

Perseverance pays off

- 45 years of control and eradication of VHS in Denmark

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Introduction

Viral Haemorrhagic Septicaemia (VHS) is a viral disease affecting mainly rainbow trout, which has raged Denmark since the mid 1950'ties. When an eradication programme was started in 1965, approximately 400 fish farms, constituting more than 50% of the total number of farms, were infected with VHS [1].

1980's

An epidemiological study regarding the risk factors for VHS outbreaks was carried out. As part of this study, all fish farms were allocated a number and registered in an electronic database.

Subsequently, all outbreaks and recurrences since 1982 have been registered in the database.

1990's

In the mid 1990's, surveillance programmes for VHS was included in the EU-legislation. These programmes were based on experiences from the Danish control programme amongst others. The surveillance was based on regular clinical inspections and laboratory testing of samples from fish farms, in order to prove freedom from disease. As a result of the eradication programme, northern Jutland was declared VHS-free zone in 1997 (The solid line on the map illustrates the division between the endemic and the free zone).

Surveillance and control

Since outbreaks of VHS is associated with heavy losses in aquaculture, a voluntary disease eradication programme was initiated in 1965 by collaboration between the fish farmer organisation and the National Veterinary Institute. From then on, all new outbreaks of VHS in Danish fish farms have been recorded. In 1970, the management of the control programme was taken over by the veterinary authorities.

The eradication programme was based on stamping out and regular clinical inspections of fish farms. Within the first 10 years of the eradication programme, the number of infected fish farms decreased from approx. 400 to 100 (figure 1 and 2) [2].

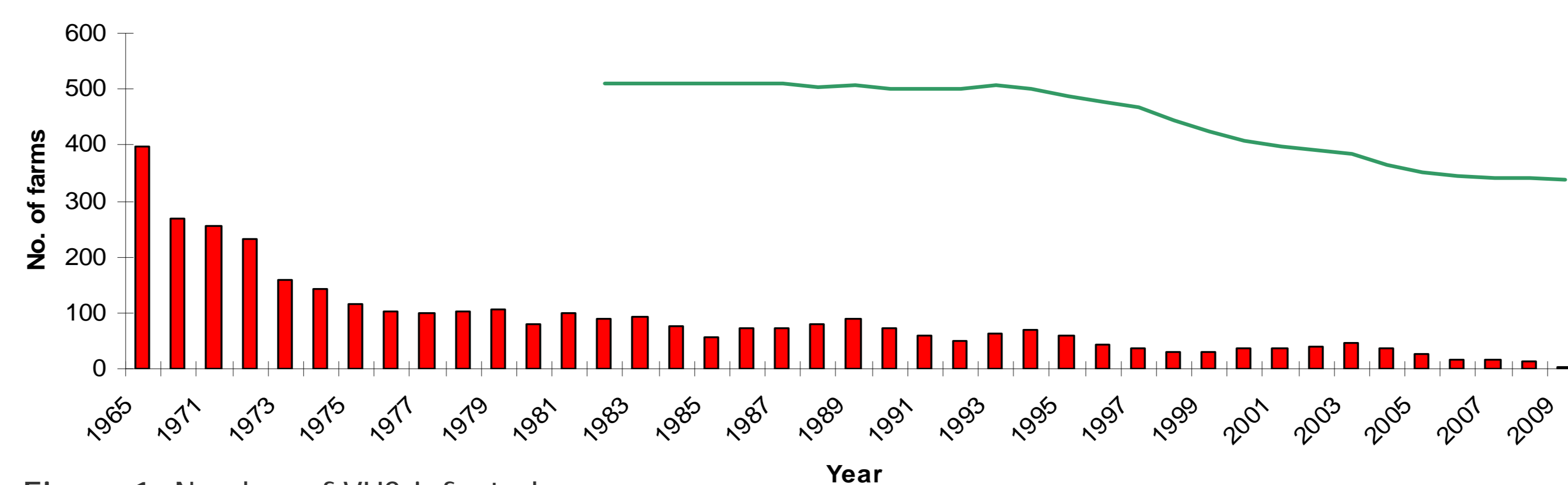


Figure 1. Number of VHS-infected farms and total number of farms. 

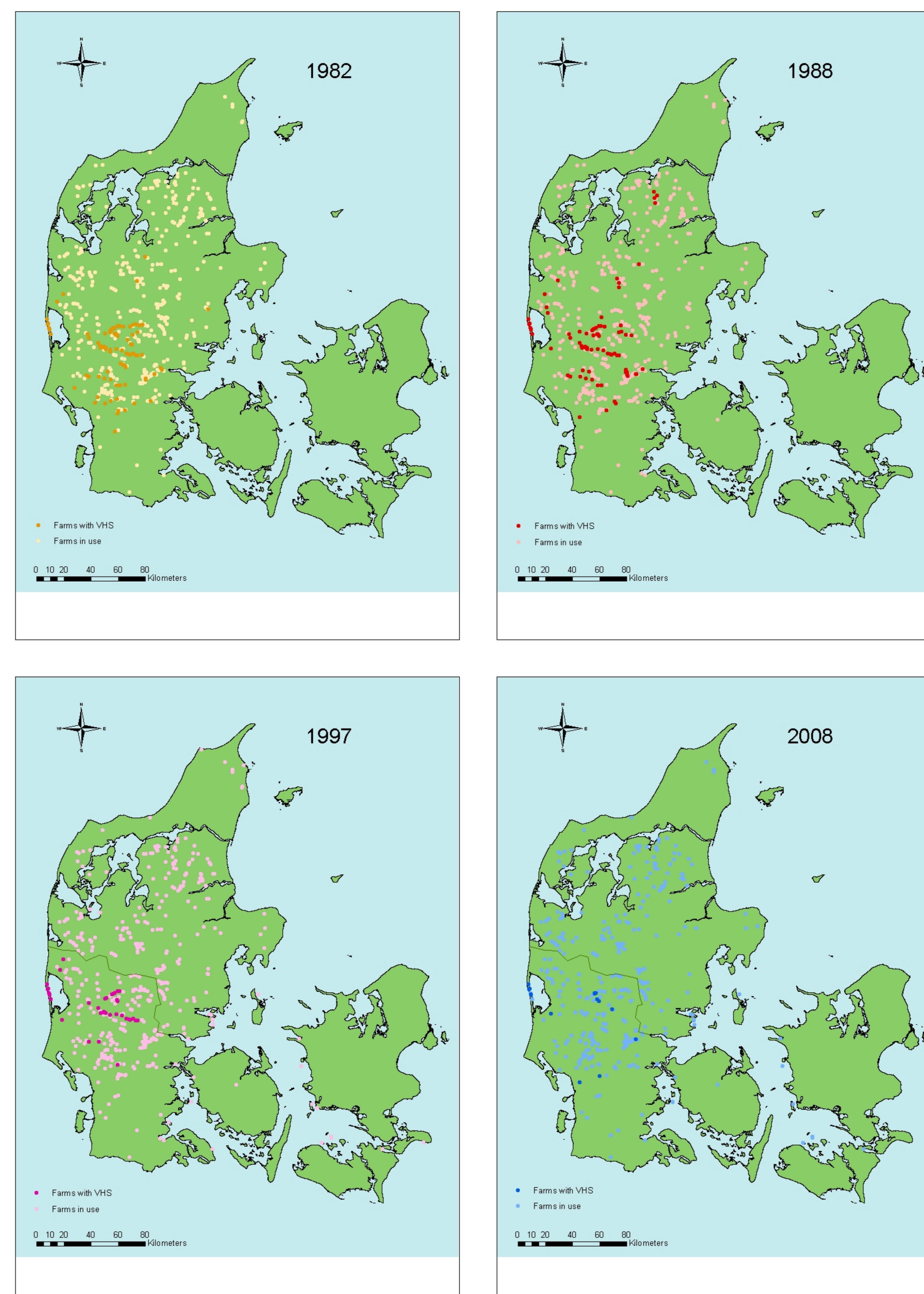


Figure 2. VHS-infected farms and farms in use in 1982, 1988, 1997 and 2008.

2000's

By the beginning of the 2000's, the yearly number of VHS-infected farms had decreased below 30, suggesting that it would be possible to completely eradicate the disease from Danish aquaculture. In 2009, a final eradication programme was initiated with national support via legislation and subsidizing and with co-financing from the Danish Food Industry Agency and the European Fisheries Fund. Infected farms were required to stamp out, disinfect and fallow for a specified period of time. Sustaining stamping-out was done on non-infected high-risk farms. Furthermore, rivers in affected areas were electro fished, and fish tested for VHS-virus and antibodies. No virus positive fish were identified.

2010

Prevalence of VHS in Danish aquaculture = 0%.

Conclusion

This example from Denmark illustrates how it is possible to eradicate a high-prevalence disease through perseverance. The initial control programme was based on field experiences with stamping out and fallowing, and on experimental observations on persistence of virus in the milieu. The consistent decline in prevalence made the way for commitment to the final eradication programme, and made it possible to obtain funding for covering the expenses related to the stamping out procedures, which had hitherto been covered exclusively by the industry.

References

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