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Global trade in ornamental fish from an Australian perspective: The case for revised import risk analysis and management strategies

R.J. Whittington ^a ... R. Chong ^b

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Abstract

Over 1 billion ornamental fish comprising more than 4000 freshwater and 1400 marine species are traded internationally each year, with 8–10 million imported into Australia alone. Compared to other commodities, the pathogens and disease translocation risks associated with this pattern of trade have been poorly documented. The aim of this study was to conduct an appraisal of the effectiveness of risk analysis and quarantine controls as they are applied according to the Sanitary and Phytosanitary (SPS) agreement in Australia. Ornamental fish originate from about 100 countries and hazards are mostly unknown; since 2000 there have been 16-fold fewer scientific publications on ornamental

fish disease compared to farmed fish disease, and 4/0 fewer compared to disease in terrestrial species (cattle). The import quarantine policies of a range of countries were reviewed and classified as stringent or non-stringent based on the levels of pre-border and border controls. Australia has a stringent policy which includes pre-border health certification and a mandatory quarantine period at border of 1–3 weeks in registered quarantine premises supervised by government quarantine staff. Despite these measures there have been many disease incursions as well as establishment of significant exotic viral, bacterial, fungal, protozoal and metazoan pathogens from ornamental fish in farmed native Australian fish and free-living introduced species. Recent examples include *Megalocytivirus* and *Aeromonas salmonicida* atypical strain. In 2006, there were 22 species of alien ornamental fish with established breeding populations in waterways in Australia and freshwater plants and molluscs have also been introduced, proving a direct transmission pathway for establishment of pathogens in native fish species. Australia's stringent quarantine policies for imported ornamental fish are based on import risk analysis under the SPS agreement but have not provided an acceptable level of protection (ALOP) consistent with government objectives to prevent introduction of pests and diseases, promote development of future aquaculture industries or maintain biodiversity. It is concluded that the risk analysis process described by the Office International des Epizooties under the SPS agreement cannot be used in a meaningful way for current patterns of ornamental fish trade. Transboundary disease incursions will continue and exotic pathogens will become established in new regions as a result of the ornamental fish trade, and this will be an international phenomenon. Ornamental fish represent a special case in live animal trade where OIE guidelines for risk analysis need to be revised. Alternatively, for countries such as Australia with implied very high ALOP, the number of species traded and the number of sources permitted need to be dramatically reduced to facilitate hazard identification, risk assessment and import quarantine controls.



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Keywords

Biosecurity; Quarantine; Import risk analysis; Ornamental fish; Transboundary disease spread

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