

Appendix A: Procedure to determine finfish susceptibility to infection

Definitions

Susceptibility criteria

The World Organisation for Animal Health (OIE) lists 6 criteria in the Aquatic Animal Health Code (OIE, 2019a) to assess scientific evidence for the susceptibility of host species to a disease.

- 1) Route of transmission (natural or unnatural).
- 2) Adequate identification of the pathogenic agent.
- 3) Evidence of replication or growth of the pathogenic agent inside the host.
- 4) Viability of the pathogenic agent.
- 5) Presence of clinicopathological changes associated with the infection.
- 6) Presence of the pathogenic agent in the expected location in the proposed host.

Natural route of transmission means that the infection has occurred without experimental intervention. If experimental procedures are used they are non-invasive, such as cohabitation with infected hosts or infection by immersion (OIE, 2019a).

Unnatural route of transmission means that the infection has occurred via invasive experimental procedures not encountered in the host's natural or culture environment, such as intraperitoneal injection (OIE, 2019a).

Procedure

A genus is listed as susceptible to a disease of concern to Australia when:

- 1) The OIE lists a species within the genus as susceptible to a pathogen of concern in the relevant disease-specific chapter of the *Manual of diagnostic tests for aquatic animals* (the manual) (OIE, 2019b), or
- 2) If the pathogen is not listed by the OIE, or the species is not yet listed as susceptible in the relevant chapter in the manual, but scientific evidence indicates a species is susceptible to a pathogen of concern, the department will review the evidence and will recognise a species as susceptible when the following combinations of evidence are fulfilled in a single study.
 - a) The route of transmission is natural, susceptibility criterion 2 is fulfilled, and there is evidence of infection with the pathogenic agent in the suspect host species, or
 - b) The route of transmission is un-natural, yet the infective load transmitted is consistent with natural pathways of infection, and there is evidence to fulfil all other susceptibility criteria, except for criteria 3 or 4.

Where the evidence does not meet any of these combinations of criteria, the department will not consider the species of finfish susceptible until supporting published evidence is available to meet the required criteria.

Notes

Listing the genus

Where a species is determined to be susceptible to a pathogen of concern, the whole genus will also be listed as susceptible as is consistent with the outcomes of the [Import risk analysis on non-viable salmonids and non-salmonid marine finfish](#).

Evidence of infection with the pathogenic agent

The evidence of infection with the pathogenic agent in the suspect host species is defined as the fulfilment of susceptibility criteria 3. In the absence of evidence to meet criteria 3, the fulfilment of 2 criteria from criterion 4, 5 or 6 is sufficient to demonstrate an infection (OIE, 2019a).

Evaluating the infective load

The infective load in naturally occurring pathways of infection is difficult to estimate. The department will evaluate the infective load used in the experimental study taking into consideration the epidemiology of the disease and other infection trials in host species.

Application of OIE criteria

If the pathogen is OIE listed, the OIE considers the fulfilment of criterion 2a of this procedure as sufficient to conclusively list a species as susceptible (OIE, 2019a). The fulfilment of criteria 2b of this procedure is sufficient for the OIE to list a species as having some evidence of susceptibility (OIE, 2019a).

References

World Organisation for Animal Health, 2019a, 'Criteria for listing species as susceptible to infection with a specific pathogen' (Chapter 1.5), in the Aquatic Animal Health Code, World Organisation for Animal Health publishing, Paris, France, accessed October 2020.

World Organisation for Animal Health, 2019b, Manual of Diagnostic Tests for Aquatic Animals, World Organisation for Animal Health publishing, Paris, France, accessed October 2020.