

## Skin conditions of Rainbow Trout

**Red Mark Syndrome (RMS) and 'Puffy Skin' disease are skin conditions that have been recently recorded on rainbow trout. Both cause abnormal marks and swellings on the skin and can lead to problems in still water trout fisheries. Relatively little is known about these diseases, but studies are underway to improve our understanding of their cause and management.**

### What is Red Mark Syndrome?

Red Mark Syndrome is similar to strawberry disease, a skin condition first reported in aquaculture facilities in the USA. RMS was first recorded in Scotland in 2003, and has since been found in trout farms throughout England and Wales. More recently, cases of RMS have been reported in still water fisheries and a river following the stocking of fish from affected farms.



*A typical RMS lesion on the flank of a rainbow trout.*

### What does RMS do?

Fish affected with RMS generally develop oval shaped, red ulcers on their flanks. These often run across the lateral line region of the fish. The scales in the affected area may lose their pigmentation and the skin can become inflamed and raised. As lesions develop, the scales may be re-absorbed into the skin and the tissue can start to die.

Other than the unsightly appearance of RMS, there is no evidence that it causes serious disease. Affected fish can have lesions without any loss of appetite or change in behaviour. However, in severe cases fish may develop secondary infections, leading to debilitation, condition loss and death. Trout with RMS can recover depending on water quality and temperature. Healed fish are often resistant to re-infection but may still transmit the disease.

### What is 'Puffy Skin' Disease?

The condition known commonly as 'Puffy Skin' has been recorded in fish farms throughout the UK for a number of years, but increased dramatically in 2011. The disease has recently been reported in still water fisheries, where it is a cause of growing concern. This is due to the pronounced swellings that develop along the flanks of affected fish, often accompanied with a loss of condition, appetite and lethargy. Lesions usually develop through a number of stages, with fluid retention and raising of the scales. In extreme cases, nearly the entire flank can be affected. This is very different to RMS, where lesions are generally discrete and usually only take up small areas of the skin.



*Healthy trout support healthy trout fisheries*

**customer service line 03708 506 506**

**floodline 03459 88 11 88**

**incident hotline 0800 80 70 60**

Page 1 of 3

## What causes RMS and Puffy Skin?



*Classic 'puffy skin' lesions on the flanks of rainbow trout examined from a still water fishery*

## What are the triggers for these conditions?

RMS is a cold water condition, and typically appears during autumn and spring when temperatures are around or below 12°C. Disease problems are usually linked to adverse conditions or periods of stress which can trigger the development of lesions. Less is known about the triggers for Puffy Skin and problems in fisheries have been investigated by National Fisheries Services, Brampton, from May through to November.

## What are the impacts of these diseases on our fisheries?

RMS and Puffy Skin can have detrimental effects on fisheries. This is mainly due to the visual appearance of the lesions, which can reduce both the economic and aesthetic value of affected fish. This in turn can reduce angler satisfaction and fishery performance. RMS is a well-known disease of farmed trout and most outbreaks have been restricted to fish farms. However, there are occasional reports of RMS in still water trout fisheries, linked to the stocking of diseased fish from affected farms. Puffy Skin has been reported in a large number of fish farms, and the occurrence of the disease in fisheries is likely to be the result of stocking affected fish. However, the fate, development and persistence of Puffy Skin in fisheries remains unclear.

Fish affected by Puffy Skin disease can become debilitated, with condition loss and lethargy. It is currently unclear whether low level mortalities reported from affected fisheries are the direct cause of this disease. Furthermore, the potential for transfer of these conditions to other fish species remain unclear. Efforts are underway to investigate the importance of these diseases in fisheries and how they can be managed.

## Are there controls in place to limit the spread of these diseases?

There are no specific controls in place to limit the spread of RMS or Puffy Skin disease. Control of these conditions is difficult due to the lack of a known cause and problems diagnosing infections in healthy looking fish. Both RMS and Puffy Skin have originated on fish farms and are now widespread in England and Wales. Consequently, the potential for spread to fisheries with the stocking of affected fish remains high. A number of measures can help minimise the risk of disease transfer to fisheries and aid recovery of problems should they arise.

## Minimising disease problems in fisheries - what can I do?

As the causes of RMS and Puffy Skin are unknown, protecting your fishery from them can be difficult. In fish farms, antibiotic treatments have been shown to be effective for RMS, but such measures are usually ineffective and impractical in fisheries and may be illegal. Good fisheries management is therefore key to minimising disease risks and the impact of these conditions.

### **Seek advice before stocking:**

RMS and Puffy Skin in fisheries have mainly been linked to the stocking of affected fish from fish farms. Discuss these risks with your fish supplier or local fisheries officer before stocking and always be clear on the risks before you stock.

### **Inspect fish prior to stocking:**

Although small abrasions and red marks on trout may not be a cause for concern, always investigate serious or abundant lesions and don't stock fish unless you are happy.

### **Maintain good stocking practices:**

High stock densities can increase stress and disease transmission. Maximising stock turnover and reducing stock levels can prevent disease problems.

### **Maintain stress free conditions and good water quality:**

The impact of many disease problems can be limited by ensuring good water quality and stress-free environmental conditions.

### **Limit handling and catch and release:**

During outbreaks of these conditions, you should limit the handling of affected fish as this will aggravate the problem. Do not return obviously affected fish.

**If you experience disease problems at your fishery, or you would like more information about these conditions, please contact National Fisheries Services for advice and guidance.**

National Fisheries Services: Fish Health, Ageing and Species, Environment Agency, Bromholme Lane, Brampton, Huntingdon, PE28 4NE.

Tel: 02084 745244 or 07825 111723; Email: [fish.health@environment-agency.gov.uk](mailto:fish.health@environment-agency.gov.uk)