

Shewanella putrefaciens group

What is Shewanella putrefaciens group?

Shewanella putrefaciens is a common bacteria found in fresh, brackish and marine water and mud. There are a number of different strains within the species, so it is referred to as a group. The bacteria is normally found in healthy marine animals and is commonly reported as a food spoilage bacteria of fish in the seafood industry. However, *S. putrefaciens* has also been found in diseased freshwater fish including cyprinids, Atlantic salmon, brown trout and rainbow trout. It is now considered to be a potential disease causing bacteria in freshwater fish.



Open bacterial lesions on a carp.

What does Shewanella putrefaciens do?



A roach with exophthalmia.

It is rare for *Shewanella putrefaciens* infection to cause direct mortality, but infection may contribute to a decline in the health of fish.

Infections of *S. putrefaciens* usually develop because the fish is already in poor condition. The bacteria is usually found in external lesions and ulcers, along with other bacterial species. When internal systemic (whole body) infections occur it can lead to organ damage and bacterial septicaemia. Visible symptoms include dropsy (fluid retention) and exophthalmia (bulging eyes). Fish with systemic infections rarely recover. When fish are stressed or have decreased immunity, infections can cause death.

Minimising the threat of Shewanella putrefaciens – what can I do?

Shewanella putrefaciens is always present in fisheries. The use of antibiotic treatments in the water or feed are impractical in a fishery and may be harmful in the long-term. Clinically infected fish are unlikely to recover, so steps need to be taken to prevent infections occurring. The risk of an outbreak can be managed by:

Reducing stress within the fish population

Stress decreases the ability of the fish to manage challenges such as infection or wounds. This allows opportunistic bacteria to take hold.

Taking care when introducing new fish

Care should always be taken to limit stress to fish during stocking. Particular care is needed during rising temperatures. This period can be stressful to the fish and favours rapid bacterial reproduction.

Regular monitoring of water quality

Disease outbreaks are usually linked with a sudden change or a gradual decline in the aquatic environment causing stress to the fish. Regular monitoring helps to detect the early signs of problems.

Varied habitat

Habitat variation can help reduce competition between fish for food and space. It can also provide areas of cover where the fish can hide if they are threatened and recover from handling following capture by anglers, reducing their stress levels. Good varied habitat within a fishery can also improve water quality.

Good fisheries management to minimise stress is the best way of reducing the risk of disease outbreaks. For more information about managing water quality, fishery habitat and stock density, see the relevant fact sheets in this series.

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