

Enteric Redmouth

David Graham

Disease Surveillance and Investigation Branch, Veterinary Sciences
Division, Department of Agriculture and Rural Development, Stoney
Road, Stormont, Belfast BT4 3SD, Northern Ireland

Enteric redmouth (ERM) is an infectious disease of fish caused by a bacterium called *Yersinia ruckeri*.

Geographical Range

ERM was originally identified in the USA and it is now widespread in Europe and several other countries world-wide. It was introduced into Great Britain in the mid 1980s and was diagnosed in rainbow trout in the Republic of Ireland 5 or 6 years ago. In recent months ERM disease has been confirmed for the first time in Northern Ireland on three rainbow trout farms.

Species Susceptibility

ERM is primarily a disease of farmed rainbow trout, but Atlantic salmon and other salmonid species can be infected. Non-salmonid species, i.e. eels, pike, perch, gudgeon, saithe, sturgeon, turbot and goldfish. can also carry the organism without showing any signs of disease. It is probable that many other fish species may also act as carriers. In addition the organism can be carried by sea gulls, man and other mammals and by aquatic invertebrates such as crayfish. It is unlikely that the disease can be transmitted via disinfected eyed ova.

The Disease

Early signs of disease include bleeding at the base of the fins and vent and occasionally in and around the mouth. Bulging eyes or eye rupture may occur and bleeding into the eyes is not uncommon. Internal signs include bleeding in the fat, muscle, and over the internal organs and swim bladder.

The lower intestine can be filled with blood and the kidney and spleen enlarged. None of these signs are specific to ERM as they can be seen in many bacterial infections e.g. furunculosis.

Chronic signs include a high percentage of dark, non-feeding lethargic fish with severe pop-eye and often ruptured eyes. Some infected fish may show no signs of disease, these can act as symptomless carriers. The effects of *Yersinia ruckeri* on a population of trout depend upon the age and size of fish, water temperature, stress levels and relative susceptibility. Fish of 7.5cm (3") length are most susceptible, with disease being less severe but longer lasting in larger fish. Naturally infected hatchery salmonid populations may suffer 30-70% deaths during the initial phase of disease and recurrent infections in survivor populations

may result in a low, chronic mortality over an extended period.

Severe mortalities were not recorded on any of the affected sites in N.Ireland. ERM outbreaks in wild fish populations are poorly recorded, but many fish species can carry the bacterium in their gut without showing any signs of disease. ERM outbreaks usually occur only after fish have been exposed to large numbers of *Yersinia ruckeri* organisms **in association** with environmental or other physical stresses. The high water temperatures and low water levels which occurred last summer were thought to be trigger factors in the ERM outbreaks detected in N. Ireland.

Diagnosis and Control

ERM is confirmed by the laboratory isolation and identification of *Yersinia ruckeri* in fish tissues in association with all or some of the disease signs mentioned above. ERM can be controlled by vaccination. Ideally fish should be vaccinated prior to movement to an infected site. Vaccination will prevent clinical disease but will not eliminate infection already carried by fish or prevent fish from becoming healthy carriers. Acute disease can be treated with antibiotics.

Good husbandry practices, the reduction of stress and good disinfection procedures also play an important role in the control of the disease.

If not already in place it is advisable that all fish farms and "Put and Take" fisheries should introduce as standard practice rigorous disinfection procedures for all vehicles, equipment and personnel entering or leaving their premises. This will reduce the risk of

introducing **any infectious fish diseases** onto such sites.

As *Yersinia ruckeri* can survive in mud and be carried by a wide range of fish and other species it would be very difficult to eliminate the infection from the aquatic environment. However unlike many other fish diseases effective vaccines and antibiotics are available to control and prevent disease outbreaks.

Further information may be obtained from the Fish Diseases Unit, Veterinary Sciences Division, Stormont, Belfast BT4 3SD, Northern Ireland. TEL: (028) 90525710 / 90525709