

Synopsis

A Review of Australian Ornamental Fish Import Risk management for the Period 1999 – 2004

A Report to the National Aquatic Animal Health Technical Working Group

Over 10 million ornamental fish are imported from multiple foreign sources into Australia each year, together with their resident bacteria, viruses and parasites, some of which could be deleterious as Australia is free of many diseases. This report addresses ornamental finfish importation risk management, which operates under the Australian Quarantine and Inspection Service (AQIS) using policy developed in 1999 by Biosecurity Australia (BA). The report was commissioned by the National Aquatic Animal Health Technical Working Group (NAAH-TWG).

The review approached the issue in four stages :

1. A review of the disease records maintained by AQIS since 1999 for its approved quarantine facilities and a review of all State and Territory Veterinary Laboratory disease records, including quarantine samples submitted by AQIS and samples collected by others after release of fish from quarantine.

There was a low rate of disease diagnosis and monitoring at ornamental fish quarantine premises leading to a lack of surveillance of ornamental fish pathogens entering Australia. The extent and impact of release of pathogens in the Australian environment is mostly unknown. The following priority pathogens failed to be contained by the current quarantine system - Goldfish herpesvirus haematopoeitic necrosis, *Edwardsiella ictaluri*, Cryptobiosis, Gourami iridovirus, Oscar iridovirus, and Viral pancreatic necrosis.

2. A review of current quarantine procedures for ornamental finfish benchmarked against a previous review that highlighted deficiencies (Humphrey Review, 1995).

Practices described as inadequate in the Humphrey review concerning Australian quarantine for ornamental fish continued beyond 1999:

- inadequate investigation and follow-up of disease incidents in quarantine.
 - inadequate supervision of quarantine premises.
 - use of medications in quarantine premises that mask diseases.
 - release from quarantine of survivors of disease outbreaks during the quarantine period.
3. A review of incursions of disease agents listed by BA as priority pathogens for exclusion from Australia and documentation of adverse impacts of imported disease agents to local species of fish.

Three diseases were described in detail as current examples of the adverse impacts of inadvertent quarantine release.

- *Edwardsiella ictaluri* - is a nationally notifiable bacterium causing infections in tropical fish. It was detected in zebra danios which were dying in a medical research facility. These fish were purchased after release from quarantine.
- *Goldfish Herpesvirus Haematopoeitic Necrosis* - this disease in imported goldfish can infect and kill locally produced goldfish. A local goldfish producer experienced repeated mortalities in his fish when they were placed in retail shops with imported goldfish.

- *Gourami iridovirus* – a virus present in imported gourami at retail shops in Sydney infected and killed the highly valued native Murray Cod (*Maccullochella peelii peeli*) when the two species were kept in the same tank. Murray cod on a farm in Victoria were affected by the same virus.

4. A review of imported ornamental fish species that have escaped and begun to breed in the wild in Australia.

There were 22 species of imported ornamental freshwater fish in the wild in Australia, indicating contact of imported ornamental fish with wild fish populations, and potential for leakage of pathogens from the pet trade to commercial fisheries and free living populations of native fish.

Twelve recommendations were drafted for consideration by the Aquatic Animal Health Committee (AAHC) via submission of the report through NAAH-TWG. The recommendations focused on key issues:

1. The need to define the appropriate level of protection for Australia with respect to aquatic species and aquatic ecosystems consistent with Federal Government objectives to protect Australia from invasive pests and diseases, to reflect emerging pathogens and diseases, changing industry requirements and community values. This would entail a formal review of ornamental fish quarantine be undertaken to increase the level of protection to that consistent with the defined objective.
2. The need to define significant disease agents in terms of the Office International des Epizooties (OIE, World Organisation for Animal Health) and local expert opinion.
3. The need to review the list of permitted species to reduce the risk of pest and disease introduction.
4. The need to review pre-border policy and strengthen requirements for approval of export premises, maintenance of approval and revocation of approval to reduce the incidence of diseased batches of fish being consigned to Australia.
5. The need to enhance the efficacy of batch testing of consignments prior to export from foreign sources by reducing the minimum detectable prevalence and increasing the confidence level of testing.
6. The need to limit medication of fish in quarantine. There is the potential for antimicrobials to cause carrier states and allow the entry into Australia of novel pathogenic strains of microbes, or microbes with antimicrobial resistance genes, including multiple resistance genes.
7. The need to ensure laboratory examination of sick or dead fish in quarantine. The current level of visual inspection by AQIS officers cannot differentiate healthy fish from those carrying a significant pathogen. Inapparent carrier states with both viral and bacterial pathogens are common and require laboratory examination to confirm or rule out. Laboratory testing will also identify novel strains of endemic pathogens that are exotic to Australia.
8. The need to review and strengthen requirements for aquatic animal health training of AQIS inspectors and AQIS veterinarians to ensure that quarantine

approved premises and consignments of fish are able to be inspected adequately.

9. The need to ensure and enhance record keeping at quarantine approved premises and perform annual auditing of record keeping. Develop an electronic system for filing of data with AQIS in a retrievable form that allows periodic interrogation for analysis of trends in importation of diseased fish.
10. The need to implement a national public awareness and education program on the disease risks posed by imported ornamental fish, with emphasis on responsible pet ownership, aquarium management and disease investigation.
11. The need to implement routine post-border surveillance of sick and dead imported ornamental fish in retail premises to determine the adequacy of revised quarantine policy and procedures as research indicates this is an effective means of detection of known and novel disease agents which may have a carrier status.
12. The need to improve coordination and communication between BA/AQIS and State/territory jurisdictions on the management of ornamental fish disease investigation, tracking and control.

The Aquatic Animal Health Committee (AAHC) has recommended that this report be made accessible to industry stakeholders and the public to achieve a clear consensus on the issues and a practical way forward to safeguard Australia from invasive pests and diseases, to maintain biodiversity and to promote the development of aquaculture to a \$2.5 billion industry employing 29,000 people by 2010.

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The full report is available from the authors or can be downloaded from: www.scahls.org.au click on the NAAH-TWG logo and go to "discussion papers".