

# ORNAMENTAL FISH NEWSLETTER



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## Introduction

It is with great pleasure that I announce the publication of the first issue of this electronic ornamental fish newsletter.

Through this newsletter, we hope to create awareness among the ornamental fish industry stakeholders on trade issues and to use this forum to share information on fish health management.

This newsletter will provide news on disease outbreaks in other countries, updates on changes in regulatory procedures or health certification requirements that are introduced by AVA or overseas authorities, and also tips on

treatment for common ailments or emerging diseases to improve fish health and fish quality.

Finally, I am pleased to inform you that this newsletter will be a regular feature from us. I hope that we can continue to work closely together to facilitate trade and to improve fish health for the ornamental fish industry.

I wish you pleasure in reading.

Dr Astrid Yeo  
Director  
Quarantine and Inspection Department (QID)  
Agri-Food & Veterinary Authority of Singapore

## Trade News

### Evaluation of the animal health controls in place for aquaculture animals destined for export to the European Union by the European Commission Food and Veterinary Office

The European Commission Food and Veterinary Office (FVO) inspection mission carried out an audit in Singapore from 16 to 19 November 2009 to evaluate the animal health controls in place for ornamental fish destined for export to the European Union.

The audit findings credited AVA for being well organised and resourceful, and having the necessary powers to carry out official controls related to export of live fish. In addition, it also stated that the ornamental fish industry in Singapore involved in import and export generally possess standards in line with EU requirements and are regularly subjected to official inspections by the AVA. However, certain non-compliances were also identified.

Amongst the measures taken to address the non-compliances identified, AVA would be implementing import health certificates to identify place of origin and assure health of imported ornamental fish. In relation to this, the AVA has already issued a WTO notification on 12 May 2010, which was published on 19 May 2010. The import health certification requirements would take effect on 15 July 2010. Since April 2010, the AVA has also implemented pre-export inspection of the fish within 72-hours of export.

## Evaluation Of Animal Health Controls For Export Of Ornamental Fish By Biosecurity Australia

Two officers from Biosecurity Australia carried out an audit in Singapore from 12 to 15 January 2010 to evaluate the animal health controls for export of ornamental fish to Australia. A presentation of AVA's aquatic animal health regulatory system was presented to the team. The team also inspected AVA's laboratories in Lim Chu Kang, followed by inspection visits to the export premises of six licensed ornamental fish exporters. A closing meeting with AVA was held on the last day when the team reported their observations and preliminary conclusions. In general, it was noted that there were no immediate risks identified in their evaluation.

In the report received, AVA was commended for having the structure, capacity and operational framework to effectively administer the pre-export animal health controls prescribed under the policy for import of ornamental finfish into Australia.

## Export of Crayfishes to the United Kingdom

Earlier this year, the UK authorities informed the AVA that they had seized a consignment of ornamental crayfish containing a prohibited crayfish species that was exported from Singapore to UK in November 2009. Following investigation, AVA imposed a penalty on the exporter concerned for falsely declaring the species exported as *Cherax quadricarinatus*, which is a species allowed for import into the UK in their export health certificate that accompanied the shipment.

The team also credited AVA for having well-trained staff that carry out their professional, technical and specialised responsibilities to a uniformly satisfactory standard, and noted that AVA also regularly consults with the ornamental fish sector and maintains a good relationship with the industry.

Certain non-compliances were also identified. In response, the AVA informed Biosecurity Australia that import health certificates would be imposed for import consignments and inspection checks have been intensified to ensure that Australia's import requirements are fully met by our exporters. The AVA has since issued a WTO notification on 12 May 2010, which was published on 19 May 2010 regarding health certification requirements from 15 July 2010 for import of ornamental aquatic animals into Singapore.

Mis-declaration in applications for official documents such as export health certificates is a serious offence, affecting the credibility of official documents issued by AVA and the reputation of the local ornamental fish industry. AVA thus takes a serious view of such acts and will not hesitate to take enforcement actions against offenders.

In the United Kingdom<sup>1</sup>, the Prohibition of Keeping of Live Fish (Crayfish) Order 1996, also known as the Crayfish Order, was introduced in 1996 to protect the endangered white-clawed crayfish (*Austropotomobius pallipes*) by preventing the introduction and spread of non-native species. Under this Order, only tropical crayfish species may be imported into England and Wales, when accompanied by an approval issued by the relevant authorities in the form of a DOF 8T licence (Note: Parallel legislation applies in Scotland and Northern Ireland). Crayfish are defined under the Order as all members of the families Astacidae, Cambaridae and Parastacidae (excluding the native *A. pallipes*).

**“Currently, the red claw crayfish (*Cherax quadricarinatus*) is the only species that is listed as a tropical crayfish; hence it is the only species that can be imported into the United Kingdom. All other crayfish are considered to be temperate species and thus prohibited from entering the UK.”**

More information and a guide to the identification of *Cherax quadricarinatus* (red claw crayfish) can be found at <http://www.efishbusiness.com/formsandguides/part01.asp>.



<sup>1</sup> The United Kingdom comprises of the countries of England, Scotland, Wales and Northern Ireland.

Great Britain consists of the countries of England, Scotland and Wales.

Both these classifications do not include the Republic of Ireland (in blue).

References:  
<http://www.efishbusiness.com/controls/part02.asp>  
[http://www.jprenvironmental.co.uk/endangered\\_species\\_profile\\_white\\_clawed\\_crayfish.htm](http://www.jprenvironmental.co.uk/endangered_species_profile_white_clawed_crayfish.htm)  
 (Source of map: <http://www.topnews.in/files/UK.gif>)

## Aquatic animal health

### Detection of White Spot Syndrome Virus in imported crayfish

AVA had found White Spot Syndrome virus (WSSV), also known as White spot disease (WSD) by laboratory examination in a number of samples of imported crayfish.

The crayfish originated from Indonesia and were sourced from either Jupiter Aquarium or CV Bekasi Aquarium. The affected crustaceans or aquatic animals in contact had since been culled. You are strongly advised to cease import from these sources in view of the disease detection.

WSSV can infect a wide range of aquatic crustaceans including marine, brackish and freshwater penaeids, crabs and crayfish. It often results in high mortality in penaeid shrimps. However, the morbidity and mortality pattern is highly variable in the other crustaceans. Clinical signs in shrimps are well documented and includes one or more of the following: lethargy, presence of loose shells or cuticles, white spots on the inside of the carapace or shell covering head (see picture), body discoloration, typically pink to reddish-brown.

(Source: Dr. Donald V. Lightner and George Chamberlain)



However, the appearance of white spots is not a good diagnostic indicator as they may be few or not visible depending on environmental conditions. **For other crustaceans, particularly crayfish, clinical signs may be absent even with high level of infection.**



Above: Crayfish (Source: Qian Hu Fish Farm)

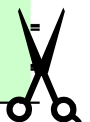
As a precaution, it is advisable to check and verify the health status of the animals from your sources. Recently, a small batch of crayfish imported from Indonesia was directly sent from the airport to our laboratory for testing by the importer. This helped to ascertain the disease status of those imported crayfish, which were later tested positive for WSSV. As a result, the importer did not introduce the diseased crayfish into their premises. Our laboratories provide testing by WSSV PCR tests on request. You may contact the laboratory (details below) for more information on sample size and charges.

It is also a good practice to adopt good biosecurity measures and sanitary practices in your premises, and carry out post-arrival quarantine for all imported fish and ornamental aquatic animals with daily checks to ensure that they are healthy.

Since 1 Sep 2008, WSSV is notifiable to AVA under the Animals and Birds (Disease) Notification. You may wish to refer to <http://www.ava.gov.sg/Legislation/ListOfLegislation> for an official list of diseases which are notifiable. Under section 30 of the Animals & Birds Act, every owner or person in charge of any animal (including fish) infected with or reasonably suspected to be infected with the disease(s) shall immediately make a report to an authorised officer or to the nearest police station; and at the same time, that animal and all other animals which have been in contact with it to be confined and isolated until the arrival of an authorised officer. Any person who fails, without reasonable excuse, to make a report as required under the law shall be guilty of an offence and shall be liable on conviction to a fine not exceeding \$10,000 or to imprisonment for a term not exceeding 12 months or to both.

Late last year, the AVA had distributed disease cards on WSSV to licensed importers/exporters which included clinical signs to look out for and pictures of diseased animals showing symptoms. This was handed out together with other disease card posters on Spring viraemia of carp (SVC); Koi herpesvirus (KHV); Epizootic ulcerative syndrome (EUS); Epizootic haematopoietic necrosis (EHN) and Crayfish plague (*Aphanomyces astaci*). If you would like copies of the posters, please contact Mr Poh Yew Kwang (tel: 6751 9802) or Mr Lester Lee (tel: 6751 9827). In addition, you may also refer to the Aquatic Code and Aquatic Manual available from the OIE's website ([http://www.oie.int/eng/OIE/en\\_about.htm](http://www.oie.int/eng/OIE/en_about.htm)) for information on the clinical signs related to WSSV or other diseases.

<ul style="list-style-type: none"> <li>■ Laboratory Contact:</li> <li>■ Animal and Plant Health Centre</li> <li>■ Agri-Food and Veterinary Authority</li> <li>■ 6 Perahu Road</li> <li>■ Singapore 718827</li> <li>■ Tel: (65) 63165168 / (65) 63165188</li> <li>■ Fax: (65) 63161090</li> </ul>	<p>Alternatively, you may contact</p> <p>Dr. Angeline Wong (e-mail: <a href="mailto:angeline_wong@ava.gov.sg">angeline_wong@ava.gov.sg</a>)</p> <p>or</p> <p>Dr. Chong Shin Min (e-mail: <a href="mailto:chong_shin_min@ava.gov.sg">chong_shin_min@ava.gov.sg</a>)</p>
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## Health Certificate Requirements For Import Of Ornamental Fish Into Singapore

From 15 July 2010, import health certification issued by competent authorities of exporting countries would be required for import of ornamental aquatic animals into Singapore. The requirement is applicable to ornamental species which are susceptible to the diseases: Spring viraemia of carp (SVC), Koi herpesvirus disease (KHV), Epizootic ulcerative syndrome (EUS), Epizootic haematopoietic necrosis (EHN) and White spot disease (WSD), Furunculosis (*Aeromonas Salmonicida*) and Goldfish haematopoietic necrosis virus (GFHNV).

For export of marine ornamental fish to Singapore, the competent authority is also required to assure the disease status of the fish, and that they are wild-caught only, from areas at least 5 kilometres from any finfish aquaculture operation, and have not come into contact with water, equipment or fish associated with farmed food fish.

For further details, please contact contact Mr Poh Yew Kwang (tel: 6751 9802) or Mr Lester Lee (tel: 6751 9827).

## Management tips

### Anti-parasite treatment for Dactylogyridiasis

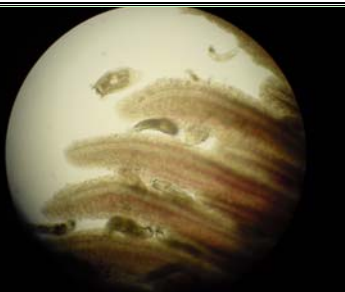
*Dactylogyrus* flatworm or gill fluke is an ectoparasite of fish. It affects mainly the gill and can cause high mortality with high parasitic burden and secondary bacterial infection. It is often associated with crowding, poor sanitation and poor water quality.

Clinical signs include:

- Lethargy
- Flashing
- Rubbing
- Increased breathing rates
- Pale swollen gills
- Gulping
- Scale loss
- Skin ulceration

The best method to avoid this parasite is to not introduce it into the system. Quarantine of at least 3 weeks and prophylactic anti-parasitic treatment would help prevent disease incursion. If the parasite is present, underlying issues such as overcrowding, poor sanitation and water quality should be addressed first.

The Australian authorities require all goldfish consignments for export to Australia to be treated with parasiticide to eliminate gill flukes (*Dactylogyrus* spp.) 7 days prior to export. Please note that all fish should be carefully watched during bath treatment and placed in freshwater should they show any signs of distress. Sick fish do not tolerate some drugs well.



*Left: A photo of gill biopsy showing flatworm infection*

Table 1: Dose and duration of bath treatments for gill flukes

Drug	Dose	Method & Duration
Trichlorfon	2 ppm	1 hr bath, once
Formaldehyde	25 ppm	Indefinite*
Sodium Chloride	1-3 g/L	Indefinite*
	22 g/L	30 min bath
1ppm = 1mg/L                      or		
1ppm= 1 gram per tonne (1000 L)		

Note that eggs are resistant to chemical treatment, hence treatment in a disease situation should be done over a period of 3-4 weeks at 1 dose per week to kill newly hatched parasites.

\*Drug is added directly into water to achieve the required dosage. It can then be left until next water change and topped up where required.

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