly **underestimates environmental impact** and is therefore **unfit for purpose.**

Signed



John Murphy
Salmon Watch Ireland
23 Nov 2025