	<p style="text-align: center;">North-East Atlantic Commission</p> <p style="text-align: center;"><i>Risk of transmission of <i>Gyrodactylus salaris</i> in the North-East Atlantic Commission Area</i></p> <p style="text-align: center;"><i>(Tabled by the European Union)</i></p>	<p style="text-align: center;">NEA(22)11</p> <p style="text-align: center;">Agenda item: 8</p>
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Risk of transmission of *Gyrodactylus salaris* in the North-East Atlantic Commission Area
(Tabled by the European Union)

EU-Denmark

There have not been any incidence of *Gyrodactylus salaris* in Denmark. In the unlikely case of an outbreak, an emergency plan is ready and the infected river will be isolated. So far, Denmark has not observed any infected salmons in Danish rivers, and therefore Denmark has not dedicated much efforts to develop an action plan for *Gyrodactylus salaris*, but is confident that an incident could be addressed promptly and in a satisfactory way by the authorities responsible.

EU-Finland

Gyrodactylus salaris is endemic in parts of the river and lake systems emptying in the Baltic Sea. *G. salaris* surveillance is not, however, comprehensive in the non-free areas and *G. salaris* distribution in Finland is not clear.

EU and national legislation on *Gyrodactylus* –related issues (fish transfers, disinfection etc.; (EU) 2016/429, (EU) 2021/260, (FIN) 76/2021, (FIN) 1376/2004, (FIN) 323/2021) has been implemented.

A preparatory report "The protection of Rivers Teno and Näätämö against *Gyrodactylus salaris*" for the *Gyrodactylus salaris* prevention plan has been completed in 2012. Eviran julkaisuja 1/2013, ISSN 1797-299X, ISBN 978-952-225-120-6.

The ongoing practical work to prevent *G. salaris* continues. Main elements of this work are:

1. Regular surveillance
2. Active information about the threat of *G. salaris* and measures needed for spread prevention (brochures, billboards, roadside information boards, information at fishing licence sales)
3. Disinfection station network in the northernmost Finland, training of staff at fishing licence sales points for disinfection
4. The current fisheries agreement for the Teno river system is further strengthening the action against the possible spread of *Gyrodactylus salaris*. Due to salmon fishing ban in 2021, there was much less tourist fishing in Teno (allowed only for other species than salmon) and therefore possibilities for spread of *G. salaris* between watersheds was strongly reduced. Active distribution of information about preventing the spread of *G. salaris* has been organized at the Finnish-Russian boarder station in the River Tuloma watershed. Existing network of disinfection stations and information have functioned in a planned manner, no infected samples or areas have been detected.

EU-France

Gyrodactylus salaris has not been reported on salmon in France in recent years. There have been no notifications of *G. salaris* being present on rainbow trout farms. The recommendations in Part 1 relating to aquaculture which are contained in the 'Road Map' (NEA(18)08) are carried out as part of the good health practices that producers must implement as part of their health certification, required under EU Council Directive 2006/88 EC. For example, the

movement of live fish between fish farms, removing dead fish and disposing of them at the slaughterhouse.

EU-Germany

There is currently no coordinated monitoring of *Gyrodactylus salaris* in Germany. For a *Gyrodactylus salaris* monitoring programme or control measures, it is important to understand the structure of the German inland waters. In Germany, we have a heterogeneous picture of different rivers in different regions. An extensive network of waterways interconnects many water bodies. Various *Gyrodactylus* sp. can be detected on wild fish and in aquaculture. An identification of the parasites usually only takes place morphologically and at the level of the genus. Due to the predominant water structures in Germany and the native fish fauna, it must be critically questioned whether control of the parasite is possible at all.

EU-Ireland

Ireland presented a Briefing paper on *Gyrodactylus salaris* at the Working Group on *G. salaris* in the North-East Atlantic Commission Area in 2017. Since 2005, wild salmon fry & parr from selected river systems in Ireland are examined annually for the presence of *G. salaris*. To date, over 40 rivers have been sampled.

A detailed contingency plan for dealing with any outbreak of *G. salaris* in Ireland has been prepared. In addition to the contingency plan, IFI and MI have co-produced and widely circulated awareness literature to highlight the issue of *Gyrodactylus* among stakeholders and advise on biosecurity measures that can be taken to minimise the risk of introduction of the parasite to Ireland (e.g. A Guide to Protecting Freshwater Fish Stocks in Ireland from the Parasite *Gyrodactylus salaris* <https://goo.gl/NRgVY0>). In addition, both state agencies host information in this regard on their respective websites.

EU – Spain (Asturias)

There is no evidence of freshwater gyrodactylus episodes. In the event of the appearance of *Gyrodactylus salaris*, it would proceed to its control and elimination of the salmon adults or juvenils that would not be repopulated.

EU – Spain (Gipuzkoa)

The presence of *Gyrodactylus salaris* has never been reported in Gipuzkoa's river catchments and no anomalous mortalities or signs of the presence of the parasite health symptoms that suggest its presence have been detected. Therefore, the Government of Gipuzkoa considered that continuation of the actual passive epidemiological monitoring of the species would be enough to make sure the problem has not arrived to rivers of Gipuzkoa, and that the establishment of a plan following the recommendations of NASCO it is not necessary, considering the species faces other serious problems in salmon conservation in which to invest the limited resources available. If any sign of its presence is detected, the Government of Gipuzkoa will consider taking further action.

EU-Spain (Navarra)

In Bidasoa River, the presence of *Gyrodactylus salaris* has never been reported and no anomalous mortalities or signs of the presence of the parasite health symptoms that suggest its presence have been detected. Therefore, the Government of Navarra considered that continuation of the actual passive epidemiological monitoring of the species would be enough to make sure the problem has not arrived to Bidasoa River, and that the establishment of a plan

following the recommendations of NASCO it is not necessary, considering the species faces other serious problems in salmon conservation in which to invest the limited resources available. If any sign of its presence is detected, the Government of Navarre will consider taking further action.

EU-Sweden

Gyrodactylus salaris in Swedish Atlantic salmon rivers

Background

Gyrodactylus salaris is endemic and widely spread in the Baltic Sea. It was discovered on salmon (*Salmo salar*) in salmon farms in 1952.

G. salaris was first found in Swedish Atlantic salmon rivers on wild salmon in 1989 in Sävåån. Since then *G. salaris* has spread to all rivers south of Anråse å with the latest newly infected river being Kungsbackaån in 2017 (Figure 1, Table 1). Hence, *G. salaris* has not been detected in rivers near Norway as Enningdalsälven, Strömsån, Örekilsälven, Bäveån, Arödsån, Bratteforsån and Anråse.

A monitoring program started in 2001 where juvenile salmon in the Swedish Atlantic rivers are screened for the presence of *G. salaris*, both in infected and not infected rivers. *G. salaris* is a notifiable disease since 2002 and must be reported to the Swedish Board of Agriculture in accordance with the Swedish Communicable Diseases Act.

The Swedish authorities consider *G. salaris* to be a threat to remaining uninfected stocks, and also to nearby Norwegian stocks. Farming of rainbow trout is not allowed within the distribution range of Atlantic salmon in rivers. In rivers without *G. salaris* salmonids are not allowed to be stocked, due to the risk of spreading the parasite. Responsible national and regional agencies host information regarding risk of *G. salaris* on their websites.

Contingency plan and Roadmap under development. Increased cooperation with Norway. For example cooperation with Norway (Norwegian Veterinary Institute) to determine species and haplotype and participation in Norwegian workshops regarding *Gyrodactylus salaris*.

Gyrodactylus salaris in Swedish Atlantic salmon rivers

G. salaris in Swedish Atlantic salmon rivers is often assumed to originate from smolt stocked from infected salmon and/or rainbow trout (*Oncorhynchus mykiss*) farms. As several different forms of the parasite have been detected in the rivers, this indicates that there must have been a number of different sources for the spread of the parasite. It is less likely that straying fish spread the infection, as the parasite then has to survive through streaks of salt water (*G. salaris* can withstand salinities up to 5-10 ‰. (Heinecke et al. 2007)). This salinity-based isolation suggests that Swedish Atlantic salmon may be more sensitive to the parasite than Baltic salmon, especially the northern Atlantic salmon rivers as salinity increases further north.

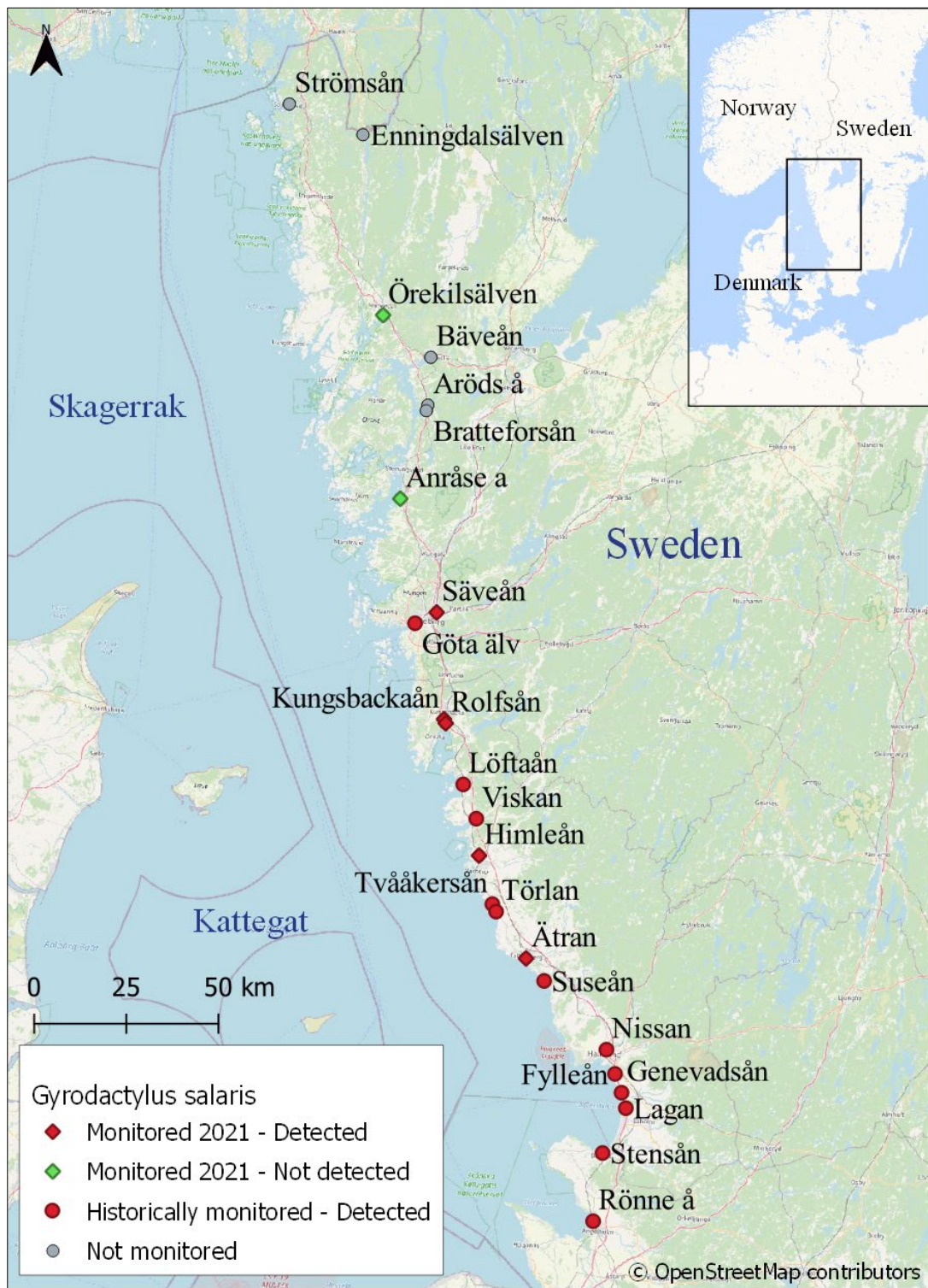


Figure 1. Location of the 24 wild salmon rivers showing where *Gyrodactylus salaris* was monitored and detected. Seven rivers were monitored in 2021, whereas five were infected with the parasite (red diamonds), and two have shown no signs of infection (green diamonds). Red circles indicate historical monitoring where *G. salaris* was detected (Degerman et al 2012).

Table 1. Rivers infected with *G. salaris* and the year of detection.

River	G. salaris detected
Säveån (Göta älv)	1989
Högvadsån (Ätran)	1991
Ätran	1992
Fagerredsån (Ätran)	1994
Fylleån	1994
Hjärtaredsån (Ätran)	1994
Rönne å	1997
Stensån	1997
Smedjeån (Lagan)	1997
Genevadsån	1997
Suseån	1997
Nissan	1998
Sennan (Nissan)	1998
Viskan	1998
Grönån (Göta älv)	1999
Tvååkersån	2002
Törlan	2002
Löftaån	2003
Himleån	2005
Rolfsån	2015
Kungsbackaån	2017

In 2012 the effects of *G. salaris* on salmon populations were analysed with the conclusion that negative effects at the individual level could be demonstrated but no significant differences on the density of juvenile salmon in rivers with or without *G. salaris* could be found (Degerman et al 2012). In 2019 a new analysis on salmon densities before and after *G. salaris* infection was performed to compare the salmon population development from 10 years before *G. salaris* infection to 10 and 20 years after *G. salaris* infection between uninfected and a selection of infected rivers (BACI analysis of time against salmon pre-smolt densities, with altitude and latitude as covariates). We also analysed the proportion of 1+ parr (as a measure of survival from 0+ to 1+) before and after *G. salaris* infection to compare the salmon population development from 10 years before *G. salaris* infection to 10 and 20 years after *G. salaris* infection between uninfected and infected rivers (BACI analysis of time against 1+ salmon, with altitude and latitude as covariates). Uninfected rivers were Örekilsälven, Bäveån, Arödsån, Bratteforsån, Ånråse including tributaries (analyzed as a group) and infected rivers were Ätran, Fylleån, Nissan, Rönne å, Stensån, Viskan, Suseån, Genevadsån, including tributaries.

The result of the BACI analyses varied depending on river. In four (Viskan, Ätran, Nissan and Fylleån) out of eight infected rivers there was a significant negative difference in density development over time compared to the uninfected rivers (Table 2). Only one river (Ätran) had significantly different survival from 0+ to 1+ compared to the uninfected rivers (Table 2). There

is hence little proof of *G. salaris* affecting population development of the Swedish Atlantic salmon.

Table 2. Development of pre-smolt densities and survival from 0+ to 1+ parr in eight *G. salaris* infected rivers compared to uninfected rivers. The trend, if any, indicates if the development in each river has been positive or negative.

River	Trend	Densities (ind/100m²)	Trend	Survival 0+ to 1+
Viskan	no	p=0.009860 **	no	p=0.663936
Ätran	negative	p=8.201e-08 ***	no	p=0.03032 *
Suseån	no	p=0.119913	negative	p=0.330669
Nissan	negative	p=1.074e-05 ***	no	p=0.177935
Fylleån	negative	p=6.010e-05 ***	no	p=0.26740
Genevadsån	positive	p=0.2680397	negative	p=0.222434
Stensån	positive	p=0.5799	negative	p=0.381836
Rönneå	positive	p=0.781683	no	p=0.83758

The equivocal results may be a result of the simple analysis set up and the large variation in data. The analyses would be strengthened by including variables such as temperature, salinity, liming, migration time, fish size, prevalence, migration barriers, habitat areas and genetics.

**Report on progress in relation to the recommendations in
NEA(18)08 concerning *Gyrodactylus salaris***

EU (Ireland)

April 2022

1 Scope

Parties and jurisdictions of the North-East Atlantic Commission of NASCO are encouraged to report on progress in relation to the 11 recommendations in the ‘Road Map’ to enhance information exchange and co-operation on monitoring, research and measures to prevent the spread of *Gyrodactylus salaris* and eradicate it if introduced, as agreed by the Commission in 2018, NEA(18)08. This document provides a status update for EU (Ireland) in this regard in advance of the 2022 meeting of the North-East Atlantic Commission.

2 Background

Gyrodactylus salaris is listed as a notifiable disease in Ireland and legislation is in place preventing the transfer of live fish capable of carrying the parasite to or within Irish waters. The parasite is not listed in Council Directive 2006/88/EC, which has been applied since 1 August 2008, and replaces the previous fish health regime under Directive 91/67/EEC. However, Ireland retained additional guarantees under Decision 2004/453/EC in respect of *G. salaris* and can continue to impose controls on imports and suspected or confirmed outbreaks under the European Communities (Health of Aquaculture Animals and Products Regulations) 2008. These additional guarantees have been recognised as “national measures” under Article 43 of Council Directive 2006/88/EC. This has been reflected in Commission Decision 2010/221/EU, which replaces Commission Decision 2004/453/EC.

Gyrodactylus salaris has not been recorded on the island of Ireland to date.

A detailed contingency plan for dealing with any outbreak of *G. salaris* in Ireland was published in 2017 by the Fish Health Unit (FHU) of the Marine Institute (MI) with input from Inland Fisheries Ireland (IFI) and other stakeholders with statutory interests in salmonids (Anon. 2017).

The plan sets out in detail the operational responsibilities and actions to be taken in the event of a suspected outbreak of gyrodactylosis. This includes the following:

- The convening of the National Disease Strategy Group (NDSG) to activate and oversee the implementation of the contingency plan. The group will comprise senior representatives from relevant Government Departments and State Bodies as well as expert national and international veterinary scientists;
- The establishment of a National Control Centre (NCC) overseen by the NDSG for the purposes of co-ordinating control / eradication measures. The NCC will include representatives of the FHU, IFI, Departmental veterinary inspectors, the cross-border Loughs Agency and relevant representation from Northern Ireland.
- A communications strategy.
- Detailed actions to be implemented on the suspicion or confirmation of a gyrodactylosis outbreak.
- Sampling, testing and fish disposal protocols.
- Containment, eradication and treatment options.

3 Progress in relation to the recommendations in NEA(18)08

This section reports on Irish progress in relation to the 11 recommendations in the 'Road Map' to enhance information exchange and co-operation on monitoring, research and measures to prevent the spread of *G. salaris* and eradicate it if introduced, as agreed by the North-East Atlantic Commission of NASCO in 2018 (NEA(18)08).

1. Preventive measures and contingency planning

Measure	Progress
a) Appropriate steps should be taken to prevent the spread of <i>G. salaris</i> on fishing equipment, boats, etc. by use of approved disinfection methods.	<p>In general, Inland Fisheries Ireland (IFI) has been at the forefront in planning and implementing management measures to protect native species and habitats from the threat posed by aquatic invasive species (AIS). These include monitoring, control and eradication operations and protocols, research on AIS impacts, risk assessments, biosecurity guidelines and a programme of stakeholder engagement-related education and awareness initiatives. Biosecurity guidance has been developed for anglers, boaters, scuba divers, paddle sports enthusiasts and inland fisheries personnel which advise of appropriate prevention measures and disinfection protocols to minimise the risk of introducing or spreading AIS (https://tinyurl.com/v2qym83b).</p> <p>In addition, IFI and MI have co-produced and widely circulated awareness literature to highlight the issue of <i>Gyrodactylus</i> among stakeholders and advise on biosecurity measures that can be taken to minimise the risk of introduction of the parasite to Ireland (i.e. A Guide to Protecting Freshwater Fish Stocks in Ireland from the Parasite <i>Gyrodactylus salaris</i> https://tinyurl.com/5bcmtmkf).</p>
b) All movements of live fish should be recorded so that movements can be traced in the event of an outbreak of <i>G. salaris</i> .	<p>In Ireland, this practice is largely governed by European Communities (Health of Aquaculture Animals and Products) Regulations 2008 (S.I. 261 of 2008) based on the European Commission's Council Directive 2006/88/EC which applies to the import, movement, sale and supply of aquatic animals for fish stocking or ornamental purposes. Under the regulations, where appropriate, notification of the import and movement of fish must be made to the MI and this must be accompanied by an appropriate health certificate stating that the animals are free of the diseases listed in Part II Annex IV of the Directive and diseases for which Ireland has national measures granted under Commission Decision 2010/221/EU.</p>
c) The risk of <i>G. salaris</i> introduction through the processing of fish carcasses should be assessed and, where appropriate, mitigated through control of processing.	<p>As detailed in the contingency plan, this is addressed under the European Communities (Health of Aquaculture Animals and Products) Regulations 2008 (as amended) as follows:</p> <ul style="list-style-type: none"> • It is an offence for any person to act in contravention of any of the provisions of a Restriction Notice. • It is an offence to place on the market or release into the wild or a put and take fishery, any aquaculture animal that may pose a risk of spreading disease to other aquatic animals. • It is an offence to place on the market for farming or restocking, any aquatic animal intended for destruction or slaughter in accordance with disease control measures under Regulation 14 of S.I. No 261 of 2008. • It is an offence for any person who knows or suspects that a listed disease, including <i>G. salaris</i>, is present in any aquatic animal to fail to notify the MI. • It is an offence for a person except under the authority of a Sanitary Slaughter Permit issued by the MI, to dispose of any aquatic animal (whether alive or dead) which comes from a designation area.

Measure	Progress
d) Physical barriers to fish migration should be considered as a measure to prevent the spread of <i>G. salaris</i> within a catchment and to uninfected catchments.	This measure is listed as an option in the contingency plan for dealing with any outbreak of <i>G. salaris</i> in Ireland (Anon. 2017).
e) Where possible, routine breaks in production and disinfection on rainbow trout and salmon freshwater aquaculture sites should be implemented as part of a control programme in infected areas.	This measure is listed as an option in the contingency plan for dealing with any outbreak of <i>G. salaris</i> in Ireland (Anon. 2017).
f) Permission to stock fish into infected river catchments should be based on an assessment of the increased risk of transmission of the parasite to non-infected rivers (e.g. through migration and other routes).	Under the European Communities (Health of Aquaculture Animals and Products) Regulations 2008 (as amended): <ul style="list-style-type: none"> • All fish movements require prior notification to the MI. • The MI can immediately restrict movements of fish to and from fish farms in Ireland in the event of a suspicion of fish disease there. • MI can restrict all movements of fish or gametes of fish along with feedstuffs for fish into and out of areas designated or suspected as being infected with <i>G. salaris</i>.
g) NEAC Parties and their relevant jurisdictions should have contingency plans in place for treatment, containment or eradication. These plans should be developed in consultation with stakeholders. A legal base for the use of rotenone or other treatments, containment and eradication measures should be put in place. Contingency plans should be tested periodically and updated as required.	<p>A detailed contingency plan for dealing with any outbreak of <i>G. salaris</i> in Ireland was published in 2017 by the Fish Health Unit (FHU) of the MI with input from IFI and other stakeholders with statutory interests in salmonids (Anon. 2017).</p> <p>As detailed in the contingency plan, the European Communities (Health of Aquaculture animals and products) Regulations 2008 (as amended) allow the MI to take the following measures where there is reason to believe <i>G. salaris</i> is present or is suspected to be present:</p> <ul style="list-style-type: none"> • To designate such an area as it considers appropriate to prevent or limit the spread of <i>G. salaris</i> by issuing in writing, a Restriction Notice. • To regulate all movements of live fish, dead fish, eggs of fish and fish food to, from or within the restricted area. All movements can be prohibited except under the authority and in accordance with the conditions of a Movement Permit issued by the MI. • To direct the operator of a fish farm to remove dead or dying fish from their premises and dispose of them in a specified manner. • To authorise the removal of dead or dying fish from non-farmed waters. • Where the MI has issued a Restriction Notice in respect of a specific Containment Zone, arrangements may be made to vary the extent of the containment zone, using the measures provided for under Regulation 12(3) of S.I. No 261 of 2008 (as amended). • In addition, under the conditions of S.I. No 261 of 2008, all fish movements require prior notification of the MI. The MI can use this information to immediately restrict movements of fish to and from fish farms in Ireland in the event of a suspicion of fish disease there.

Measure	Progress
	<p>Under the Inland Fisheries Act 2010, the Minister of the Department of Communications, Climate Action and Environment (DCCA) has the power to introduce bye-laws to protect wild salmonid fisheries under threat from any outbreak of <i>G. salaris</i> (e.g. impose fishing controls). The Minister may, at the request of IFI or on his or her own initiative, make such bye-laws as are in his or her opinion expedient for the more effectual protection of wild salmonid fisheries.</p> <p>The use of rotenone in dealing with any outbreak of <i>G. salaris</i> in Ireland is considered in the contingency plan where it states that the relevant Local Authority must be consulted in the event of proposals to use this chemical. A comprehensive legal assessment has not been undertaken to date.</p> <p>The contingency plan has not been tested to date. Relevant information in the plan will be updated as required.</p>
h) NEAC Parties and their relevant jurisdictions should endeavour to ensure that adequate resources are available for the implementation of measures to contain and eradicate <i>G. salaris</i> .	As outlined in the contingency plan (Anon. 2017), the National Disease Strategy Group (NDSG) which is comprised of key Government and State Body officials is responsible for securing the financial and other resources required to implement the contingency arrangements.

2. Cooperation on management

Measure	Progress
a) The North-East Atlantic Commission (NEAC) should retain an item on <i>G. salaris</i> on the agendas for its annual meetings. This would facilitate reports by its Parties and their relevant jurisdictions and by the Working Group on measures to prevent the further spread of the parasite and to eradicate it in areas where it has been introduced and on other aspects of this 'Road Map'.	Acknowledged.
b) The Working Group on <i>G. salaris</i> in the North-East Atlantic Commission Area should meet again in 2018 and then every 3 years thereafter, or more frequently if circumstances require, to provide a forum for more detailed information exchange and review of progress in implementing this 'Road Map'.	Acknowledged.
c) Contingency plans developed by NEAC Parties and their relevant jurisdictions should be made available to the Working Group at its next meeting with the view to sharing information on approaches and challenges. The plans should be made available on the websites of the Competent Authorities with links to them from the NASCO website.	Acknowledged. The Irish contingency plan was sent to the NASCO Secretariat in advance of the 2018 NASCO meeting. The plans have not yet been made available on the websites of the Competent Authorities.

3. Monitoring methods for use in watercourses, lakes and in aquaculture.

Measure	Progress
The Working Group should review new developments with regard to monitoring for, and detection of, <i>G. salaris</i> , and develop recommendations for their inclusion in international guidelines.	Acknowledged.

4. Distribution of *G. salaris* in the NEAC area and adjacent areas.

Measure	Progress
a) Existing monitoring programmes on salmonids in the wild and in aquaculture environments undertaken by NEAC Parties and their relevant jurisdictions should be retained and expanded as necessary. They should provide genetic data for all <i>Gyrodactylus</i> species isolated during monitoring. Reports on these programmes should be provided to the Working Group at their next meeting.	Since 2005, wild salmon juveniles from selected river systems are examined annually for the presence of <i>G. salaris</i> in Ireland (Appendix 1). This monitoring is undertaken in conjunction with the catchment-wide electrofishing programme overseen by IFI with sample analyses undertaken by the FHU of the MI. Further to this, the MI are responsible for investigating unexplained abnormal or significant fish mortalities encountered in Ireland which may be a result of fish disease.
b) Information should be requested from all NEAC Parties and their relevant jurisdictions which have wild Atlantic salmon but which have not participated in the Working Group to date.	Acknowledged.
c) NEAC Parties and their relevant jurisdictions should identify <i>G. salaris</i> as an impact factor in the NASCO river database for those rivers infected by the parasite.	Acknowledged.
d) The NASCO Secretariat should make a request to the OIE reference laboratory for <i>G. salaris</i> seeking information on the distribution of <i>G. salaris</i> in countries that have wild and/or farmed susceptible species, but which do not have wild Atlantic salmon.	Not directly applicable to Ireland.

5. Research to inform the effective management of *G. salaris*

Measure	Progress
<p>a) The NEAC Parties and their relevant jurisdictions should conduct applied research to inform the effective management of <i>G. salaris</i>, particularly the following:</p> <ul style="list-style-type: none"> • the distribution and genetics of <i>G. salaris</i>; • the effects of salmon genetics on susceptibility to <i>G. salaris</i>; • the effect of environmental factors on pathogenicity; • to clarify the classification of <i>G. salaris</i> and <i>G. thymalli</i> and then develop a reliable method to distinguish between pathogenic and non-pathogenic strains; • general biology and mechanisms of spread of the parasite; • effect of environmental parameters and ecology on the distribution of <i>G. salaris</i>; • detection and diagnostic methods for <i>G. salaris</i>; • new environmentally-friendly treatment methods in rivers and lakes, e.g. acid aluminum and chloride. 	<p>Acknowledged. There is no ongoing or presently planned research on <i>G. salaris</i> in Ireland (as the parasite is not present), except for the ongoing annual monitoring programme. As outlined in the contingency plan, the FHU will provide training opportunities for all relevant persons to develop and maintain their skills in field and administrative procedures in relation to <i>G. salaris</i>.</p> <p>Ireland intends to keep abreast of information concerning applied research on the effective management of <i>G. salaris</i> via participation in the <i>G. salaris</i> Working Group and NEAC.</p>
<p>b) The Working Group should keep research requirements and monitoring needs under review and report regularly to the NEAC.</p>	<p>Acknowledged.</p>

6. Classification of *Gyrodactylus* species

Measure	Progress
<p>NEAC Parties and their relevant jurisdictions should only support any future proposal to synonymise <i>G. salaris</i> and <i>G. thymalli</i> if, in parallel, OIE standards and national legislation recognize the different pathogenicity and host predilection of these two species.</p>	<p>Acknowledged.</p>

7. Publicity, education, and awareness.

Measure	Progress
a) NEAC Parties and their relevant jurisdictions should develop publicity material on the threat of the parasite to wild Atlantic salmon and specify measures to prevent its spread; strategies for the effective dissemination of this material should be developed particularly with regard to targeting high risk groups. Existing material should be reviewed and updated as appropriate in the light of current knowledge. The NASCO Secretariat should develop standard text as a basis for such publicity material.	As regards Ireland, please refer to response to 1 (a) for information on this.
b) This material should be made available on the web sites and promoted on the social media platforms of the Competent Authorities and NASCO with a view to highlighting the serious risks posed by the spread of the parasite.	As regards Ireland, please refer to response to 1 (a) for information on this.

8. Continuity of current measures in the EU Animal Health Law.

Measure	Progress
Relevant NEAC Parties and their relevant jurisdictions should seek to ensure continuity in the provisions related to <i>G. salaris</i> in current EU animal health legislation (Regulation 2016/429) which should be retained, in particular with regard to additional guarantees.	Acknowledged.

9. Criteria for diagnosis and establishing *G. salaris*-free zones.

Measure	Progress
NEAC Parties and their relevant jurisdictions should implement the diagnostic standards in the OIE Manual of Diagnostic Tests for Aquatic Animals	This is already referenced in the contingency plan (Anon. 2017).

10. Trade in live susceptible fish species

Measure	Progress
a) Trade in disinfected eggs is preferable to trade in live susceptible fish species. However, where movements of live susceptible fish species are approved, NEAC Parties and their relevant jurisdictions should ensure that trade in live susceptible fish species only takes place between areas of equal <i>G. salaris</i> status or from a higher to lower status area.	Under Irish regulations, notification of the import and movement of fish must be made to the MI and this must be accompanied by an appropriate health certificate stating that the animals are free of the diseases listed in Part II Annex IV of the Directive and diseases for which Ireland has national measures granted under Commission Decision 2010/221/EU.
b) NEAC Parties and their relevant jurisdictions should ensure the health status of the traded live susceptible fish species and/or their eggs, and the competence of the certifying Authority.	Under Irish regulations, notification of the import and movement of fish must be made to MI and this must be accompanied by an appropriate health certificate stating that the animals are free of the diseases listed in Part II Annex IV of the Directive and diseases for which Ireland has national measures granted under Commission Decision 2010/221/EU.

11. Shared catchments

Measure	Progress
NEAC Parties and their relevant jurisdictions with shared catchments or having catchments in close proximity should implement appropriate mechanisms for cooperation, including the establishment and strengthening of inter-country working groups and the development of common contingency plans to control and eradicate <i>G. salaris</i> .	The Irish contingency plan facilitates the involvement of relevant cross-border and Northern Irish authorities if required and outlines the mechanisms for cooperation which include representation on the National Disease Strategy Group and National Control Centre.

5 References

Anon. (2017). Operations Manual for dealing with Outbreaks of *Gyrodactylus salaris* in Ireland. Fish Disease Operations Manual for Ireland. Marine Institute, Ireland, 47 pp.

Appendix 1

Irish river systems sampled for the presence of *G. salaris* (2005 – 2021).

Catchment	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Avoca (Aughrim)										X							
Ballynahinch																X	
Barrow (Greese)					X												
Barrow (Poulmounty)			X							X							
Boyne trib.									X								
Bride						X									X		
Bunowen															X		
Corrib (Abbert)						X		X									
Corrib (Cong)														X			
Corrib (Owenriff)														X			
Cloonee															X		
Colligan															X		
Dawros																	X
Dunkellin						X										X	
Eanymore						X											
Emlagh							X										
Erne										X							
Erne (Aughnaccliffe)				X													
Erne (Bunnoe)			X														
Erne (Burrin)			X														
Erne (Swanlinbar)			X														
Erriff						X	X						X	X	X	X	X
Feale					X				X								
Garavogue						X											
Glen							x										
Laune										X			X				
Leannan							X				X			X		X	X

Catchment	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Lee		X															
Liffey																	X
Maine											X		X				
Moy								X									
Mulkear (Bilboa)					X												
Munster Blackwater										X	X	X	X	X			
Munster Blackwater (Araglin)								X									
Munster Blackwater (Finnow)								X				X					
Nore																	X
Owenascaul																X	
Owennacurra																X	
Owenboliska						X											
Owenea														X			
Owenriff (Corrib)																	X
Owenwee							X										
Screebe		X	X					X									
Shannon (Brosna)			X						X								
Shannon (Carrigahorig)		X								X							
Shannon (Little Brosna)			X														
Shannon (Lower)															X		
Slaney (Derry)	X																
Suir											X						
Suir (Aherlow)	X																
Swilly																X	
Tullaghobegley									X								
Waterville (Currane)													X				