Gyrodactylus salaris Briefing Note

Cyfoeth Naturiol Cymru Natural Resources Wales

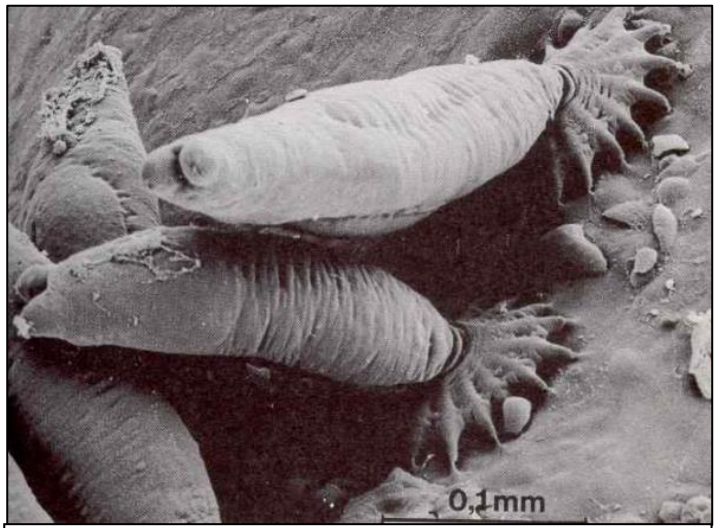
Background

Gyrodactylus salaris is an ectoparasite of salmonids - found on the skin and gills of the host it is considered to be the most important species of gyrodactylid because of the impact on Atlantic salmon (*Salmo salar*).

Unchecked, the parasite has the ability to reproduce daily, and in sufficient numbers will severely impact on the fish's health.

G. *salaris* only causes clinical disease (Gyrodactylosis) in Atlantic salmon, however, other salmonid and non-salmonid species including rainbow and brown trout, grayling and eels can aid transmission. Signs of the disease can be indicated by a flashing behaviour with increased infection leading to increased mucous production and eroded fins. Diseased fish become lethargic and will show preference for areas of lower water movement. Ulcers and lesions may also occur which can leave the affected fish open to secondary infection by bacterial and/or fungal pathogens.

There is **NO** treatment for Gyrodactylosis, the only control measure is through total eradication of affected populations through use of chemicals such as the biocide rotenone used in Norway, that are damaging to wildlife and the environment.



Electron micrograph of *Gyrodactylus salaris* on the gill filament of a salmon. Copyright: courtesy of Tor Atle-Mo, Norwegian National Veterinary Institute

The parasite's native range is the Baltic where salmon have, for the most part some immune response preventing the development of Gyrodactylosis. However, experimental trials indicate that UK salmon, like the Norwegian salmon populations have no such immunity and are susceptible to the disease. The *Gyrodactylus* situation in Norway provides a good case study with respect to the problems that can be encountered when *Gyrodactylus salaris* is introduced. Studies there have shown that salmon stocks in infected rivers can be reduced by as much as 98% in as little as 5 years. It is the potentially extremely severe impact of this parasite makes it arguably the most important disease threat to wild salmon populations.

If introduced, the routes of spread of the parasite are numerous; throughout a catchment could be via natural fish movement and currents; between catchments could be via live fish introductions, poor biosecurity on boats, fishing tackle or waders. **The parasite is absent from the UK,** and in order for our salmonid stocks to be protected from this disease, it is essential that the U.K. remains free from *G. salaris*. The risk of introduction is small, with good biosecurity measures, and an understanding by river users of the risk of *G. salaris*, it is unlikely to reach the UK.

E-mail fisheries.wales@naturalresourceswales.gov.uk
www.naturalresourceswales.gov.uk

Incident Hotline
03000 65 3000

Monitoring

The Fish Health Inspectorate (FHI) – which reports to CEFAS – is the official service for the control of serious diseases of aquatic animals in England and Wales.

The FHI carries out annual surveillance programmes on the 80 principal salmon rivers of England and Wales to monitor for the presence of *Gyrodactylus salaris* in wild salmonid stocks, in Wales they do this in conjunction with Natural Resources Wales' (NRW) routine electric fishing surveys. Each catchment is surveyed once every 5 years on a rolling programme. A sample size of approximately 30 salmon is required; in Welsh rivers these usually come from the fry population as to lose 30 parr could be detrimental to the population.

To date, all of the Welsh rivers sampled have been negative.

Contingency plans

A contingency plan in the event of an outbreak of *Gyrodactylus salaris* in England and Wales was published in 2008. This document outlined the main objective in the event of an outbreak to contain and if possible, eradicate the parasite. This would be achieved by:

- Movement restrictions on catchments in which *G. salaris* was identified or suspected
- The establishment of buffer zones adjacent to the affected catchment areas which would help prevent the further spread of the parasite.
- A publicity drive in order to raise awareness of the problem and the steps they could take to prevent further spread of the disease.

Salmonid stocks face increasing pressures on their populations from disease, habitat degradation and overfishing. Being able to minimise or, where possible, eradicate these pressures is of the utmost importance in ensuring the survival of these species in the wild environment.

Exercise Alpheus

In December 2015 CEFAS ran an exercise to test the emergency response in England and Wales to a hypothetical discovery of *G. salaris*. This was a multi-Agency exercise including the Chief Veterinary Officer; DEFRA; CEFAS; FHI; Ministers from the UK, Welsh and Scottish Governments and the Northern Ireland Executive; Environment Agency, Natural Resources Wales and the Scottish Environmental Protection Agency; and stakeholders including the British Trout Association (BTA), Angling Trust, Rivers Trusts and Rivers and Fisheries Trusts of Scotland (RAFTS).

The scenario followed in real-time the discovery and confirmation of *G. salaris*, and the measures that each organisation would set in motion to determine the extent of the outbreak, monitor and contain the spread of the parasite. Sophie Gott was the NRW representative and was involved in developing a wild fish *G. salaris* surveillance programme to map the spread of the parasite; identifying pinch points in the field sampling and processing of samples at the CEFAS lab; and determine the resources required to demonstrate whether any of the 80 principal salmon rivers in England and Wales could be designated as free from the parasite.

The exercise was a fascinating insight into the complexities that are involved with such an incident, and how important good communications are. It was proposed in this exercise that

the parasite was found during routine electric fishing surveys, but it is also likely that it could get noticed first by anglers targeting resident trout.

One of the key points highlighted by this exercise was that we all need to be thinking about not just *G. salaris* but other fish pathogens too. We need to ensure that anything unusual can be reported quickly and easily by NRW staff, Rivers Trusts, anglers and members of the public alike to be investigated. To aid this, we are actively raising awareness within NRW of fish health matters; producing information notes on some of the fish diseases and pathogens that we are most concerned with. You can use our dedicated fisheries email address to ask fish health questions or report concerns fisheries.wales@naturalresourceswales.gov.uk.

Finally, the exercise highlighted that the National and local contingency plans are in need of updating; this is currently underway in NRW and WG and the new plans will be available this year.

Good biosecurity measures are key to keeping *Gyrodactylus salaris* out of the UK. By following and promoting the Check, Clean, Dry guidelines we can all help to keep our rivers free from not only *G. salaris* but other invasive species harmful to our native plants and animals.

www.nonnativespecies.org/checkcleandry

Further information

If you require more information about *Gyrodactylus salaris* or any of the topics covered above, please contact:

Natural Resources Wales
Email: fisheries.wales@naturalresourceswales.gov.uk
Customer Care Centre, Ty Cambria, 29 Newport Rd, Cardiff, CF24 0TP
Tel: 03000 65 3000 (24hrs)

Or

Fish Health Inspectorate
Email: fish.health.inspectorate@cefas.co.uk
Cefas Weymouth Laboratory, Barrack Road, The Nothe, Weymouth, Dorset, DT4 8UB
Tel: 01305 206600