

The distribution of Koi Herpesvirus (KHV) in England and Wales

Questions and Answers

What was the purpose of the study?

Under new EU legislation (2006/88/EC) due to be implemented later this year KHV disease is a listed disease. Under the new legislation all listed diseases are subject to control. However the type of control programme will depend upon the presence or absence of the disease in member states, and in those where the disease is present, the potential for its eradication. This study was designed to establish the distribution and prevalence of fish exposed to KHV within the English and Welsh fish farming, fisheries and ornamental sectors in order to inform the required policy decision on the appropriate control programme for England and Wales.

The study used a diagnostic method of detecting antibodies to KHV, a technique that indicates exposure to the virus rather than the direct detection of the pathogen. This method was adopted, as there is a greater chance of detecting antibodies to KHV as compared with detection of the virus.

What are the main findings of the report?

- ❑ KHV antibody positive fish were detected in each of the geographic regions studied.
- ❑ Around half of the farms currently producing carp in England and Wales were sampled and only 4% were found to be holding KHV antibody positive fish.
- ❑ Eleven consignments of imported fish from Southeast Asia were tested for the presence of KHV antibody, six tested positive.
- ❑ Over 5000 fisheries are known to hold carp in England and Wales. Because of the large number of fisheries only a small proportion could be sampled. In order to maximise our chances of detection only those sites at highest risk of receiving KHV exposed fish were sampled. 37% of these high-risk fisheries tested antibody positive.

- The first recorded outbreak of KHV in a fishery in England and Wales was in 2003. Between then and the end of 2007 there were 49 clinical outbreaks of the disease in fisheries.

Is this bad news for farms, fisheries and the ornamental industry?

Obviously the widespread occurrence of KHV antibody positive fish is not good, however there are also positives to take from the results:

- The status of our farms is very good, with few sites testing positive. Farms are therefore a relatively safe source of fish. Infected farms do however have the potential to spread the virus rapidly and it is critical that infected sites are detected early.
- Although a high proportion of the fisheries tested were positive, these were the fisheries at the highest risk of getting the virus, it is therefore possible that the prevalence in other fishery types is much lower than indicated by this study.
- Imports of KHV antibody positive fish appear common, but it is encouraging that not all suppliers tested positive.

I understand vaccinated carp from Israel have been stocked in fisheries in the UK. How many fisheries have received vaccinated fish and have any of the stocked sites had an outbreak of KHV?

Due to the nature of fish movements it is difficult to assess exactly how many fisheries may have received vaccinated fish. Future research is planned that will help establish the distribution of vaccinated fish. Several sites experiencing KHV outbreaks have received fish from sites supplying vaccinated fish, however these sites had also received fish from other suppliers and it is therefore not possible to determine the origin of infection.

Under the new EU legislation what options are available to England and Wales with regard to KHV?

EC Directive 2006/88/EC requires that member states declare their status in respect of listed diseases. Given the results of this study England and Wales are left with two

options: 1) to declare ourselves positive for KHV, or 2) to enter a control and eradication programme.

What are the implications of declaring the UK positive?

If we declare ourselves positive for KHV the UK carp importers could continue trading as they currently do. However it would not be possible to export susceptible fish to any country, zone or compartment that had not also declared itself KHV positive. A passive surveillance programme would be required and there would still be an obligation on the competent authorities to control the disease. Such controls would be similar to those currently in place for KHV disease. In summary this will involve:

- Farms, fisheries, dealers or retailers experiencing clinical cases of KHV disease will be given the option to cull and disinfect or have movement restrictions. No fish could leave the site until the affected population has tested negative for the virus for 4 consecutive years. The introduction of carp from another site will not be allowed for a period of at least one year (other species can be introduced after the clinical outbreak of the disease has subsided).
- In reality farms, dealers and retailers will need to cull and disinfect in order to continue trading.
- In the case of many fisheries culling and disinfecting is unlikely to be practical and will therefore be subject to live the fish movement restrictions described above until they have been proven disease free.
- Hobbyists will be required to report suspicion of KHV disease to the Cefas Fish Health Inspectorate, who will advise whether either of the actions described above are required. This will depend on the threat posed by the pond to neighbouring fisheries and farms. If the threat posed is deemed minimal, no action will be taken

What are the implications of control and eradication?

The objective of entering this category would be to improve the UK's status with regard to KHV, with the eventual goal of eradication. However such a control programme may have detrimental consequences to some businesses in the UK. In order to enter this category the UK must submit a control and eradication plan to European Commission for approval.

If the plan is accepted, we can legally prevent the import of susceptible species from countries, zones or compartments known to be KHV positive, and our regulatory bodies would have the legal right to take steps to prevent the spread of the disease within the UK. Exports of susceptible species would only be possible to countries or compartments declared KHV positive.

What status has the UK decided to apply for?

Based on the information in the report and our knowledge of KHV, Defra considers that it may be possible to control and eradicate this disease from the UK and are therefore of the view that we should apply to enter a control and eradication programme (category IV status).

What will the control policy involve?

It is proposed that controls will be the same as those described above had we have opted for KHV positive status. However in addition a targeted surveillance programme involving site visits and sampling will be implemented on aquaculture production businesses, and the import of susceptible species would only be possible from countries or compartments with KHV free status (this will preclude the importation of fish vaccinated against KHV).

What conditions will a country, zone or compartment be required to meet to export to England?

In order for a country to be able to export susceptible species to England and Wales they must demonstrate that they are disease free, or have distinct disease free zones or compartments within them. To be declared free a country, zone or compartment must demonstrate freedom on historic grounds or undertake a surveillance programme yet to be specified by the European commission.

Can the virus become latent¹ and if so will the controls be effective?

Many herpes viruses have the ability to become latent or persist in a non-disease causing state. There is some evidence that this may be the case with KHV, however to the best of

¹ Have the ability to become undetectable but still be able to be spread the pathogen to other fish.

our knowledge this does not appear to be the case in the UK since the disease has not regularly recurred at the same site. If the virus can become latent the proposed controls may become less effective and may need reviewing. However by removing what is thought to be the greatest source of infection (imports from positive countries), and preventing further spread of the disease between farms and fisheries, it is hoped that we will observe a substantial decrease in the number of cases we observe each year. Results are unlikely to be immediate, but if the controls are effective a decrease in cases should become evident over a period of years.

Can I still import vaccinated fish?

Under the new EU legislation it is not possible to vaccinate carp in a country, zone or compartment that is officially free of the virus, therefore no vaccinated fish could be imported to the UK. This is because it is difficult to differentiate between those fish that have been vaccinated and those carrying the virus. Also vaccinated fish may pose a risk of introducing the virus.

Where can I get more information on the risks posed by vaccinated fish?

A risk assessment detailing the potential risks posed by KHV vaccinated fish will be available through the efishbusiness website in the near future: www.efishbusiness.co.uk

What category have other regions in the UK applied for, or they likely to apply for?

To date no clinical cases of KHV have been detected in Scotland. However to facilitate trade within GB Scotland is considering opting for category IV status in line with England and Wales. It is likely that Guernsey and Jersey will enter category IV status too. Northern Ireland and the Isle of Man are yet to declare their intentions.

What category have other EU countries decided upon with regard to KHV?

At present we do not know, however once each country has submitted their status to Europe a list will become available.

Who do I contact if I suspect KHV and where can I go for further information and advice?

Fish Health Inspectorate, CEFAS Weymouth Laboratory, Barrack Road, Dorset. DT4 8UB

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