

Management of aquatic animal disease outbreaks in England – lessons learned

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- **Legislative background to disease management in England and Wales**
- **Case study:**
 - **VHS**
- **Lessons learned**

The legal basis for disease controls

- Began in 1937 with the Diseases of Fish Act
- 2009 Aquatic Animal Health Regulations
- Control on introduction and spread of infectious diseases
- Management of imports of live aquatic animals



CHAPTER 33.

An Act to prevent the spreading of disease among salmon and freshwater fish in Great Britain. A.D. 1937.
[10th June 1937.]

BE it enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

1.—(1) It shall not be lawful to import or bring into Great Britain any live fish of the salmon family.

(2) It shall not be lawful to import or bring into Great Britain any live freshwater fish or live eggs of fish of the salmon family, or of freshwater fish, unless the fish or eggs are consigned to a person licensed under this section and the licence is produced at the time of the delivery under the Customs Acts of the entry of the consignment.

(3) The Minister of Agriculture and Fisheries (in this Act referred to as "the Minister") may grant a

Restriction on importation of live fish and eggs of fish.

In GB this was first introduced in 1937 with the Diseases of Fish Act, which in one form or another remained in force in GB until 2009.

This Act introduced the concept of managing imports into GB waters and added powers to impose movement restrictions (Designated Area Orders) in order to prevent the spread of infection.

It was originally introduced to protect salmon species, following the identification of furunculosis (*A. salmonicida*) it was extended to cover all fish and shellfish, and grants powers to inspectors to access sites and sample fish and shellfish for disease.

The Regulation that replaced it in 2009 included additional provisions that could be applied to fish and shellfish farms, in brief these modernised the legislation and introduced more specific rules on biosecurity, and how this was to be achieved on farms. Although they are mainly concerned with farming they also provide some protection for ornamental and wild fish and recreational angling.

It places duties on both the regulators (us) and requirements on aquaculture production businesses and others, which are enforceable under law.



In GB the official service is provided by the Fish Health Inspectorates, official bodies that operate within Scotland, Northern Ireland, England and Wales. T

FHIs are responsible for the operational delivery of the aquatic animal health legislation on behalf of the Competent Authority (the UK Government).

The FHIs main remit is as a service for the identification and control of the OIE listed diseases that are of concern to GB.



The regulations provide a framework to manage the introduction and spread of infectious disease, and one of the key areas is the management of live aquatic animal imports into GB, which are applied to follow the OIE principles, and FHI manage imports by overseeing the health certification requirements for imports of live aquatic animals to ensure that only animals that meet the UK health status are allowed in for farming. This is the first step in maintaining the nation's aquatic animal health.



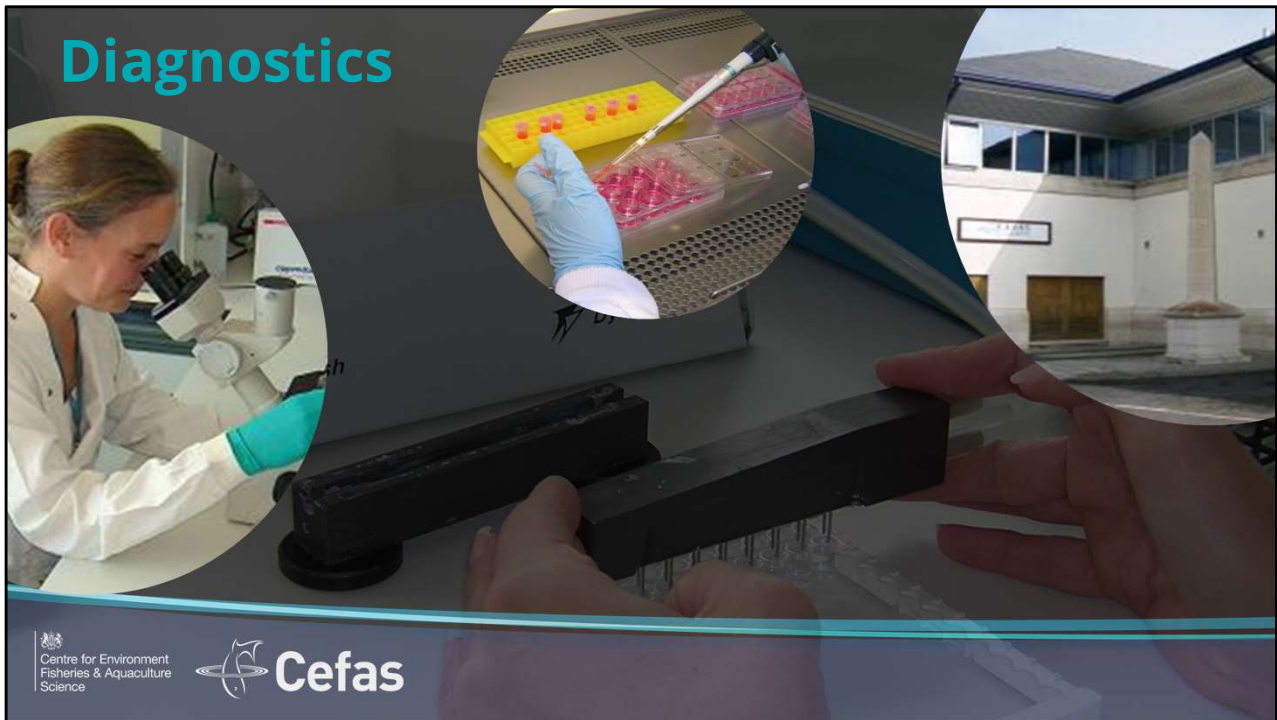
Important to have knowledge of the industry to manage the risk of disease spread: you need to know where the farms are, what species they farm, and the transfers that occur, so that you can target your surveillance and monitoring.

The regulations adopted in GB included a requirement (first introduced in 1985), for all fish and shellfish farmers to be recognised by the competent authority. These requirements were strengthened in 2009 with the amended Aquatic Animal Health Regulations to improve disease reporting and traceability.

The FHI carry out annual inspections at all of our authorised fish and shellfish farms

Approach is to advise and encourage farmers to adopt good practice, although for persistent noncompliance, we also have the powers to enforce compliance.

FHI are also responsible for responding to reported mortality events (and that will be described in the case study) and for applying controls on listed diseases.



Inspections and sampling by the FHI start the process - diagnostic capability is essential too.

import control system where all live animals enter GB through Border Control Posts

knowledge of the health of the aquatic animals in aquaculture gained through risk based programme of regular inspections at farms

response to reported disease events,

underpinned by the specific aquatic animal health legislation.

What happens when the steps you have in place to manage introduction of disease fail, and a disease event occurs.

The approach taken depends on the infection identified and the nature of the farming business. Options:

- Simple restriction on the movements of animals from infected areas
- Progressive clearance programme followed by a planned series of tests to confirm that an infection is no longer present in the farm stock,
- Immediate clearance and disinfection, and this would be appropriate where the disease is of immediate risk to farmed and wild populations of susceptible species.

These final and more drastic decisions are implemented by following a pre-existing contingency plan

No compensation available directly to farmers in the event that a listed disease is found on the farm, so the impacts in these serious cases are severe for the farmers.

Case study in disease outbreak management

Viral haemorrhagic septicaemia (VHS)

Viral disease recognised as the most serious disease of rainbow trout in Europe

Caused by a Rhabdovirus

Four separate genotypes identified:

Group I – freshwater isolates, very pathogenic

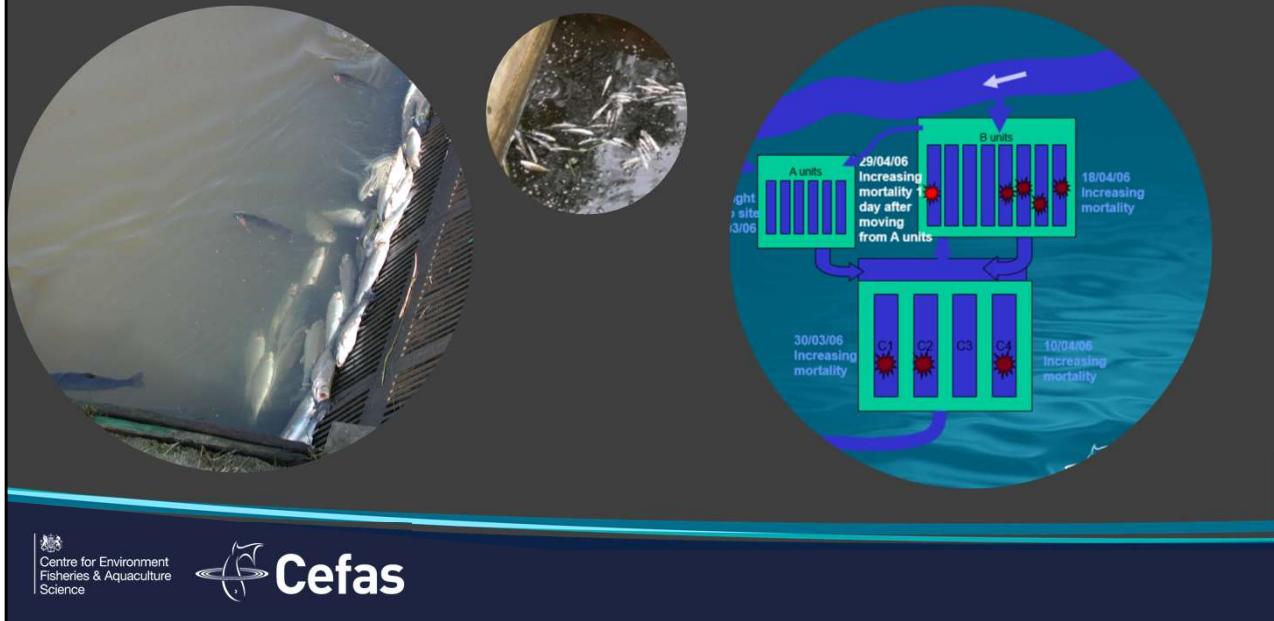
Group II – Marine isolates (Baltic)

Group III – Marine isolates (North Sea)

Group IV – Freshwater isolates (North America)



Trout farm reported disease event



The event started on the 17 May, when a trout farm in Yorkshire, producing fish for the table market, reported mortalities to Cefas FHI, after two visits by private fish health specialists failed to identify the cause of the problem, first seen in juvenile trout, and which later spread to adults. At first it was thought to be ERM, then later RTFS, but neither responded to treatment.



Fish Health Inspector visit on 22 May

Notice was immediately placed on the site, preventing movements of live fish onto or off the farm.

Clinical signs observed in the fish = VHS: rapid onset of mortality, lethargy, darkening of the skin, exophthalmia, anaemia (pale gills), haemorrhages at the base of the fins, gills, eyes and skin, abnormal swimming such as flashing and spiralling.

Samples of spleen, kidney and brain, placed into transport media were taken by the inspector, and returned to the laboratory for analysis.

CPE on cell culture, confirmed as VHS by ELISA and PCR




The farm was completely de-stocked over 3 days.

By Monday 29 May


On the same day inspectors also sampled fish from the other farm (there was only one) on the same River, and on the only farm that had supplied the index site with affected fingerlings to. Both of these sites subsequently tested negative for the virus





The Re-establishment of Approved Zone Status

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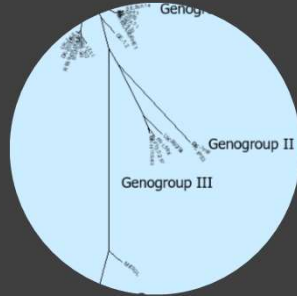
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June and July

and sampled twice per year, farms were obliged to submit weekly mortality reports to FHI, and there was an enhanced risk-based surveillance for VHS on all trout farms in England.

Not just the farms that were involved in the monitoring programme, and the final decision was made in light of evidence from wild fish populations.

Surveillance and epidemiology



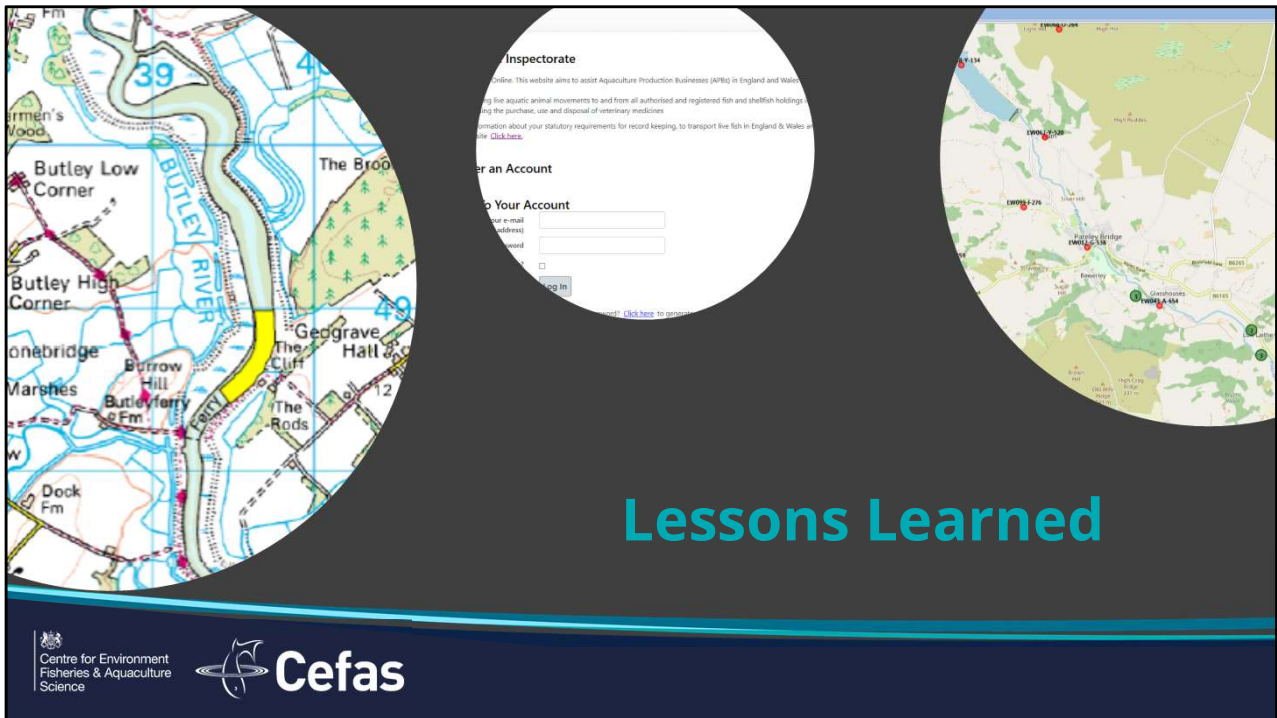
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All evidence pointed to this being an isolated outbreak without further spread. Source unknown, several possible routes of entry, none very clear.

The ultimate outcome of the control and eradication programme was that VHS approved zone status for the whole of GB was re-established in 2 years after the initial outbreak. Reassuringly, there has been no recurrence of the disease either at the farm or anywhere else in the catchment or GB since, indicating that the response to the infection was successful.



The outbreak was successfully controlled, but luckily was a site with few movements on and no live movements off.

There was only one other farm on the river system, upstream of the index site, and extensive sampling of wild fish showed that it had not spread into the wild reservoir.

Having a contingency plan in place enabled a rapid response to be made to manage the disease incursion, however, not all agencies involved had developed contingency plans covering their involvement, and were not clear about their role in managing disease outbreaks in aquatic animals. We now undertake periodic contingency exercises with all partners.

Mapping of aquaculture sites has been improved

Better availability of information (on web sites) would improve communication, not only between agencies, but for the general public also. Web pages developed - all designations now available on-line.

The system of movement records that were being maintained by the farms was not suitable for easy analysis. Now have an on-line electronic data system where live fish movements are recorded on a mobile phone app.

Thank You



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a sustainable blue future

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