

# Saprolegnia infections in wild salmon and sea trout

In the last few years we have received increased reports of salmon and sea trout exhibiting fungal infections. There have also been reports of the skin condition known as Ulcerative Dermal Necrosis (UDN), although confirmed cases of this remain scarce. Similar reports have been received from rivers across England, Wales and Scotland. These conditions can appear unsightly and have raised concern from anglers about the impact to fisheries. We are monitoring the situation on all our major salmon rivers and working with partner organisations to progress our understanding of these diseases.



*White patches are Saprolegnia infections on a salmon*

## What is Saprolegnia?

Saprolegnia causes white, cream or pale brown cotton wool-like growths on the skin and fins of fish. These infections often start as small round patches, but can increase in size to form larger plaques covering the body. Although Saprolegnia is commonly referred to as a fungus, it is actually a type of cold-water mould known as an Oomycete and is not strictly a fungus. The most common species that causes problems in our fisheries is *Saprolegnia parasitica*, which is found in freshwater environments throughout the UK.

## What effect does it have on salmon and sea trout?

It is not unusual for salmon and sea trout to develop Saprolegnia infections as they enter rivers from the sea. Light infections may look unsightly but are usually tolerated by healthy fish and can heal if conditions allow. These infections have little effect on fish health and infected salmon and sea trout can continue to spawn successfully. In some cases Saprolegnia infections can persist and may increase in size over time. Heavy infections can cause severe skin damage, leading to debilitation, lethargy and even mortality of badly infected fish.



*The hyphae of Saprolegnia*

## Why do salmon and sea trout develop these infections?

Salmon and sea trout entering our rivers to spawn face many natural challenges and it is common to see fish with Saprolegnia either leading up to or after spawning. These infections often follow some form of skin damage, allowing water borne spores to enter the skin and grow. Stress can also increase the susceptibility of fish to Saprolegnia. These stressors include physiological changes as fish prepare to reproduce, mechanical damage as they overcome obstacles, and also environmental changes like prolonged periods of low flows and extreme climatic conditions.



*Heavy infection of Saprolegnia*

## How does Saprolegnia differ from the disease UDN?

Ulcerative Dermal Necrosis (UDN) and Saprolegnia are different conditions but share some similarities. The term UDN is frequently misused to describe any lesion on the head of salmon and sea trout, but these can be caused by a variety of different factors. Fish with UDN typically develop smooth, rounded lesions on the head as fish first enter freshwater in spring. These can develop in to larger ulcers covering the nose, eye and gill cover. UDN is a complex disease with an unknown cause. Despite frequent reports, confirmed cases of UDN remain scarce. For more information please see our factsheet 'UDN and other skin conditions of salmonid fish'.

## Why have infections increased on some rivers?

It is not clear exactly why Saprolegnia infections have become more prevalent in some rivers. These infections are often caused by a complex combination of factors that can differ between fish, stretches and rivers. Problems have also been linked with prolonged cold spring temperatures, low flow conditions, barriers to migration and even marine stressors. We are working to better understand the factors underlying these infections.

It can be difficult to assess when natural levels of Saprolegnia become a disease problem. Numbers can also fluctuate throughout the year with changing river conditions. An increase in reports of affected fish can sometimes be the result of more fish entering a river and not necessarily an increase in the proportion of the population infected. As Saprolegnia infections can be unsightly, it is not uncommon for the same fish to be reported on multiple occasions, leading to an overestimation of a problem. Low, clear water conditions can also make affected salmon and sea trout more visible, especially if they become aggregated during low flows. These difficulties highlight the importance of prompt reporting and monitoring so we can fully assess the extent of any problems that do rise.

## What are we doing about this?

We continue to monitor disease on all our major salmon rivers and are asking anglers to report losses so we can assess the severity of any problems and respond accordingly. Our local and national teams are working closely with staff at our National Fisheries Laboratory to confirm the cause of any serious problems and to rule out usual pathogens. In a small number of severely affected rivers we have imposed emergency bylaws to protect the remaining spawning stocks. These have included temporary closure of net fisheries and mandatory catch and release.

We have also been working with partner organisations including Stirling University, Marine Scotland and Cefas to learn more about these diseases and their cause. A project is underway with Cardiff University to assess the diversity, impact and characteristics of Saprolegnia infections in rivers throughout England and Wales. This may help identify why some rivers are more badly affected than others and what factors are driving these infections in the wild.

## What should I do if I encounter fish disease?

We do not advise anglers to remove any fish from the wild exhibiting signs of Saprolegnia infection. We also ask anglers to release fish that are inadvertently caught quickly and carefully to the water. If it safe to do so, a photograph of affected fish can provide a useful record of any abnormalities. If you encounter dead or dying fish please notify your local Environment Agency office immediately and we will respond accordingly. This will allow us to monitor disease levels and to target our monitoring efforts.

**For further information on Saprolegnia or any fish health issue please contact:  
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