



# Infection with *Gyrodactylus salaris*

Also known as gyrodactylosis

From *Aquatic animal diseases significant to Australia: identification field guide*, 5th edition

Figure 1 Juvenile Atlantic salmon (*Salmo salar*) infected with *Gyrodactylus salaris*



Note: Excessive mucous and peeling of skin, especially around the tail.

Source: T Håstein

## Signs of disease

Important: Animals with this disease may show one or more of these signs, but the pathogen may still be present in the absence of any signs.

Disease signs at the farm, tank or pond level are:

- lethargy
- high mortality in Atlantic salmon (*Salmo salar*)
- scrubbing (rubbing against objects in response to skin irritation) and flashing (darting and twisting of fish and erratic swimming)
- gathering in low-current waters when heavily infected.

Gross pathological signs are:

- ulcers
- sloughing of the skin
- greyish appearance; as disease progresses, dorsal and pectoral fins may have a whitish appearance due to thickening of the epidermis
- excess mucus on skin
- frayed fins.

There are no definitive microscopic pathological signs. Most waters have many types of monogenean flukes that are parasitic on fish gills and skin. Any evidence of infestation with these parasites beyond

what is visible to the naked eye requires identification by a parasitologist experienced in identifying *Gyrodactylus* species.

### Disease agent

Gyrodactylosis is caused by infection with *Gyrodactylus salaris*, an obligate freshwater ectoparasitic flatworm (*Platyhelminthes*) belonging to the family *Gyrodactylidae* (class Monogenea). *G. salaris* occurs in Europe, mainly around the Baltic Sea and Norway.

### Host range

All species of salmonids should be considered potentially susceptible to infection by *G. salaris*, unless future testing suggests otherwise.

**Table 1 Species known to be naturally susceptible to *Gyrodactylus salaris***

Common name	Scientific name
Arctic char	<i>Salvelinus alpinus</i>
Atlantic salmon	<i>Salmo salar</i>
Brook trout	<i>Salvelinus fontinalis</i>
Brown trout <sup>a</sup>	<i>Salmo trutta</i>
Grayling	<i>Thymallus thymallus</i>
Lake trout	<i>Salvelinus namaycush</i>
Rainbow trout	<i>Oncorhynchus mykiss</i>
Salmonids (all presumed susceptible)	<i>Salmonidae</i> , all species

<sup>a</sup> Susceptibility of brown trout is very low; *G. salaris* will usually only establish in a brown trout population co-existing with infected salmonids. Note: Other species not listed have been shown to be experimentally susceptible.

### Presence in Australia

Exotic disease—not recorded in Australia.

**Map 1 Presence of *Gyrodactylus salaris*, by jurisdiction**



## Epidemiology

- *Gyrodactylus salaris* may be present for years in farmed salmonids, especially rainbow trout, without the fish showing any clinical signs of disease.
- *Gyrodactylus salaris* is a freshwater parasite that cannot survive in seawater. However, it can survive a few days at salinity of up to 20 ppt.
- The parasite can survive 5 to 6 days detached from the host but cannot survive drying out.
- Transmission is horizontal (directly via the water column) by contact between infected and uninfected fish, or by contact between host fish and detached parasites on the substrate.
- Mortality in susceptible farmed Atlantic salmon can reach 100%.
- The parasite is readily spread between farms and countries through the transport of infected fish.

## Differential diagnosis

The list of [similar diseases](#) in the next section refers only to the diseases covered by this field guide. Gross pathological signs may also be representative of diseases not included in this guide. Do not rely on gross signs to provide a definitive diagnosis. Use them as a tool to help identify the listed diseases that most closely account for the observed signs.

## Similar diseases

Many diseases listed in this field guide appear similar to infection with *G. salaris*. Further laboratory diagnosis is required for any presumptive diagnosis.

## Sample collection

Only trained personnel should collect samples. Using only gross pathological signs to differentiate between diseases is not reliable, and some aquatic animal disease agents pose a risk to humans. If you are not appropriately trained, phone your state or territory hotline number and report your observations. If you have to collect samples, the agency taking your call will advise you on the appropriate course of action. Local or district fisheries or veterinary authorities may also advise on sampling.

## Emergency disease hotline

See something you think is this disease? Report it. Even if you're not sure.

Call the Emergency Animal Disease Watch Hotline on **1800 675 888**. They will refer you to the right state or territory agency.

## Microscope images

Figure 2 Scanning electron micrograph of *Gyrodactylus salaris* attached to skin of juvenile Atlantic salmon (*Salmo salar*)



Note: Several parasites attached to the fish skin with their posterior attachment organ (opisthaptor).  
Source: TA Mo

## Further reading

CABI Invasive Species Compendium '[Gyrodactylus salaris](#)'

World Organisation for Animal Health [Manual of diagnostic tests for aquatic animals](#)

These hyperlinks were correct at the time of publication.

## Contact details

Emergency Animal Disease Watch Hotline 1800 675 888

Email [AAH@agriculture.gov.au](mailto:AAH@agriculture.gov.au)

Website [agriculture.gov.au/pests-diseases-weeds/aquatic](http://agriculture.gov.au/pests-diseases-weeds/aquatic)

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