society for general Microbiology

# DEPARTMENT FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS CONSULTATION ON KOI HERPES VIRUS (KHV): NOTIFICATION AND CONTROL ARRANGEMENTS

EVIDENCE SUBMITTED BY THE SOCIETY FOR GENERAL MICROBIOLOGY (SGM)

## Introduction

The Society for General Microbiology, founded in 1945, is an independent professional scientific body dedicated to promoting the 'art and science' of microbiology. It has now established itself as one of the two major societies in the world in its field, with some 5,500 members in the UK and abroad.

## Background

The adoption of movement restrictions is an effective disease control strategy. However to be effective, it is essential that the necessary machinery is in place to act quickly once a disease is recognised. Koi Herpes Virus (KHV) has been recognised in the UK for several years, and it is a pity that it has taken so long for governmental authorities to respond to the threat. A justification for this delay is needed if interested parties are to have any confidence in the proposed action. Notwithstanding, KHV disease appears to be a serious condition of cyprinid fish.

## General Comments

This document appears to be a knee-jerk reaction, and is fundamentally flawed. There are implications to fish keepers (i.e. householders) that have been ignored.

## Specific Comments

***Annex B***

*Factors to bear in mind*

The first point places a legal notification to notify suspicion of the presence of the disease, and finishes by mentioning prosecution of those who contravene the law. Exactly who has this legal obligation to notify and to whom? The third point then indicates that methods of diagnosing KHV need to be refined. If this is the case then how exactly is the disease to be diagnosed with confidence? This undermines the basis of notification of suspicion, the invoking of movement restrictions, and prosecution for those who contravene the policy. Surely, defence solicitors will have a field day with such ambiguity.

This section continues by mentioning unspecified control models (point 4), which needs to be clarified.

The last point concerning the absence of funding gives cause for concern insofar as those who co-operate and report suspicion of the disease stand to be at a financial disadvantage compared to those who may choose to dump infected stock.

*Industry model*
The industry needs to be convinced that there is an actual problem. What has the government done to highlight the problem to different sectors of the industry? For example, within Scotland, there appears to be ignorance about KHV among many retail ornamental fish traders and garden centres.

A disadvantage of this model is that everything is in the hands of the industry, which is likely to lead to concealment of the real situation. No, or hardly any, disease outbreaks in an individual site will be detected because the industry will not be interested in trade restrictions. This model will only work if the whole industry agrees on the in-process controls, trusts in the diagnostics and takes the necessary measures in case of an outbreak or a detection of the virus.

The provision of health certificates for incoming/imported stock is logical, but what about the problems of diagnosis?

*Traditional Government Model*
The traditional government model seems to be the most effective, but also the most cost intensive practice. However, the success of this model will depend on the willingness of industry to co-operate. Eradication of the disease and virus is needed and is likely only achievable with this model.

Paragraph 4: Surveillance will lead to a reliable overview of the disease situation, but exactly who would the government survey – breeders, importers, wholesales, retailers …? This could be a labour intensive task requiring an increase in the number of appropriately qualified diagnosticians.

Paragraph 5: It is expected that the measures introduced by the government as response to an outbreak or detection of the virus will be stricter than those taken by the industry. (Government is responsible for the natural waters and for any spread of the virus to wild fish.) In addition, these controls could apply to householders – is this the intention? Think of the adverse publicity that could result.

<u>Provisional government assessment</u>
Paragraph 6: If the disease is as widespread as feared, the present proposals will have little chance of success. This raises the issue again of why it has taken so long to make KHV a notifiable disease.

Paragraph 7: This paragraph makes a complete nonsense of the proposed disease control strategy.

*Industry/Government Partnership Model*
This is the linchpin of the document. However, what happens if the industry removes its co-operation? This model may also lead to confusion as to who is responsible for what. It does not seem sufficient to identify the virus, then to leave the responsibility for all the ‘conclusions and consequences’ for industry. Controlling this disease and virus is not a question of minimising its spread but rather of avoiding its introduction into farm sites.

***Annex C***

*Section1, point 3*

There are tests for identification of latent carriers (Bergmann, S.M. *et al*, 2006).

*Section 3. Options*

Zero Option

This would not work insofar as unscrupulous individuals would most likely dispose of infected stock to the unassuming public, and thereby spread the disease widely.

Option 1

To avoid the introduction, spread and circulation of KHV and simultaneously protect the industrial production of *Cyprinus carpio,* it would be necessary to choose this option, the most cost intensive method. If the disease was new to the UK, then this option should work. However, there has been too much time lost, and KHV has already established a foothold in the UK.

Option 2

This should work as long as industry remains committed, but what will happen to rogue traders in diseased fish?

*Section 4. Costs and benefits*

The costs of an outbreak in a farm with a production of 20 tonnes will range from €150,000 to €250,000 (Bräuer, G. *et al*, 2006). This includes all measures such as disinfection, removal of cadavers, cleaning and partly restocking. It is not recommended that only some infected sites are disinfected and restocked. Other infected farms will be a 'virus bomb' for other farmed and wild fish. If everything possible is not done to reduce the risk of re-infection (including by carriers), KHV outbreaks will be continuous. The costs could be distributed between all affected parties, with industry taking up the major part of the costs for surveillance and diagnostics.

*Section 5. Small Firms Impact Test*

Infected farms or companies should be supported by financial aids as well as by assistance and experiences from countries and persons who have successfully eradicated the disease from a farm.

**References**

Bergmann, S.M., Kempter, J., Sadowski, J. and Fichtner, D. (2006). First detection, confirmation and isolation of koi herpesvirus (KHV) in cultured common carp (*Cyprinus carpio L.*) in Poland. *Bull Eur Assoc Fish Pathol* **26**, 97-104.

Bräuer, G. and Herms, J. in Schlotfeldt, H.-J. (2004). Severe losses of common carp in Germany due to Koi Herpesvirus (KHV). *Bull Eur Assoc Fish Pathol* **24**, 216-217.

**Sources**

This evidence has been prepared on behalf of SGM by Professor Brian Austin, Heriot-Watt University, and Dr Sven Bergmann, Federal Research Institute for Animal Health, Germany.

**About the SGM**

Society membership is largely from universities, research institutions, health and veterinary services, government bodies and industry. The Society has a strong international following, with 25% of membership coming from outside the UK from some 60 countries.

The Society is a 'broad church'; its members are active in a wide range of aspects of microbiology, including medical and veterinary fields, environmental, agricultural and plant microbiology, food, water and industrial microbiology. Many members have specialized expertise in fields allied to microbiology, including biochemistry, molecular biology and genetics. The Society's membership includes distinguished, internationally-recognised experts in almost all fields of microbiology.

Among its activities the Society publishes four high quality, widely-read research journals (*Microbiology*, *Journal of Medical Microbiology*, *Journal of General Virology* and *International Journal of Systematic and Evolutionary Microbiology*). It also publishes a highly respected quarterly magazine, *Microbiology Today*, of considerable general educational value. Each year the Society holds two major scientific meetings attended by up to 1500 microbiologists and covering a wide range of aspects of microbiology and virology research.

The governing Council of the SGM has a strong commitment to improving awareness of the critically important role of microbiology in many aspects of human health, wealth and welfare. It has in this connection recently initiated a 'Microbiology Awareness Campaign' aimed at providing information to the government, decision makers, education authorities, media and the public of the major contribution of microbiology to society.

An issue of major concern to the Society is the national shortage of experienced microbiologists, particularly in the field of clinical microbiology and in industry. To attempt to improve this situation long-term, the Society runs an active educational programme focused on encouraging the teaching of microbiology in university and college courses and in the school curriculum, including primary schools. Some 400 schools are corporate members of SGM.

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