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NEW ZEALAND FRESHWATER FISHERIES MISCELLANEOUS REPORT NO. 19

REDFIN PERCH VIRUS (EHN)

by

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Report to: Department of Conservation

Freshwater Fisheries Centre

MAF Fisheries

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Servicing freshwater fisheries and aquaculture

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REDFIN PERCH VIRUS (EHN)

A synopsis prepared for the
Department of Conservation

by

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MAF Fisheries

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CAUSE

EHN (Epizootic haematopoietic necrosis) is a viral disease mainly affecting redfin perch, Perca fluviatilis caused by an iridovirus.

DISTRIBUTION

Outbreaks of EHN have been described only in Australia, in New South Wales and Victoria in wild redfin perch and from three trout farms, two in New South Wales and one in South Victoria.

HOST RANGE

Langdon (1989) describes experimental transmission of EHN in twelve species of teleosts. He found redfin perch and four other species were highly susceptible to disease following bath exposure to the virus. The other susceptible species were the mosquito fish Gambusia affinis, a galaxiid Galaxias olidus, Macquaria australasica and Bidyanus bidyanus. Note that rainbow trout and Atlantic salmon were among those species tested and found not to be particularly susceptible to EHN virus.

THE DISEASE

In wild redfin perch the disease has caused large, sometimes total, losses of juvenile and adult fish in artificial lakes and ponds. The virus was first isolated from such outbreaks of disease in 1984 however mass mortalities of juvenile perch were noted as early as 1972. The disease appears in late spring and early summer with high losses over a few weeks. The disease is characterised by necrosis of kidney, liver spleen and pancreas tissue.

The mortality in natural occurrences of the disease in rainbow trout farms is much less. It is recorded as about 0.05% per day, only slightly higher than normal losses although morbidity approached 100%, ie. most fish became ill for a short period, then recovered. Experimental trials found the virus not highly pathogenic for rainbow trout. Only one out of seven fish died after all were exposed to the virus (Langdon et al. 1988).

Experiments with Atlantic salmon found that they could become infected but were not killed by EHN virus.

Personal communication from an Australian trout farmer was that EHN could not be isolated by Australian fish health researchers from rainbow trout on his farm despite the fact that his water supply is from a reservoir in which the virus is present in redfin perch. Langdon et al. (1988) states that:

"despite the widespread occurrences of redfin perch and EHN outbreaks in Victorian and New South Wales waters used for salmon culture the authors have been only two cases ... in salmonids to date."

Of these two cases one received fish from the other farm. A further case has occurred since that publication.

CONTROL

Langdon (pers. comm.) states that the disease was eradicated from two of three trout farms by slaughter and, in one case, liming of ponds. It has recurred with each new introduction of 0+ fry to contaminated earth ponds. The virus was inactivated by sodium hypochlorite and by 60°C for 15 minutes but was not inactivated by freezing (Langdon 1989).

IMPLICATIONS FOR NEW ZEALAND

The redfin perch in New Zealand probably derive from the same stock lines that are affected in Australia. (Perch were imported from Tasmania in 1868, 1870 and 1877). However, there is no known history of large mortalities of perch from New Zealand waters that could suggest the presence of this virus.

Perch have an upper limit of tolerance to temperatures of 30°C. Although no temperature data is provided in Australian studies it is possible that, as perch are not native to Australia, and that the disease outbreaks as water temperatures rise then elevated temperatures may be an environmental factor contributing to the severity of the disease. Such elevated temperatures may not occur in this country.

As a precaution against the introduction of fish diseases to New Zealand all imports of live coldwater fish species are strictly controlled under provisions of the Animals Act 1967. MAF has

the resources to detect the disease should it occur here and has regular surveillance of commercial fish farms. Some control on translocation of disease by fish transfer is maintained by MAF through fish transfer authorisations.

There are several other infectious diseases of salmonids in Australia which do not occur in this country. Examples are diseases caused by Aeromonas salmonicida, Yersinia ruckeri and Mycobacterium. The New Zealand controls of fish diseases and live fish imports apply to all these possible disease threats and not just concerning EHN.

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Encl: Langdon 1989.