

Carp Edema Virus CEV

National Fisheries Services

A newly discovered viral disease affecting carp fisheries

Between April and October 2012, National Fisheries Services (NFS), Brampton were notified of four unusual carp mortalities in the south east of England. All four waters were within a 5 mile radius and shared similar characteristics of lethargic fish and significant losses. In November 2012, a similar case in the midlands was reported. Laboratory investigations resulted in the detection of Carp Edema Virus (CEV). These represent the first records of this virus in UK carp fisheries. Work is underway with virologists at Cefas to progress our understanding of this virus and the risk it poses to our fisheries.

Effective management of serious fish diseases relies on prompt responses to the detection of new pathogens. To minimise the risk of disease transfer to other fisheries, we have placed fish movement controls on all infected waters. These will remain in place until we have the necessary information to fully assess the distribution and importance of the virus. This decision is supported by the fisheries involved, Cefas and Defra.



Detailed laboratory investigations underway at Brampton, following a serious carp mortality

What do we know about this virus?

The virus detected from the mortalities in England is very similar to the one responsible for diseases of koi carp in Japan. These were known as Carp Edema, Viral Edema of Carp and Koi Sleepy Disease, but are now believed to be caused by the same virus. It is not clear whether the UK virus shares the same characteristics and causes the same disease problems as those reported in Japan. Detailed laboratory examinations conducted by NFS, Brampton have revealed a range of other pathogens in the fish infected with CEV and also, notable environmental stressors at some of these fisheries, making it difficult to assess the importance of the virus alone.

Which fish are susceptible to CEV?

To date, CEV has only been reported in common carp and its ornamental variants like koi carp and ghost carp. No other fish species have been associated with this virus in our fisheries, and in the waters sampled by our field-based fisheries teams, no other species have been visually affected.

What are the main signs of CEV?

Carp infected with CEV usually display two main characteristics. The first is lethargy, or 'sleepy' behaviour, with carp congregating around the margins and becoming increasingly unresponsive. The second is severe

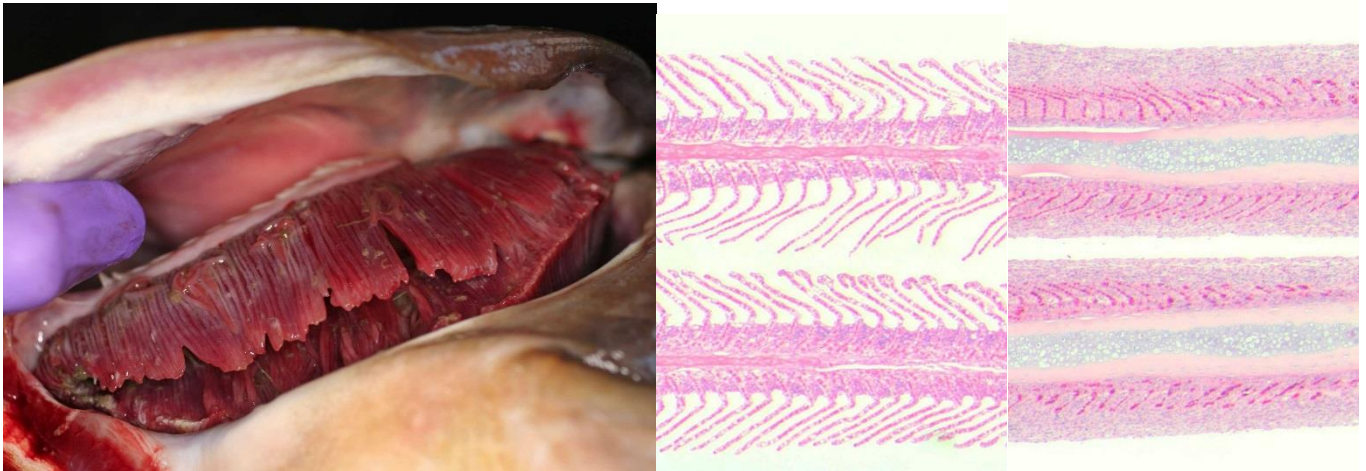
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gill pathology, with clubbing of the gill filaments, hyperplasia, inflammation and cell death. Other organ changes have been associated with CEV, although these are not always seen.

It is important to realise that lethargy and gill damage can be caused by a wide range of infections and environmental factors. As such, serious fish mortalities require detailed investigations combining laboratory examinations and comprehensive assessments of fishery conditions, water quality and management practices. This information is vital to identify possible causes and rectify any fish disease problem.



The gills of carp (left) can be affected by many different conditions, few visible with the naked eye. Histopathology is a laboratory tool that helps distinguish healthy gills (centre) from damaged gills caused by disease (right)

What are the environmental triggers for CEV?

Viruses usually have set temperature ranges where they become more active and cause disease. For many diseases it is the warming temperatures of spring and summer that act as a trigger. This has generally been the case in Japan, with CEV outbreaks reported between 15 and 23 degrees. In contrast, CEV has been detected in our fisheries almost all year round, with temperatures as low as 3 degrees. Although the role of the virus in these cold water mortalities is still to be clarified, this wide temperature range is of concern, with the potential for problems throughout the year.

How widespread is CEV?

Viruses can be very hard to detect, especially if fish appear healthy. Our knowledge of viruses is also limited by the tools available to detect them. It is feasible that CEV is widespread in freshwater fisheries and work is underway to establish whether there are any factors linking affected waters. Until the distribution of CEV is established, caution must be taken to prevent further spread.

What should I do if I suspect CEV?

Report any serious fish deaths or disease problems you encounter to your local Environment Agency fisheries officer immediately. We will investigate these promptly to assess the cause and work with the fishery to put things right. For more information on CEV or any other fish disease, please contact:

National Fisheries Services – Fish Health, Ageing and Species, Environment Agency, Bromholme Lane, Bampton, Huntingdon, PE28 4NE

Tel: 02084 745244 or 07825 111723. Email: fish.health@environment-agency.gov.uk

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