

CHAPTER 9.2.

**INFECTION WITH *APHANOMYCES ASTACI*  
(CRAYFISH PLAGUE)**

Article 9.2.1.

For the purposes of the *Aquatic Code*, infection with *Aphanomyces astaci* means *infection* with the *pathogenic agent Aphanomyces astaci*, of the Family Leptolegniaceae, Phylum Oomycota (water moulds). The *disease* is commonly known as crayfish plague.

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

Article 9.2.2.

**Scope**

The recommendations in this chapter apply to all species of crayfish in all three crayfish families (Cambaridae, Astacidae and Parastacidae). These recommendations also apply to any other *susceptible species* referred to in the *Aquatic Manual* when traded internationally.

Article 9.2.3.

**Importation or transit of aquatic animal products for any purpose regardless of the infection with *A. astaci* status of the exporting country, zone or compartment**

- 1) *Competent Authorities* should not require any conditions related to *A. astaci*, regardless of the infection with *A. astaci* status of the *exporting country, zone or compartment*, when authorising the importation or transit of the following *aquatic animal products* derived from a species referred to in Article 9.2.2. that are intended for any purpose and comply with Article 5.4.1.:
  - a) heat sterilised hermetically sealed crayfish products (i.e. a heat treatment at 121°C for at least 3.6 minutes or any time/temperature equivalent that has been demonstrated to inactivate *A. astaci*);
  - b) cooked crayfish products that have been subjected to heat treatment at 100°C for at least one minute (or any time/temperature equivalent that has been demonstrated to inactivate *A. astaci*);
  - c) pasteurised crayfish products that have been subjected to heat treatment at 90°C for at least ten minutes (or any time/temperature equivalent that has been demonstrated to inactivate *A. astaci*);
  - d) frozen crayfish products that have been subjected to minus 20°C or lower temperatures for at least 72 hours;
  - e) crayfish oil;
  - f) crayfish *meal*;
  - g) chemically extracted chitin.
- 2) When authorising the importation or transit of *aquatic animal products* derived from a species referred to in Article 9.2.2., other than those referred to in point 1 of Article 9.2.3., *Competent Authorities* should require the conditions prescribed in Articles 9.2.7. to 9.2.12. relevant to the infection with *A. astaci* status of the *exporting country, zone or compartment*.
- 3) When considering the importation or transit of *aquatic animal products* derived from a species not referred to in Article 9.2.2. but which could reasonably be expected to pose a *risk* of transmission of *A. astaci*, 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 analysis.

Article 9.2.4.

**Country free from infection with *A. astaci***

If a country shares a *zone* with one or more other countries, it can only make a *self-declaration of freedom* from infection with *A. astaci* if all the areas covered by the shared water bodies are declared countries or *zones* free from infection with *A. astaci* (see Article 9.2.5.).

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

- 1) none of the *susceptible species* referred to in Article 9.2.2. 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 9.2.2. are present and the following conditions have been met:
  - a) there has been no occurrence of infection with *A. astaci* for at least the last 25 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 ten years;

OR

- 3) the infection with *A. astaci* 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 five years; and
  - b) *targeted surveillance*, as described in Chapter 1.4., has been in place for at least the last five years without detection of *A. astaci*;

OR

- 4) it previously made a *self-declaration of freedom* from infection with *A. astaci* and subsequently lost its free status due to the detection of *A. astaci* but the following conditions have been met:
  - a) on detection of *A. astaci*, the affected area was declared an *infected zone* and a *protection zone* was established; and
  - b) infected populations within the *infected zone* have been killed and disposed of by means that minimise the likelihood of further transmission of *A. astaci*, 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 infection with *A. astaci*; and
  - d) *targeted surveillance*, as described in Chapter 1.4., has been in place for at least the last five years without detection of *A. astaci*.

In the meantime, part or all of the unaffected area may be declared a free *zone* provided that such a part meets the conditions in point 3 of Article 9.2.5.

Article 9.2.5.

**Zone or compartment free from infection with *A. astaci***

If a *zone* or *compartment* extends over more than one country, it can only be declared a *zone* or *compartment* free from infection with *A. astaci* 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 *A. astaci* may be declared free by the *Competent Authority* of the country concerned if:

- 1) none of the *susceptible species* referred to in Article 9.2.2. 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 9.2.2. are present in the *zone* or *compartment* and the following conditions have been met:
  - a) there has not been any occurrence of infection with *A. astaci* for at least the last 25 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 10 years;

OR

- 3) the infection with *A. astaci* 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 five 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 five years without detection of *A. astaci*;

OR

- 4) it previously made a *self-declaration of freedom* for a *zone* from infection with *A. astaci* and subsequently lost its free status due to the detection of *A. astaci* in the *zone* but the following conditions have been met:
  - a) on detection of *A. astaci*, the affected area was declared an *infected zone* and a *protection zone* was established; and
  - b) infected populations within the *infected zone* have been killed and disposed of by means that minimise the likelihood of further transmission of *A. astaci*, 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 infection with *A. astaci*; and
  - d) *targeted surveillance*, as described in Chapter 1.4., has been in place for at least the last five years without detection of *A. astaci*.

#### Article 9.2.6.

##### **Maintenance of free status**

A country, *zone* or *compartment* that is declared free from infection with *A. astaci* following the provisions of points 1 or 2 of Articles 9.2.4. or 9.2.5. (as relevant) may maintain its status as free from infection with *A. astaci* provided that *basic biosecurity conditions* are continuously maintained.

A country, *zone* or *compartment* that is declared free from infection with *A. astaci* following the provisions of point 3 of Articles 9.2.4. or 9.2.5. (as relevant) may discontinue *targeted surveillance* and maintain its free status provided that conditions that are conducive to clinical expression of infection with *A. astaci*, as described in the corresponding chapter of the *Aquatic Manual*, 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 *A. astaci*, *targeted surveillance* should be continued at a level determined by the *Aquatic Animal Health Service* on the basis of the likelihood of *infection*.

#### Article 9.2.7.

##### **Importation of aquatic animals or aquatic animal products from a country, zone or compartment declared free from infection with *A. astaci***

When importing *aquatic animals* of a species referred to in Article 9.2.2., or *aquatic animal products* derived thereof, from a country, *zone* or *compartment* declared free from infection with *A. astaci*, 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*. The *international aquatic animal health certificate* should state that, on the basis of the procedures described in Articles 9.2.4. or 9.2.5. (as applicable) and 9.2.6., the place of production of the *aquatic animals* or *aquatic animal products* is a country, *zone* or *compartment* declared free from infection with *A. astaci*.

The *international aquatic animal health certificate* should be in accordance with the Model Certificate in Chapter 5.11.

This article does not apply to *aquatic animal products* listed in point 1 of Article 9.2.3.

Article 9.2.8.

**Importation of aquatic animals for aquaculture from a country, zone or compartment not declared free from infection with *A. astaci***

When importing, for *aquaculture*, *aquatic animals* of a species referred to in Article 9.2.2. from a country, *zone* or *compartment* not declared free from infection with *A. astaci*, the *Competent Authority* of the *importing country* should assess the *risk* in accordance with Chapter 2.1. and consider the *risk* mitigation measures in points 1 and 2 below.

- 1) If the intention is to grow out and harvest the imported *aquatic animals*, consider applying the following:
  - a) the direct delivery to and lifelong holding of the imported *aquatic animals* in a *quarantine* facility; and
  - b) before leaving *quarantine* (either in the original facility or following biosecure transport to another *quarantine* facility) the *aquatic animals* are killed and processed into one or more of the *aquatic animal products* referred to in point 1 of Article 9.2.3. or other products authorised by the *Competent Authority*; and
  - c) the treatment of all transport water, equipment, effluent and waste materials to inactivate *A. astaci* in accordance with Chapters 4.3., 4.7. and 5.5.
- 2) If the intention is to establish a new stock for *aquaculture*, consider applying the following.
  - a) In the *exporting country*:
    - i) identify potential source populations and evaluate their *aquatic animal* health records;
    - ii) test source populations in accordance with Chapter 1.4. and select a founder population (F-0) of *aquatic animals* with a high health status for infection with *A. astaci*.
  - b) In the *importing country*:
    - i) import the F-0 population into a *quarantine* facility;
    - ii) test the F-0 population for *A. astaci* in accordance with Chapter 1.4. to determine their suitability as broodstock;
    - iii) produce a first generation (F-1) population in *quarantine*;
    - iv) culture the F-1 population in *quarantine* for a duration sufficient for, and under conditions that are conducive to, the clinical expression of infection with *A. astaci*, and sample and test for *A. astaci* in accordance with Chapter 1.4. of the *Aquatic Code* and Chapter 2.2.2. of the *Aquatic Manual*;
    - v) if *A. astaci* is not detected in the F-1 population, it may be defined as free from infection with *A. astaci* and may be released from *quarantine*;
    - vi) if *A. astaci* is detected in the F-1 population, those animals should not be released from *quarantine* and should be killed and disposed of in a biosecure manner in accordance with Chapter 4.7.

Article 9.2.9.

**Importation of aquatic animals or aquatic animal products for processing for human consumption from a country, zone or compartment not declared free from infection with *A. astaci***

When importing, for processing for human consumption, *aquatic animals* of a species referred to in Article 9.2.2., or *aquatic animal products* derived thereof, from a country, *zone* or *compartment* not declared free from infection with *A. astaci*, 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 9.2.3. or in point 1 of Article 9.2.12., or other products authorised by the *Competent Authority*; and
- 2) all water (including ice), equipment, *containers* and packaging material used in transport are treated to ensure inactivation of *A. astaci* or disposed of in a biosecure manner in accordance with Chapters 4.3., 4.7. and 5.5.; and
- 3) all effluent and waste materials are treated to ensure inactivation of *A. astaci* or disposed of in a biosecure manner in accordance with Chapters 4.3. and 4.7.

For these *aquatic animals* or *aquatic animal products* Member Countries may wish to consider introducing internal measures to address the *risks* associated with the *aquatic animal* or *aquatic animal product* being used for any purpose other than for human consumption.

Article 9.2.10.

**Importation of aquatic animals or aquatic animal products intended for uses other than human consumption, including animal feed and agricultural, industrial, research or pharmaceutical use, from a country, zone or compartment not declared free from infection with *A. astaci***

When importing *aquatic animals* of a species referred to in Article 9.2.2., or *aquatic animal products* derived thereof, intended for uses other than human consumption, including animal *feed* and agricultural, industrial, research or pharmaceutical use, from a country, *zone* or *compartment* not declared free from infection with *A. astaci*, the *Competent Authority* of the *importing country* should require that:

- 1) the consignment is delivered directly to, and held in, *quarantine* or containment facilities until processed into one of the products referred to in point 1 of Article 9.2.3. or other products authorised by the *Competent Authority*; and
- 2) all water (including ice), equipment, *containers* and packaging material used in transport are treated to ensure inactivation of *A. astaci* or disposed of in a biosecure manner in accordance with Chapters 4.3., 4.7. and 5.5.; and
- 3) all effluent and waste materials are treated to ensure inactivation of *A. astaci* or disposed of in a biosecure manner in accordance with Chapters 4.3. and 4.7.

Article 9.2.11.

**Importation of aquatic animals intended for use in laboratories or zoos from a country, zone or compartment not declared free from infection with *A. astaci***

When importing, for use in laboratories or zoos, *aquatic animals* of a species referred to in Article 9.2.2. from a country, *zone* or *compartment* not declared free from infection with *A. astaci*, the *Competent Authority* of the *importing country* should ensure:

- 1) the consignment is delivered directly to, and held in, *quarantine* facilities authorised by the *Competent Authority*; and
- 2) all water (including ice), equipment, *containers* and packaging material used in transport are treated to ensure inactivation of *A. astaci* or disposed of in a biosecure manner in accordance with Chapters 4.3., 4.7. and 5.5.; and
- 3) all effluent and waste materials from the *quarantine* facilities in the laboratories or zoos are treated to ensure inactivation of *A. astaci* or disposed of in a biosecure manner in accordance with Chapters 4.3. and 4.7.; and
- 4) the carcasses are disposed of in accordance with Chapter 4.7.

Article 9.2.12.

**Importation (or transit) of aquatic animal products for retail trade for human consumption regardless of the infection with *A. astaci* status of the exporting country, zone or compartment**

- 1) *Competent Authorities* should not require any conditions related to *A. astaci* regardless of the infection with *A. astaci* status of the *exporting country*, *zone* or *compartment*, when authorising the importation (or transit) of the following *aquatic animal products* that have been prepared and packaged for retail trade and comply with Article 5.4.2.:
  - no *aquatic animal products* listed.
- 2) When importing *aquatic animal products*, other than those referred to in point 1 above, derived from a species referred to in Article 9.2.2. from a country, *zone* or *compartment* not declared free from infection with *A. astaci*, the *Competent Authority* of the *importing country* should assess the *risk* and apply appropriate *risk* mitigation measures.

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NB: FIRST ADOPTED IN 1995; MOST RECENT UPDATE ADOPTED IN 2019.

