



Ireland's failure to TO PROTECT the Atlantic salmon *Salmo salar* AND ITS IRISH HABITAT from the adverse impact of the infestation of farmed salmon by the sea louse *Lepeophtheirus salmonis*



*A submission by Friends of the Irish Environment
December 5, 2008
<http://friendsoftheirishenvironment.net/>*

SUMBAWS

Sustainable management of interactions between aquaculture and wild salmonid fish

European Commission Contract No: Q5RS-2002-00730

Central Fisheries Board

The Connemara district along the west coast historically represented the largest concentration of sea trout angling fisheries in Ireland. These fisheries recorded annual average catches of 10,000 sea trout on rod and line up to the mid 1980's. The expansion of the marine salmon farming industry in bays along the Connemara coast in the late 1980's coincided with the documented collapse of sea trout stocks entering such bays, when the Connemara District rod catch fell to 240 sea trout in 1990. There have been numerous and widespread observations in Connemara rivers of 'premature return' of post-smolt sea trout in poor condition, re-entering fresh water within a few weeks of their first migration to sea and carrying heavy infestations of largely juvenile sea lice ectoparasites. This provided the first indication that sea lice might be central to sea trout declines. The greatest declines in sea trout in Ireland coincide geographically with the development of sea-cage based salmon mariculture.

Summary

Irish marine salmon farms in bays on the South West, West, and North West coast have been increasingly infested by the sea louse. Infestation, especially if unchecked, causes a reduced growth rate and increased morbidity. Annually published surveys demonstrate that sea lice control on Irish marine salmon farms has never been adequate and in fact has worsened steadily in spite of every effort since the industry began.

Now research funded in part by the European Union and undertaken over three years in Ireland, Scotland, and Norway has demonstrated that wild salmon smolts suffer increased mortality when migrating through these bays. A recent amendment in the Irish aquaculture licensing laws and the continuing operation of these farms without an adequate assessment of their impact on the protected wild salmon are infringements of European law and of the November 20, 2008 European Court Judgment against Ireland which specifically addressed the failure to assess the impact of marine fish farms.

Legal Outline

*Ireland has breached Article 6(2) and Article 6(3) of the Habitats Directive (92/43/EEC) regarding the cumulative impacts of marine salmon farms on Natura 2000 sites for the Atlantic salmon *Salmo salar* [Annex II]. In respect of Article 6(2), infestation of farmed salmon by the sea louse *Lepeophtheirus salmonis* has led to a significant disturbance of wild *Salmo salar* in Natura 2000 sites. And in respect of Article 6(3), the Irish government has failed to ensure that 'appropriate assessments' are carried out before licensing fish farm projects. Such an assessment is required "if it cannot be excluded, on the basis of objective information, that [the project] will have a significant effect on [the Natura 2000 site in question], either individually or in combination with other plans or projects" (per the European Court of Justice in case C-127/02). Additionally, Ireland has breached the EIA Directive (85/337/EEC) by licensing fish farm projects that are likely to have significant effects on the environment without ensuring that an environmental impact assessment is carried out in accordance with Articles 5 to 10 (as highlighted by the Judgment of the European Court of Justice against Ireland on 20 November, 2008 (case C-66/06)).*

Background

The Irish aquaculture industry provides full time and part time employment for some 2,000 people and had an annual value in 2007 of €131m. It has been subsidized under successive National Development Plans and received €13.3 million in 2006 supporting a total investment of €29 million.

Irish salmon farms on the South West, West, and North West coast are located in bays into which rivers adopted under the EU Habitats Directive as Sites of Community Importance (SCIs) awaiting designation as Special Areas of Conservation (SACs) by the Irish government for the Atlantic salmon discharge and in some cases as marine SACs.

For the sake of ease we will refer to such sites in this paper as SACs, since they are referred to as such in quotes below. In any event, both SCIs and SACs are subject to the requirements of Articles 6(2) to (4) of the Habitats Directive – see Article 4(5).

Many of the farms consistently fail the sea lice protocol 'Monitoring Protocol No. 3: Offshore finfish farms-sea lice monitoring and control, 2000'.

Sea lice inflict damage to their hosts through their parasitic feeding on the outside of the host's body. Sea lice also affect farmed salmon stock by damaging the integrity of the fish's epithelium, which impairs its osmoregulatory ability and leaves the fish open to secondary infections. The net effect of infestation, especially if it is left unchecked, is a reduced growth rate and an increased morbidity.

Many scientific papers have been published over the past decade on the impact of sea lice originating from marine salmon farms on sea trout stocks in the west of Ireland. Studies have shown that while sea trout with heavy lice infestations return to freshwater in salmon farming areas, salmon smolts have never been recorded returning to freshwater in these areas.

Data published last year in *Science* using a mathematical model of salmon population growth rates from 1970 to the present day in Broughton Archipelago in British Columbia revealed the adverse impact of farmed salmon hosting lice on wild pink salmon to the extent that the authors say that the wild fish 'face extinction within the next decade'.

Recent Irish research

The degree to which salmon smolts on their seaward migration are impacted by sea lice in salmon farming areas in Ireland remained unproved until a European project entitled 'Sustainable management of interactions between aquaculture and wild salmonid fish' [SUMBAWS] was undertaken 'to assess smolt migratory routes in coastal waters and to quantify the sea lice infestation levels which elicit significant physiological stress on the juvenile host fish.'

Treated and untreated (control) wild fish were trapped and released in river systems in Norway, Scotland and Ireland.

The Irish project was funded by the Fisheries Board and the European Union and also formed part of National Fish Stock Assessment Programme in 2007. The Summary records a significant difference in six of the eight release groups in the return rate of especially treated salmon smolts which received protection from sea lice infestation from the return rate of the control groups.

The Summary states:

The finding that salmon smolts are being impacted by sea lice on their seaward migration in salmon aquaculture bays is a new finding and a cause for concern. A number of salmon rivers in the west designated as Special Areas of Conservation (SAC's) for salmon under the EU Habitats Directive discharge into salmon farming bays. Therefore there is a strong possibility that unless very good sea lice control is in place on marine salmon farms, wild salmon smolts will suffer increased mortality migration through these bays and the conservation status of salmon in these rivers will be affected.

These Irish findings were entirely in line with results from Scotland and Norway that formed the other elements of the SUMBAWS project.

In our submission, the impact of sea lice on salmon smolts on their seaward migration, leading to a "strong possibility" of increased mortality (in the absence of very good sea lice control) and hence a future reduction in the population of salmon in the relevant SACs represents a significant disturbance of the species for the purposes of Article 6(2) of the Habitats Directive.

Rising level of sea lice infestations

Annually published surveys demonstrate that sea lice control on Irish fish farms has never been adequately controlled and in fact has worsened steadily in spite of every effort since the industry began.

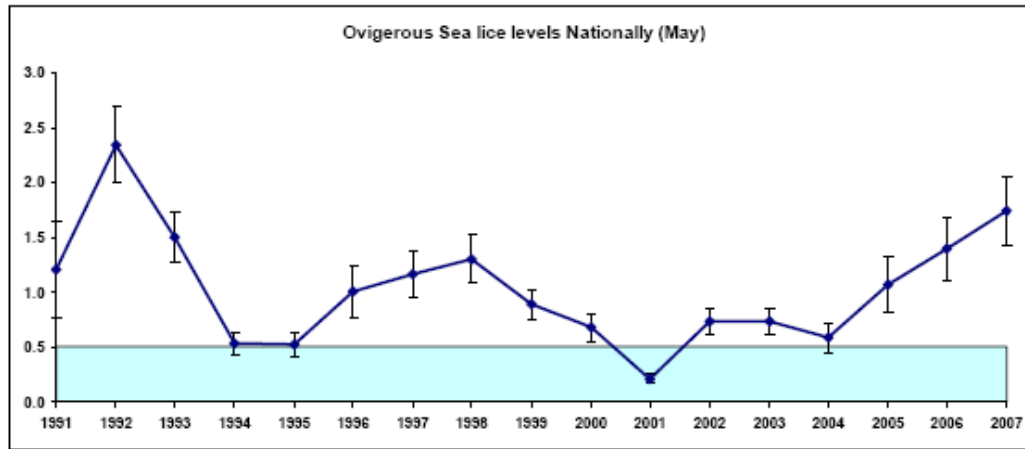
The situation became so serious that in 2005 a High Level 'Sea Lice Monitoring and Control Working Group' was established by the then Department of Communications, Marine and Natural Resources, comprised of representatives of the Department, the Fisheries Boards, Marine Institute and an Bord Iascaigh Mhara to examine/review the systems and processes for controlling sea lice levels at marine finfish farms.

The Group's deliberations were wholly inconclusive and it was unable to reach any consensus on the way forward at the time of the transfer of aquaculture licensing functions to the Department of Agriculture, Fisheries and Food in 2006. The CLAMS process (Co-ordinated Local Aquaculture Management System) and the SBM (Single Bay Management) scheme approaches are being used to address this issue without significant success.

A mandatory national sea lice monitoring and control regime which uses 'treatment-trigger-levels' is the current control system. It aims to keep the level of infestation on marine salmon farms as low as possible.

In fact, the level of infection exceeding trigger treatment levels has continued to rise.

The 2007 figures – the last available – show the monthly mean sea lice figures in ALL one-sea winter salmon fish farming regions exceeded the trigger levels throughout the spring period. Levels increased in 2005 and again in 2006 and 2007.



Annual trend (May mean) SE ovigerous *L. salmonis* on one-sea winter salmon. Blue shaded area represents the treatment trigger level during spring period. [From 'A Strategy for improved pest control on Irish salmon farms', DoAFF, May 2008]

Since 1991 the mean sea lice count for one-sea winter salmon has only once (2001) been below the trigger level. The level of ovigerous lice in one-sea winter salmon is now the highest since 1992 and the mean mobile lice levels in 2007 are the highest since inspections began.

'Very good sea lice control' is not possible under Irish conditions. This has in part been identified as due to poor farm management in carrying out lice control measures which return moribund sea lice to the sea to recover and reinfest fish and allow ovigerous females to release their eggs into the water column and in part to difficulties in obtaining following sites, *etc.*

It is, however, common ground that there are three principal reasons for the inability to control sea lice under Irish conditions:

- **A rapid development of resistance to the limited range of chemotherapeutants that are available to treat infestations**
- **Pancreatic disease and the increasing number of plankton blooms which damage fish and fish gills, weakening fish and lessening appetite and so treatment take up**
- **A rise in monthly sea temperature for Irish sites with the 2006 average sea temperature 1.38°C higher than the 30 year mean, leading to an acceleration of the life cycle and an increase in reproductive output.**

Conclusion

As highlighted above, in respect of fresh water SACs for *Salmo salar*, the Irish government would appear to be in breach of its duty under Article 6(2) of the Habitats Directive, which requires Member States to "take appropriate steps to avoid, in the special areas of conservation, the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of this Directive."

The impacts of sea lice have now been shown to represent a clear "disturbance" with mortalities of the protected species directly caused by infested salmon farms in three countries yet the only action taken by the Irish authorities has been to weaken the licensing regulations.

Amendments to the legislation governing the licensing of fish farms were inserted in the Sea-Fisheries and Maritime Jurisdiction Act 2006 permitting the 'Renewal of license after its expiration' without any appropriate assessment under the Habitats Directive or environmental impact assessment under the EIA Directive.

This allowed the resumption in November 2008 of the salmon farm in Bertraghboy Bay in South Connemara whose abandonment during two years overlapped the study period and confirmed the positive impact of the removal of the fish farm and its sea lice infestation.

This is in clear breach of Article 6(3) of the Habitats Directive. The European Court of Justice's judgment in the *Waddenzee* case (C-127/02) explicitly covers renewal of a license stating that 'each new issuance of which requires an assessment both of the possibility of carrying on that activity and of the site where it may be carried on'.

It is difficult to understand why this legislation was enacted in April 2006 when the Commission had made an application to the Court of Justice against Ireland two months previously stating that Ireland had failed to fulfill its obligations under the EIA Directive. This application specifically cited marine fish farms as an example of the failure of Ireland to adopt 'all measures to ensure that, before consent is given, projects likely to have significant effects on the are made subject to a requirement for development consent and to an assessment with regard to their effects in accordance with Articles 5 to 10 of the EIA Directive'.

In view of the data obtained through the SUMBAWS projects and provided to the Irish authorities and the Court Judgment against Ireland of 20 November 2008 following on the above application (C-66/06), we submit:

- **Ireland is in breach of the EIA Directive in failing to ensure that environmental impact assessments of fish farms are carried out in accordance with Articles 5 to 10 of the EIA Directive (see the European Court of Justice's judgment against Ireland in case C-66/06 in this regard).**
- **Ireland is in breach of Article 6(2) of the Habitats Directive for failing to take appropriate steps to avoid a significant disturbance caused by sea lice in fish farm populations to *Salmo salar* in SACs.**
- **Ireland is failing to apply Article 6(3)6(2) of the Habitats Directive properly in granting licenses for fish farms as 'appropriate assessments' have not being carried out regarding the cumulative impacts on Natura 2000 sites for *Salmo salar*. Such an assessment is required "if it cannot be excluded, on the basis of objective information, that [the relevant project] will have a significant effect on [the Natura 2000 site in question], either individually or in combination with other plans or projects" (per the European Court of Justice in case C-127/02).**
- **Ireland must rescind Section 101(c)19A-1 of Sea-Fisheries and Maritime Jurisdiction Act 2006 No. 8 of 2006 to ensure that renewals of aquaculture licenses are assessed in accord with the Habitats Directive and the Waddenzee judgment C-127/02.**
- **In respect of existing licenses, the Irish government must call in and review such licenses under Article 6(3) of the Habitats Directive.**

Friends of the Irish Environment
5 December, 2008

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Project Outline, SUMBAWS, *'Sustainable management of interactions between aquaculture and wild salmonid fish'*; Partner 3: Central Fisheries Board, Ireland

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New cover and title pages 6 December, 2008