

CHAPTER 9.4.

**INFECTION WITH INFECTIOUS MYONECROSIS VIRUS**

Article 9.4.1.

For the purposes of the *Aquatic Code*, infection with infectious myonecrosis virus (IMNV) means infection with infectious myonecrosis virus (IMNV). ~~This virus which is similar to members of the family Family *Totiviridae*.~~

Information on methods for *diagnosis* are provided in the *Aquatic Manual*.

Article 9.4.2.

**Scope**

The recommendations in this chapter apply to the following susceptible species which meet the criteria for listing species as susceptible in Chapter 1.5.: brown tiger prawn (*Penaeus esculentus*), banana prawn (*Penaeus merguensis*), Pacific white shrimp and white leg shrimp (*Penaeus vannamei*). These recommendations also apply to any other susceptible species referred to in the *Aquatic Manual* when traded internationally.

For the purposes of this chapter, the terms shrimp and prawn are used interchangeably.

Article 9.4.3.

~~Importation or transit of aquatic animals and aquatic animal products for any purpose regardless of the infection with IMNV status of the exporting country, zone or compartment from a country, zone or compartment not declared free from infectious myonecrosis~~

- 1) *Competent Authorities* should not require any conditions related to infection with IMNV, regardless of the infection with IMNV status of the *exporting country, zone or compartment*, when authorising the importation or transit of the following *aquatic animal products* from the species referred to in Article 9.4.2. which are intended for any purpose and which comply with Article 5.4.1.:
  - a) heat sterilised hermetically sealed crustacean products (i.e. a heat treatment at 121°C for at least 3.6 minutes or any time/temperature equivalent);
  - b) cooked crustacean products that have been subjected to heat treatment at 60°C for at least three minutes (or any time/temperature equivalent which has been demonstrated to inactivate IMNV);
  - c) crustacean oil;
  - d) crustacean *meal*;
  - e) chemically extracted chitin.
- 2) When authorising the importation or transit of *aquatic animals* and *aquatic animal products* of a species referred to in Article 9.4.2., other than those referred to in point 1 of Article 9.4.3., *Competent Authorities* should require the conditions prescribed in Articles 9.4.7. to 9.4.11. relevant to the infection with IMNV status of the *exporting country, zone or compartment*.
- 3) When considering the importation or transit of *aquatic animals* and *aquatic animal products* of a species not covered in Article 9.4.2. but which could reasonably be expected to pose a *risk of spread* of infection with IMNV, the *Competent Authority* should conduct a *risk analysis* in accordance with the recommendations in Chapter 2.1. The *Competent Authority* of the *exporting country* should be informed of the outcome of this assessment.

Article 9.4.4.

**Country free from infection with infectious myonecrosis virus**

If a country shares a *zone* with one or more other countries, it can only make a *self-declaration of freedom* from infection with IMNV if all the areas covered by the shared water bodies are declared countries or *zones* free from infection with IMNV (see Article 9.4.5.).

As described in Article 1.4.6., a country may make a *self-declaration of freedom* from infection with IMNV if:

- 1) none of the *susceptible species* referred to in Article 9.4.2. are present and *basic biosecurity conditions* have been continuously met for at least the last two years;

OR

- 2) any of the *susceptible species* referred to in Article 9.4.2. are present and the following conditions have been met:
  - a) there has been no observed occurrence of the *disease* for at least the last ten years despite conditions that are conducive to its clinical expression (as described in the corresponding chapter of the *Aquatic Manual*); and
  - b) *basic biosecurity conditions* have been continuously met for at least the last two years;

OR

- 3) the disease status prior to *targeted surveillance* is unknown but the following conditions have been met:
  - a) *basic biosecurity conditions* have been continuously met for at least the last two years; and
  - b) *targeted surveillance*, as described in Chapter 1.4., has been in place for at least the last two years without detection of infection with IMNV;

OR

- 4) it previously made a *self-declaration of freedom* from infection with IMNV and subsequently lost its *disease free* status due to the detection of infection with IMNV but the following conditions have been met:
  - a) on detection of the *disease*, the affected area was declared an *infected zone* and a *protection zone* was established; and
  - b) infected populations have been destroyed or removed from the *infected zone* by means that minimise the ~~risk~~ likelihood of further spread of the *disease*, and the appropriate *disinfection* procedures (as described in Chapter 4.3.) have been completed; and
  - c) previously existing *basic biosecurity conditions* have been reviewed and modified as necessary and have continuously been in place since eradication of the *disease*; and
  - d) *targeted surveillance*, as described in Chapter 1.4., has been in place for at least the last two years without detection of infection with IMNV.

In the meantime, part or all of the non-affected area may be declared a free *zone* provided that such a part meets the conditions in point 3 of Article 9.4.5.

Article 9.4.5.

**Zone or compartment free from infection with infectious myonecrosis virus**

If a *zone* or *compartment* extends over more than one country, it can only be declared ~~a an~~ IMNV-free zone or compartment free from infection with IMNV if all the relevant *Competent Authorities* confirm that all relevant conditions have been met.

As described in Article 1.4.6., a *zone* or *compartment* within the *territory* of one or more countries not declared free from infection with IMNV may be declared free by the *Competent Authority(ies)* of the country(ies) concerned if:

- 1) none of the *susceptible species* referred to in Article 9.4.2. are present in the *zone* or *compartment* and *basic biosecurity conditions* have been continuously met for at least the last two years;

OR

- 2) any of the *susceptible species* referred to in Article 9.4.2. are present in the *zone* or *compartment* and the following conditions have been met:
  - a) there has not been any observed occurrence of the *disease* for at least the last ten years despite conditions that are conducive to its clinical expression (as described in the corresponding chapter of the *Aquatic Manual*); and
  - b) *basic biosecurity conditions* have been continuously met for at least the last two years;

OR

- 3) the disease status prior to *targeted surveillance* is unknown but the following conditions have been met:
  - a) *basic biosecurity conditions* have been continuously met for at least the last two years; and
  - b) *targeted surveillance*, as described in Chapter 1.4., has been in place, in the *zone* or *compartment*, for at least the last two years without detection of infection with IMNV;

OR

- 4) it previously made a *self-declaration of freedom* for a *zone* from infection with IMNV and subsequently lost its *disease* free status due to the detection of infection with IMNV in the *zone* but the following conditions have been met:
  - a) on detection of the *disease*, the affected area was declared an *infected zone* and a *protection zone* was established; and
  - b) infected populations have been destroyed or removed from the *infected zone* by means that minimise the ~~risk~~ likelihood of further spread of the *disease*, and the appropriate *disinfection* procedures (as described in Chapter 4.3.) have been completed; and
  - c) previously existing *basic biosecurity conditions* have been reviewed and modified as necessary and have continuously been in place since eradication of the *disease*; and
  - d) *targeted surveillance*, as described in Chapter 1.4., has been in place for at least the last two years without detection of infection with IMNV.

Article 9.4.6.

**Maintenance of free status**

A country, *zone* or *compartment* that is declared free from infection with IMNV following the provisions of points 1 or 2 of Articles 9.4.4. or 9.4.5. (as relevant) may maintain its status as free from infection with IMNV provided that *basic biosecurity conditions* are continuously maintained.

A country, *zone* or *compartment* that is declared free from infection with IMNV following the provisions of point 3 of Articles 9.4.4. or 9.4.5. (as relevant) may discontinue *targeted surveillance* and maintain its status as free from infection with IMNV provided that conditions that are conducive to clinical expression of infection with IMNV as described in the corresponding chapter of the *Aquatic Manual*, exist, and *basic biosecurity conditions* are continuously maintained.

However, for declared free *zones* or *compartments* in infected countries and in all cases where conditions are not conducive to clinical expression of infection with IMNV, *targeted surveillance* needs to be continued at a level determined by the *Aquatic Animal Health Service* on the basis of the likelihood of *infection*.

Article 9.4.7.

**Importation of aquatic animals and aquatic animal products from a country, zone or compartment declared free from infection with infectious myonecrosis virus**

When importing *aquatic animals* and *aquatic animal products* of species referred to in Article 9.4.2. from a country, *zone* or *compartment* declared free from infection with IMNV, the *Competent Authority* of the *importing country* should require that the consignment be accompanied by an *international aquatic animal health certificate* issued by the *Competent Authority* of the *exporting country* or a *certifying official* approved by the *importing country* certifying that, on the basis of the procedures described in Articles 9.4.4. or 9.4.5. (as applicable) and 9.4.6., the place of production of the *aquatic animals* and *aquatic animal products* is a country, *zone* or *compartment* declared free from infection with IMNV.

The *certificate* should be in accordance with the Model Certificate in Chapter 5.11.

This Article does not apply to *commodities* listed in point 1 of Article 9.4.3.

Article 9.4.8.

**Importation of live aquatic animals for aquaculture from a country, zone or compartment not declared free from infection with infectious myonecrosis virus**

- 1) When importing, for *aquaculture*, live *aquatic animals* of species referred to in Article 9.4.2. from a country, *zone* or *compartment* not declared free from infection with IMNV, the *Competent Authority* of the *importing country* should assess the *risk* and, if justified, apply the following *risk* mitigation measures:
  - a) the direct delivery to and lifelong holding of the consignment in biosecure facilities for continuous isolation from the local environment; and
  - b) the treatment of water used in transport and of all effluent and waste materials in a manner that ensures inactivation of IMNV.
- 2) If the intention of the introduction is the establishment of a new stock, relevant aspects of the Code of Practice on the Introductions and Transfers of Marine Organisms of the International Council for the Exploration of the Seas (ICES) should be considered.
- 3) For the purposes of the *Aquatic Code*, relevant aspects of the ICES Code (full version see: <http://www.ices.dk/publications/our-publications/Pages/Miscellaneous.aspx>) may be summarised to the following points:

- a) identify stock of interest (cultured or wild) in its current location;
  - b) evaluate stock health and disease history;
  - c) take and test samples for IMNV, pests and general health/disease status;
  - d) import of a founder (F-0) population and quarantine in a secure facility;
  - e) produce F-1 generation from the F-0 stock in *quarantine*;
  - f) culture F-1 stock and at critical times in its development (life cycle) sample and test for IMNV and perform general examinations for pests and general health/disease status;
  - g) if IMNV is not detected, pests are not present, and the general health/disease status of the stock is considered to meet the *basic biosecurity conditions* of the *importing country, zone or compartment*, the F-1 stock may be defined as free from infection with IMNV free or specific pathogen free (SPF) for IMNV;
  - h) release SPF F-1 stock from *quarantine* for *aquaculture* or stocking purposes in the country, *zone or compartment*.
- 4) With respect to point 3 e), *quarantine* conditions should be conducive to multiplication of the pathogen and eventually to clinical expression. If *quarantine* conditions are not suitable for pathogen multiplication and development, the recommended diagnostic approach might not be sensitive enough to detect low *infection* level.

This Article does not apply to *aquatic animals* listed in point 1 of Article 9.4.3.

#### Article 9.4.9.

**Importation of aquatic animals and aquatic animal products for processing for human consumption from a country, zone or compartment not declared free from infection with infectious myonecrosis virus**

When importing, for processing for human consumption, *aquatic animals* or *aquatic animal products* of species referred to in Article 9.4.2. from a country, *zone or compartment* not declared free from infection with IMNV, the *Competent Authority* of the *importing country* should assess the *risk* and, if justified, require that:

- 1) the consignment is delivered directly to and held in *quarantine* or containment facilities until processing into one of the products referred to in point 1 of Article 9.4.3., or products described in point 1 of Article 9.4.11., or other products authorised by the *Competent Authority*; and
- 2) water used in transport and all effluent and waste materials from the processing are treated in a manner that ensures inactivation of IMNV or is disposed in a manner that prevents contact of waste with *susceptible species*.

For these *commodities* Member Countries may wish to consider introducing internal measures to address the *risks* associated with the *commodity* being used for any purpose other than for human consumption.

#### Article 9.4.10.

**Importation of live aquatic animals intended for use in animal feed, or for agricultural, industrial or pharmaceutical use, from a country, zone or compartment not declared free from infection with infectious myonecrosis virus**

When importing, for use in animal *feed* or for agricultural, industrial or pharmaceutical use, live *aquatic animals* of species referred to in Article 9.4.2. from a country, *zone or compartment* not declared free from infection with IMNV, the *Competent Authority* of the *importing country* should require that:

- 1) the consignment is delivered directly to, and held in, *quarantine* facilities for slaughter and processing into products authorised by the *Competent Authority*; and

- 2) water used in transport and all effluent and waste materials from the processing are treated in a manner that ensures inactivation of IMNV.

This Article does not apply to *commodities* referred to in point 1 of Article 9.4.3.

Article 9.4.11.

**Importation of aquatic animals and aquatic animal products for retail trade for human consumption from a country, zone or compartment not declared free from infection with infectious myonecrosis virus**

- 1) *Competent Authorities* should not require any conditions related to infection with IMNV, regardless of the infection with IMNV status of the *exporting country, zone or compartment*, when authorising the importation or transit of frozen peeled shrimp (shell off, head off) which have been prepared and packaged for retail trade and which comply with Article 5.4.2.

Certain assumptions have been made in assessing the safety of the *aquatic animal products* mentioned above. Member Countries should refer to these assumptions at Article 5.4.2. and consider whether the assumptions apply to their conditions.

For these *commodities* Member Countries may wish to consider introducing internal measures to address the *risks* associated with the *commodity* being used for any purpose other than for human consumption.

- 2) When importing *aquatic animals* or *aquatic animal products*, other than those referred to in point 1 above, of species referred to in Article 9.4.2. from a country, *zone* or *compartment* not declared free from infection with IMNV, the *Competent Authority* of the *importing country* should assess the *risk* and apply appropriate *risk* mitigation measures.
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